

# REPORT DOCUMENTATION PAGE

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13. ABSTRACT (Maximum 200 words) The numbers of environmental laws and regulations have continued to grow in the United States, making compliance with these regulations increasingly difficult. Environmental assessments became a way to determine operational consistency and compliance with current environmental regulations. The U.S. Fish and Wildlife Service (FWS) has adopted an environmental compliance program that identifies compliance problems before they are cited as violations by the U.S. Environmental Protection Agency (USEPA). Beginning in 1993, the U.S. Army Construction Engineering Research Laboratory, in cooperation with FWS, began research on this handbook. The concept was to combine the Code of Federal Regulations with good management practices and risk-management issues into a series of checklists that show legal requirements and specific items of operations to review. This handbook is continually updated to address new environmental compliance laws and regulations.				
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## FOREWORD

This is USACERL Special Report 96/60. **The report is based on information available in the Federal Register as of July 2000.** This research was performed for the Fish and Wildlife Service (FWS), Environmental and Facility Compliance (EFC), under order number IA1448-60181-99-H576, Environmental Compliance Audit Handbook Updates, dated September 1999. The FWS technical monitor was Charlie Fasano, FWS-EFC.

The research was performed by the Environmental Processes Branch (CN-E) of the U.S. Army Construction Engineering Research Laboratory (USACERL). The Principal Investigator was Tina M. Hurt (CN-E). Ilker Adiguzel is Branch Chief, CN-E and John Bandy is Division Chief, CN.

Dr. William Goran is Acting Director of USACERL.



## NOTICE

This handbook is intended as general guidance for personnel at FWS facilities. It is not, nor is it intended to be, a complete treatise on environmental laws and regulations. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information contained herein. For any specific questions about, or interpretations of, the legal references herein, consult appropriate counsel.

U.S. ECAH

September 2000

Select portions of each section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to Federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in July 2000, for example [Added July 2000].

Summary of Changes Since September 1999	
Checklist item/Section	Action Taken
<b>Main Introduction</b>	
Handbook Objectives and Organization	Revised September 2000
Common Findings of Noncompliance at FWS Facilities	Revised September 2000
Appendix A	Revised September 2000
Pollution Control Records	Revised September 2000
Appendix B	Revised September 2000
Definitions	Revised September 2000
Appendix C	Revised September 2000
Appendix E	Revised September 2000
Appendix G	Revised September 2000
FWS Regional Environmental Compliance Coordinators (EEC)	Revised September 2000
<b>Air Emissions Management</b>	
Main Introduction	B. Federal Legislation <ul style="list-style-type: none"> <li>• Added paragraph description for EO 13148, <i>Greening the Government Through Leadership in Environmental Management</i>, July 2000</li> </ul> E. Key Compliance Definitions <ul style="list-style-type: none"> <li>• Added definitions related to solvent cleaning machine and air emissions from POTW, April 2000.</li> </ul>
AE.116.2 and AE.116.3	Revised April 2000, concerns cold solvent-cleaning machines.
AE.117.1 through AE.117.10	Revised April 2000, concerns vapor cleaning machines.
AE.117.11 and AE.117.12	Added April 2000, concerns vapor cleaning machines.

<b>Summary of Changes Since September 1999</b>	
<b>Checklist item/Section</b>	<b>Action Taken</b>
Appendix 1-1a	Revised July 2000, concerns threshold quantities for risk management plans.
<b>Drinking Water Management</b>	
Main Introduction	<p>C. State and Local Regulations</p> <ul style="list-style-type: none"> <li>• Revised safe drinking water responsibility, July 2000.</li> </ul> <p>E. Key Compliance Definitions</p> <ul style="list-style-type: none"> <li>• Reviewed and Added drinking water definitions and descriptions, July 2000.</li> <li>• Added definitions for <i>Tier 1 Public Notice</i>, <i>Tier 2 Public Notice</i>, and <i>Tier 3 Public Notice</i>, September 2000.</li> </ul>
DW.1.5.	Reviewed July 2000
PUBLIC WATER SYSTEMS	Added NOTE: PWS definition, July 2000.
DW.10 through DW.80	Reviewed drinking water checklist items, July 2000.
DW.10.1 and DW.10.2	Revised general public water systems, July 2000
DW.10.3	Reviewed July 2000
DW.20.5	Revised September 2000, concerns public water systems with a surface water source not providing filtration.
DW.20.6	Revised September 2000, concerns public water systems with a groundwater source not providing filtration.
DW.20.7	Revised September 2000, concerns public water systems providing filtration.
DW.20.9	Revised July 2000, concerns public water systems providing filtration.
DW.20.11	Revised July 2000, concerns public water systems providing disinfection.
DW.25.1	Revised July 2000, concerns use of pipe, solder, or flux that contains lead in public water systems.
DW.30.1 through DW.30.3	Revised September 2000, concerns recordkeeping, public notification, and noncompliance notifications at public water systems.
DW.30.5	Revised September 2000, concerns reporting requirements for Subpart H systems providing filtration.
DW.30.6 through DW.30.10	Added July 2000, concerns notification requirements for public water systems.
DW.35.1	Reviewed July 2000
DW.35.2 and DW.35.3	Revised July 2000, concerns community water systems standards.
COMMUNITY WATER SYSTEMS DW.40 Monitoring/Sampling	Reviewed July 2000
DW.40.1	Revised April 2000, concerns inorganic contaminant monitoring for community water systems.

## Summary of Changes Since September 1999

Checklist item/Section	Action Taken
DW.40.7 and DW.40.8	Revised April 2000, concerns unregulated contaminant monitoring for community water systems.
DW.40.10	Deleted July 2000
DW.40.11 and DW.40.12	Revised July 2000, concerns community water systems monitoring.
DW.40.14 through DW.40.17	Revised July 2000, concerns community water systems reporting and monitoring.
DW.45.2	Revised September 2000, concerns consumer confidence reports for community water systems.
DW.45.3 and DW.45.4	Added July 2000, concerns content requirements for reports for community water systems.
DW.50.1	Revised April 2000, concerns educating users of community water systems about lead in the water.
DW.50.6	Revised July 2000, concerns monitoring for lead and copper in community water systems.
DW.50.8 and DW.50.9	Reviewed and Revised July 2000, concerns monitoring and reporting requirements after failure of lead and copper levels at community water systems.
DW.60.1	Reviewed July 2000 and Revised September 2000, concerns nitrate levels for noncommunity water systems.
NONCOMMUNITY WATER SYSTEMS DW.65 Monitoring/Sampling	Reviewed July 2000
DW.65.2	Deleted July 2000
DW.75.1	Added September 2000, concerns noncommunity water systems notification and reporting.
NONTRANSIENT/NONCOMMUNITY WATER SYSTEMS DW.76 Standards  DW.77 Monitoring/Sampling	Reviewed July 2000
DW.77.1	Revised July 2000, concerns inorganic contaminant monitoring for nontransient noncommunity water systems.
DW.77.7 and DW.77.8	Revised April 2000, concerns unregulated contaminant monitoring for nontransient noncommunity water systems.
DW.77.9	Revised September 2000, concerns monitoring requirements for NTNC water systems.
DW.78.1	Revised July 2000, concerns educating users of nontransient, noncommunity water systems about lead in the water.
DW.78.6	Revised July 2000, concerns monitoring for lead and copper in nontransient, noncommunity water systems.
DW.78.8 and DW.78.9	Revised July 2000, concerns monitoring and reporting requirements after failure of lead and copper levels at nontransient, noncommunity water systems.

## Summary of Changes Since September 1999

Checklist item/Section	Action Taken
DW.80.1	Revised September 2000, concerns nitrate and nitrite monitoring at transient noncommunity water systems.
DW.80.2.	Revised July 2000, concerns transient noncommunity water systems MRDLs.
Appendices 2-1 through 2-13	Reviewed July 2000
Appendix 2-5	Revised April 2000, concerns unregulated contaminant monitoring.
Appendix 2-5a	Added April 2000, concerns unregulated contaminant monitoring reporting.
Appendix 2-6a	Revised September 2000, concern Consumer Confidence Report contents.
Appendix 2-7	Revised July 2000, concerns monitoring and sampling parameters for lead and copper.
Appendix 2-8	Revised July 2000, concerns monitoring of water quality parameters.
Appendix 2-12	Added September 2000, NPDWR Violations and Other Situations Requiring Public Notice
Appendix 2-13	Added September 2000, Standard Health Effects Language for Public Notification.
<b>Hazardous Materials Management</b>	
Main Introduction	<p>B. Federal Legislation</p> <ul style="list-style-type: none"> <li>• Added paragraph description for EO 13148, <i>Greening the Government Through Leadership in Environmental Management</i>, July 2000</li> <li>• Deleted paragraph description for EO 12856, <i>Federal Compliance With Right-to-Know Laws and Pollution Prevention Requirements</i>, July 2000.</li> </ul> <p>F. Key Compliance Definitions</p> <ul style="list-style-type: none"> <li>• Added definitions July 2000</li> </ul>
HM.10.4	Added September 2000, concerns formaldehyde.
HM.10.5	Added September 2000, concerns formaldehyde.
HM.12.1	Deleted September 2000, Moved and Revised as GR.12.1.
HM.12.2	Moved and Revised September 2000 as GR.25.4.
HM.12.3	Moved September 2000 to GR.12.2.
HM.12.4	Moved and Revised September 2000 as GR.12.3.
HM.20.5	Revised September 2000, concerns reportable quantities.
HM.25.1	Revised September 2000, concerns emergency planning.
HM.30.1	Revised September 2000, concerns community right-to-know.
HM.30.2	Revised September 2000, concerns inventory requirements.
HM.30.3	Revised September 2000, concerns toxic chemical reporting.
Appendix 3-1	Revised September 2000, <i>Consolidated List of Chemicals Covered in Title III of SARA</i> .

## Summary of Changes Since September 1999

Checklist item/Section	Action Taken
Appendix 3-1a	Added September 2000, concerns lower threshold levels for toxic chemicals of special concern.
<b>Hazardous Waste Management</b>	
Main Introduction	<p>A. Applicability</p> <ul style="list-style-type: none"> <li>• Added section pertaining to EPA Review, July 2000</li> </ul> <p>B. Federal Legislation</p> <ul style="list-style-type: none"> <li>• RCRA Section Revised July 2000.</li> </ul> <p>E. Key Compliance Definitions</p> <ul style="list-style-type: none"> <li>• Revised, reviewed, and added definitions related to the amendment of the Universal Waste Rules, April 2000 and July 2000.</li> </ul>
HW.10.1	Revised April 2000, concerns characterization of hazardous waste.
HW.45.2	Revised April 2000, concerns SQG notifications to TSDF.
HW.110.2	Revised April 2000, concerns LQG notifications to TSDF.
HW.125.4	Added July 2000, concerns imported universal waste.
SMALL QUANTITY UNIVERSAL WASTE HANDLERS	Reviewed July 2000.
HW.130.2 and HW.130.4	Revised July 2000, concerns universal waste batteries and thermostats.
HW.130.6	Added April 2000, concerns universal waste lamps.
HW.140.1	Revised April 2000, concerns universal waste labeling.
HW.150.1 and HW.150.2	Revised July 2000, concerns offsite shipments of universal waste and shipments to foreign destinations.
LARGE QUANTITY UNIVERSAL WASTE HANDLERS	Reviewed July 2000
HW.155.2	Revised July 2000, concerns large quantity handlers accumulation time limits.
HW.155.4	Added July 2000, concerns large quantity handlers managing imported universal waste.
HW.160.1	Revised July 2000, concerns universal waste batteries.
HW.160.6	Added April 2000, concerns universal waste lamps.
HW.165.1	Revised July 2000, concerns training.
HW.170.1	Revised April 2000, concerns universal waste labeling.
HW.180.1 through HW.180.3	Revised July 2000, concerns offsite shipments of universal waste and shipments to foreign destinations.
UNIVERSAL WASTE TRANSPORTERS	Reviewed July 2000.
HW.185.6	Revised July 2000, concerns transporters of universal waste to a foreign destination.
HW.185.7	Added July 2000, concerns transporters managing imported universal waste.
HW.190.1	Revised April 2000 and Reviewed July 2000, concerns universal waste destination facilities.

<b>Summary of Changes Since September 1999</b>	
<b>Checklist item/Section</b>	<b>Action Taken</b>
HW.190.2 and HW.190.3	Revised April 2000, concerns destination facilities and offsite shipments and tracking shipments.
HW.190.4	Added July 2000, concerns managing imported universal waste.
<b>Pesticides Management</b>	
Main Introduction	Added July 2000, definitions for <i>Excepted Agricultural Applications for Handler Standards</i> and <i>Excepted Agricultural Applications for Worker Standards</i>
PM.20.1 and PM.20.2	Deleted July 2000 in order to facilitate the expansion of the topic Agricultural Pesticides.
PM.20.3 through PM.20.32	Added July 2000, concerns the application of agricultural pesticides.
<b>POL Management</b>	
Main Introduction	<p>A. Applicability</p> <ul style="list-style-type: none"> <li>• Added July 2000, EPA Review.</li> </ul> <p>E. Key Compliance Definitions</p> <ul style="list-style-type: none"> <li>• Reviewed, Revised, and Added Used Oil definitions. (See note at the top of the chart), July 2000 and September 2000.</li> <li>• Added definitions for <i>Animal Fat, Non-petroleum Oil, Petroleum Oil, Vegetable Oil</i>, September 2000.</li> </ul>
PO.20.2	Revised July 2000, concerns drainage of rainwater from diked areas.
PO.60 through PO.90	Reviewed, Revised, Deleted, and Added July 2000, Used Oil requirements. (See note at the top of the chart).
Appendix 6-1	Reviewed July 2000.
<b>Solid Waste Management</b>	
Main Introduction	<p>A. Applicability</p> <ul style="list-style-type: none"> <li>• Added July 2000, EPA Review.</li> </ul> <p>B. Federal Legislation</p> <ul style="list-style-type: none"> <li>• Reference to EO 12873 deleted, October 1999</li> <li>• Added April 2000, EO 13101.</li> </ul> <p>D. State/Local Regulations</p> <ul style="list-style-type: none"> <li>• Revised and Reviewed July 2000.</li> </ul> <p>E. Key Compliance Requirements</p> <ul style="list-style-type: none"> <li>• Reviewed July 2000.</li> </ul> <p>F. Key Compliance Definitions</p> <ul style="list-style-type: none"> <li>• Reviewed, Revised, and Added solid waste definitions, July 2000.</li> </ul>

## Summary of Changes Since September 1999

Checklist item/Section	Action Taken
SW.10 STORAGE/COLLECTION OF SOLID WASTE	Reviewed July 2000.  NOTE Added April 2000.
SW.25 RECYCLING	Reviewed July 2000.
SW.10.1 through SW.10.6	Revised April 2000, concerns storage, collection, transportation of solid waste.
SW.25.1 through SW.25.3	Moved September 2000 to Chapter 11, Greening.
SW.35.1	Reviewed July 2000.
Appendices 7-1	Reviewed July 2000.
<b>Special Pollutants Management</b>	
SP.5.3	Revised April 2000, concerns PCB M <sub>L</sub> markings.
SP.15.8	Revised April 2000, concerns PCB transformer inspections.
SP.25.5	Added April 2000, concerns contaminated surfaces.
SP.30.1	Revised April 2000, concerns the use of PCBs in research.
SP.45.8 through SP.45.10 and SP.45.13 and SP.45.14	Revised April 2000, concerns specific PCB disposal requirements.
SP.105.1	Revised April 2000, concerns LBP activity certification.
SP.105.2	Added April 2000, concerns LBP training programs.
SP.110.1	Revised April 2000, concerns LBP inspections.
Appendix 8-3	Revised April 2000, PCB Waste Disposal Guidance
<b>Underground Storage Tank (UST) Management</b>	
Main Introduction	<p>A. Applicability</p> <ul style="list-style-type: none"> <li>• Added July 2000, EPA Review.</li> </ul> <p>E. Key Compliance Requirements</p> <ul style="list-style-type: none"> <li>• Revised July 2000, concerns leak detection.</li> <li>• Revised July 2000, concerns hazardous substance USTs, corrosion protection, and closure.</li> </ul> <p>F. Key Compliance Definitions</p> <ul style="list-style-type: none"> <li>• Reviewed, Added, and Revised July 2000 UST definitions.</li> </ul>
Records to Review	Revised July 2000.
UT.10.1	Revised July 2000, concerns concerns UST standards.
UT.15.1 through UT.15.5	Revised July 2000, concerns new or upgraded USTs.
UT.25.1 and UT.25.2	Reviewed and Revised July 2000, concerns UST filling.
UT.30.1	Revised July 2000, concerns UST corrosion protection.
UT.35.1	Revised July 2000, concerns UST repairs.
UT.40.1, UT.45.1, UT.50.1 and UT.50.2	Revised July 2000, concerns release detection.
UT.60.1 through UT.60.7	Reviewed and Revised July 2000, concerns UST releases.
UT.70.1 and UT.70.2	Reviewed and Revised July 2000, concerns UST documentation.



## Summary of Changes Since September 1999

Checklist item/Section	Action Taken
UT.75.1 through UT.75.7	Revised July 2000, concerns changes in service or closure of USTs.
UT.75.8	Added July 2000, concerns corrective action plans.
<b>Wastewater Management</b>	
Main Introduction	E. Key Compliance Definitions <ul style="list-style-type: none"> <li>• Revised and Added definitions April 2000, July 2000, and September 2000.</li> </ul>
WW.10.1	Revised September 2000, concerns point source permits.
WW.10.2	Deleted April 2000, see WW.10.7.
WW.10.3	Revised September 2000, concerns stormwater permits.
WW.10.7 through WW.10.11	Added September 2000, concerns management and operational requirements for NPDES permit holders; requirements for manufacturing, commercial, mining, and silvicultural dischargers; POTW management; reporting requirements for municipal separate storm sewer systems; and the transfer of permits.
WW.105.1 through WW.105.7	Revised April 2000, concerns the land application of sewage sludge.
WW.105.8	Added April 2000, concerns the land application of sewage sludge.
WW.110.1 through WW.110.5	Deleted April 2000, concerns the land application of sewage sludge: vectors and pathogens.
WW.115.1, 115.3, WW.115.5	Revised April 2000, concerns the land application of sewage sludge: notification.
WW.115.2 and WW.115.4	Deleted April 2000, see WW.115.1.
WW.120.1 and WW.120.2	Revised April 2000, concerns the land application of sewage sludge: monitoring.
WW.125.1 through WW.125.3, and WW.125.7 and WW.125.8	Revised April 2000, concerns the land application of sewage sludge: recordkeeping and reporting.
WW.125.4 through WW.125.6	Deleted April 2000, see WW.125.1 and WW.125.3.
WW.135.1 through WW.135.3 and WW.135.5 through WW.135.7	Revised April 2000, concerns the surface disposal of sewage sludge.
WW.135.4	Deleted April 2000, see WW.135.3.
WW.135.8	Added April 2000, concerns the surface disposal of sewage sludge.
WW.140.1 through WW.140.6	Revised April 2000, concerns the surface disposal of sewage sludge: monitoring and documentation.
WW.150.1, WW.150.3, WW.150.4, WW.150.6 through WW.150.8	Revised April 2000, concerns sludge incineration.
WW.150.2	Deleted April 2000, see WW.150.1
WW.150.5	Deleted April 2000, see WW.150.4.
Appendix 10-0 and 10-0a	Added April 2000, concerns defining parameters related to stormwater permits.

### Summary of Changes Since September 1999

Checklist item/Section	Action Taken
Appendix 10-2	Revised April 2000, concerns use or disposal of sewage sludge.
Appendices 10-3 through 10-7	Deleted April 2000, incorporated in Appendix 10-2.
Appendix 10-8	Revised April 2000, concerns lead concentration in sewage sludge fed to an incinerator.
Appendices 10-10	Added April 2000, concerns frequency of monitoring for incinerators.
<b>Greening</b>	
Entire Chapter	Added September 2000.



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## ENVIRONMENTAL COMPLIANCE AUDIT PROGRAM (ECAP)

The FWS Environmental Compliance Audit Program (ECAP) U.S. Environmental Compliance Audit Handbook (ECAH) was developed by USACERL to simplify the environmental evaluation process for the Fish and Wildlife Service (FWS). The objectives of the ECAP program are to:

1. Establish FWS-wide standards for environmental compliance audits as a means of ensuring the Service's observance of all applicable environmental laws and regulations. 560 FW 1 further details the FWS policy of complying with applicable pollution control standards at its facilities.
2. Through the auditing process (560 FW 4) and the use of ECAH, assure Regional Directors and environmental program managers that environmental programs are effectively addressing environmental problems that could:
  - a. impact FWS mission effectiveness
  - b. jeopardize the health of Service personnel or the general public
  - c. significantly degrade the environment
  - d. expose the FWS to avoidable financial liabilities as a result of noncompliance with environmental requirements
  - e. erode public confidence in the FWS and the U.S. Department of the Interior (DOI)
  - f. expose individuals to civil and criminal liability
3. Secure information through auditing processes addressed in the handbook, that will permit FWS Managers to address existing environmental problems and to anticipate and prevent future environmental problems
4. Provide data, through the auditing process, for use in identifying, validating, prioritizing, programming, and budgeting environmental requirements.

Any change to or suggestion for improving this guidance handbook should be forwarded to Billy Umsted at the FWS, Environmental and Facility Compliance (EFC), 7333 W. Jefferson Avenue, Suite 375, Lakewood, CO 80235.

The information in this handbook applies to all FWS facilities in the United States and its territories. **The contents of this handbook are up-to-date as of 5 July 2000.**

## TYPES OF ENVIRONMENTAL AUDITS

The Service's auditing program is covered in 560 FW 7, dated 31 December 1996. Audits will be of three types:

1. **Formal Audits** - Formal audits require a site visit to the facility to be evaluated. Onsite, the auditors will conduct record searches, interviews, and a site survey to determine the compliance status of the facility. These audits would be scheduled by the Region and performed by a team of 2 - 3 individuals consisting of EFC or Regional Office personnel or a combination of both. The formal audit process can be divided into three phases:
  - a. The Previsit Environmental Compliance Questionnaire (ECQ) (see Appendix A), is sent to the Facility Managers by the Regional Compliance Coordinator (RCC), approximately 60 days prior to the audit.
  - b. Site audit done using ECAH and the appropriate state supplement.
  - c. Written report to document all findings.
  
2. **Informal Audit** - The informal audit will be performed by the Facility Manager through the use of the informal audit questionnaire (see Appendix B), ECAH, the appropriate state supplement, and with the support of other Regional personnel as necessary. The facility personnel will physically walk through their facility and address each applicable item in the questionnaire. This is a detailed visual inspection of each building and associated facilities. All findings will be documented and submitted to the RCC. The RCC will determine if a report or memorandum is necessary to document the informal audit.
  
3. **Self Audit** - It is recommended that each Facility Manager, through the use of the Self Audit Questionnaire, annually inspect their facility to determine compliance with environmental laws and regulations. The questionnaire can be obtained from the RCC. The purpose of a self audit is to provide a quick evaluation of environmental issues during the period between formal and informal audits. Self audits are not recommended to be conducted during the same year when formal or informal audits are held.

## ENVIRONMENTAL COMPLIANCE AUDIT PROCESS

The environmental audit process can be divided into three distinct phases:

1. Pre-audit activities.
2. Site audit activities.
3. Post-audit activities.

This handbook incorporates the first two phases of the program management process.

**Pre-Audit Activities** - Six key activities should be completed before an audit team begins the audit activities.

1. **Environmental Compliance Questionnaire (ECQ).** The purpose of the ECQ is to collect information that will familiarize the audit team with the facility and its operations so that they are able to review the applicable regulations and prepare a detailed audit schedule. The ECQ is an essential part of pre-audit activities and is also an excellent tool for ensuring that internal audit team members are starting from the same base of information. Appendix A contains a sample ECQ. Once the activities that occur at a facility are known, Appendix C (see page 59), a logic table, can be used to identify potentially applicable handbook sections. Appendix C indicates the major environmental operations and activities at a typical FWS facility and the handbook sections within which they are addressed. As shown, many activities and operations cause environmental impacts in more than one area, and are therefore addressed in more than one section.
2. **Define Audit Scope and Team Responsibilities.** The facility or FWS may wish to place special emphasis on certain sections or to review additional areas not covered in the handbook. These goals must be stated clearly so the audit can be planned properly. Additionally, the duration of the audit, appointment of team members, and handling of tenants and off-facility sites must be addressed. Finally, responsibilities for each of the sections must be assigned to team members as appropriate.
3. **Develop Audit Schedule.** The team should develop a detailed schedule that includes the activities planned for each day.
4. **Review Relevant Regulations.** Once the audit scope and responsibilities are known, the auditors should undertake a thorough review of relevant Federal, state, and local regulations affecting the facility. The applicable environmental regulations must be determined before the audit begins. If not already available, checklist items for state and local requirements must be added to the checklists in the audit handbook.
5. **Review Audit Sections.** Each auditor should know the regulatory requirements, schedule, and be familiar with the audit checklists that will be used.
6. **Availability of Records.** In addition to completing the ECQ, the Facility Manager should assemble all pollution control records listed in Appendix A prior to the arrival of the team. A list of possible records is at the end of the ECQ. Appendix D (see page 63) provides some useful information as to how environmental records should be organized.

**Site Audit Activities** - Onsite, the auditors will conduct an inbrief (Appendix E, see page 67) for a sample inbrief handout), record searches, interviews, and site surveys to identify potential problems or deficiencies at the facility. Operations are compared with environmental standards and any



deficiencies are written up as findings. The data collected should be sufficient, reliable, and relevant to provide a sound basis for audit findings and recommendations. A Finding Summary form is available to assist auditors in compiling needed information during an audit. A Finding Summary form should be completed for each finding during the audit. These forms comprise the basis of the audit report. The format and content for audit reports will be in a separate supplement. Appendix F (see page 69) shows a completed sample Finding Summary form.

The **CONDITION** is a factual statement describing the status of the process, permit, or situation under investigation, and the **CRITERIA** is the environmental standard (Federal, state, local, Required Practice, Management Practice) the facility is being measured against. A condition may be positive if the facility is going above and beyond the requirements. **SUGGESTED SOLUTIONS** is an optional entry, and may include easily identifiable solutions to the deficiency. **COMMENTS** may include any corrective actions already taken or scheduled, or any other appropriate information pertaining to the finding. Once completed, a finding has to be ranked for the severity of noncompliance. The ranking options are explained on the back of the Finding Summary.

For example, a team member assigned to evaluate the facilities' hazardous waste management program, which is a small quantity generator (SQG), visited the facility's hazardous waste storage area. The auditor noticed some drums were damaged and took a count of the total number of drums and the number of damaged drums to get an accurate description for the finding. Five of the eight drums were rusted and bulging. Checklist item HW.30.2 in the FWS handbook states that 40 CFR 262.34(d)(2) and 265.171 requires containers to not be leaking, bulging, rusting, or badly dented. The damaged drums were behind the others, so the site manager may have overlooked them during the regular inspections. The site manager immediately put overpack drums on order. The auditor is now ready to fill out a Finding Summary (see Appendix F).

A finding may be positive or negative. A positive finding is for a job, activity, or person who has gone above and beyond the regulatory and required practices (RP) requirements for protecting the environment. A negative finding is when there is an issue of noncompliance or a poor management practice (MP).

Each finding is then assigned a maximum of two universal codes and a maximum of two section codes from the list in Appendix F. These codes enable the EFC to better identify the root causes of noncompliance.

A copy of the Finding Summary forms is to be left at the facility by the audit team. See Appendix G for a sample tally sheet which can be used in the facility outbrief.

**Post-Audit Activities** - For the FWS, 560 FW 7.3(c) details the requirements for post-audit activities. The audit team is required to produce a Draft Findings Report within 30 days after the completion of the audit in accordance with the following format:

1. Section One. This contains an executive summary identifying where the audit was done, what was audited, and a list of the members of the audit team. It also provides background information on the site.
2. Section Two. Program Objectives.
3. Section Three. This section contains the details on the regulatory and RP compliance status of the audited facility. An explanation of the finding ratings is provided along with a compliance summary table indicating the number of findings in each category. This section must contain all environmental and safety-related regulatory findings associated with each audit.

4. Section Four. This section contains the MP findings that were identified during the audit. These findings are rated either positive or negative and are recorded in a summary table. This section must contain all environmental and safety-related MP findings associated with each audit.
5. Section Five. This section contains the required practice (RP) findings that are associated with DOI and FWS policies. These findings are rated as either positive or negative and are recorded in a summary table. This section must contain all environmental and safety-related RP findings associated with each audit.

The Draft Findings Report is distributed to the facility by the audit team leader and a copy is maintained by the EFC. Upon receipt of the report, the facility has 60 days to develop a corrective action to each of the regulatory, MP, and RP findings. A reply can be as simple as "situation corrected on 30 June 1994," "work order request submitted on 30 May 1994 for construction of cement pad," or "plan is scheduled to undergo review and updating in August of 1994." Regulatory compliance and RP findings must be corrected. MP findings are recommended to be corrected. If the facility has received a significant finding, this finding will be forwarded to the Directorate level.

Upon receipt of corrective action replies, the audit team leader will issue a final report within 30 days. If a reply/corrective action is not appropriate to the finding, the audit team leader will contact the facility and resolve the issue. The team leader will send one copy of the final report to the Region, the facility, and the EFC.

The Regional Compliance Coordinator will participate in the tracking of progress on corrective actions. The facility will submit a report to the Region 12 mo after the finalization of the report detailing the status of the corrective actions. Reporting will continue every 12 mo until corrective actions are completed and all updates will be forwarded to the EFC.

The EFC will maintain a national database of audits and their subsequent findings for all Service facilities.



## HANDBOOK OBJECTIVES AND ORGANIZATION

If not controlled or properly managed, FWS facilities engaged in many operations and activities can cause environmental impacts on public health and the environment. Many of these activities and operations are regulated by Federal, state, and local regulations, and by FWS regulations/policies.

The contents of this handbook are based on Federal environmental regulations and are to be supplemented locally using state and local environmental regulations that are applicable to FWS facilities and are more stringent than Federal regulations included in this handbook. The handbook is updated annually. This handbook, with state and local supplements, is intended to serve as the primary tool in conducting an environmental compliance audit. Specifically, this handbook:

1. Complies with applicable Federal regulations and FWS and DOI environmental directives applicable to FWS operations and activities.
2. Synthesizes environmental regulations, management practices (MPs), required practices (RP), and risk management issues into consistent and easy to use checklists.
3. Serves as an aid in the compliance process and management action development phases of the ECAP.

After a review of these activities at FWS facilities, it is apparent that there are major categories of environmental compliance into which most environmental regulations and FWS activities could be grouped. This handbook is divided into 11 sections that correspond to major compliance categories [Revised September 2000].

1. Air Emissions Management
2. Drinking Water Quality
3. Hazardous Materials Management
4. Hazardous Waste Management
5. Pesticide Management
6. Petroleum, Oil, and Lubricant (POL) Management
7. Solid Waste Management
8. Special Pollutants Management (includes asbestos, PCBs, radon, and noise)
9. Underground Storage Tank (UST) Management
10. Wastewater Management
11. Greening [Added September 2000].

Each section is organized in the following format:

- A. Applicability.** This provides guidance on the major activities and operations included in the section and a brief description of the major application.
- B. Federal Legislation.** This identifies, in summary form, the key legislative issues associated with the compliance area in the Federal law.
- C. State/Local Regulations.** This identifies the typical compliance areas normally addressed in state and local regulations. This section does not present individual state/local requirements. An audit of state and local requirements must be conducted and supplemental questions prepared to cover these requirements. The handbook is prepared in loose leaf form to allow state and local requirements to be easily inserted. Checklist item 3 in each section lists issues that are typically regulated by the states.
- D. FWS/DOI Manuals.** This identifies the FWS and DOI manuals which have been finalized as of the publication of this handbook.

- E. Key Compliance Requirements.** This summarizes the significant compliance requirements associated with the regulations included in the checklist. It is a brief abstract summarizing the overall thrust of the regulations for that particular compliance category.
- F. Key Compliance Definitions.** This presents definitions taken from the Code of Federal Regulations (CFRs) for those key terms associated with each compliance category.
- G. Compliance Audit Checklists.** The final portion of each section contains checklists and tables and figures composed of requirements or guidelines that serve as indicators to point out possible compliance problems, as well as practices, conditions, and situations that could indicate potential problems. They are intended to focus attention on the key compliance questions and issues that should be investigated. Instructions are provided to direct the auditor to the appropriate action, references, or activity that corresponds to the specific requirement or guide.

## USING THE CHECKLISTS

Understanding the layout and structure of the checklists facilitates their use during the audit.

- **Explanation of Layout/Content.** The checklist portion of each protocol section is divided into two columns. The first of these is a statement of a requirement. This may be a strict regulatory requirement, in which case the citation is given, or it may be a requirement that is considered to be a management practice to maintain compliance, but which is not specifically mandated by regulation. The second column gives instructions to help conduct the compliance audit. These instructions are intended to be specific action items that should be accomplished by the investigator. Some of the instructions may be a simple documentation check taking a few minutes; others may require physical inspection of a facility. In an effort to simplify using the checklists, measurements which were not converted into an English equivalent in the regulations have been converted by USACERL. These conversions done by USACERL appear in [ ]'s while conversions provided in the regulations appear in ( )'s.

The audit procedures are designed as an aid and should not be considered exhaustive. Use of the checklist requires the auditor's judgment to play a role in determining the focus and extent of further investigation. A review of appropriate state regulations should be conducted so additional review questions that reflect the substantive requirements of state/local regulations pertinent to individual facilities can be included in the checklists.

- **Checklist Item Numbering.** The checklist items are each assigned a three part number. The first part of the number indicates the section the checklist item is in (i.e., SW for Solid Waste Management, HW for Hazardous Waste Management). The second part of the number indicates the topic within the section. This second part increases by increments of five to provide for room to add new topics to the checklist. The third number indicates the placement of the checklist item within the topic. These checklist item numbers will be kept static from this year to next year. New checklist items will be added at the end of topics or inserted as entirely new topics.
- **Standard Checklist Items.** The first four checklist items in each section of the handbook are standardized. The first item requires a review of any previous audit documents. The second item requires a review of state and local regulations as well as indicating issues commonly regulated at the state and local level. The third item provides a place for auditors to write up findings that are based on regulations that have been promulgated since the publication of the handbook or regulations not included in the handbook. The fourth item suggests that copies of notices of violation (NOVs) be forwarded to the Region and the EFC.



## COMMON FINDINGS OF NONCOMPLIANCE AT FWS FACILITIES

Some of the most common compliance problems at FWS hatcheries and refuges are listed below. Associated checklist item numbers are listed in parenthesis.

### A. HATCHERIES

#### **Air Quality**

- Repairing chlorofluorocarbon (CFC)-containing apparatus' without recycling/ reclaiming. (A.90.1, A.90.3 through A.90.6, and A.90.10)
- Old refrigerators sitting in the boneyard, increasing the possibility of venting CFCs. (A.90.4 or A.90.11)
- Missing signs from fuel dispensing pumps. (A.55.2 and A.55.3)

#### **Drinking Water Management**

- Incomplete or no records of testing of drinking water. (Depends on the classification of the system)
- Drinking water systems not testing according to FWS required standards. (DW.1.6 and DW.1.7)

#### **Hazardous Materials Management**

- No written Hazard Communication Program. (HM.10.1)
- Incomplete file of Material Safety Data Sheets (MSDSs). (HM.1.9)
- No list of hazardous materials or copies of MSDSs submitted to the local emergency response committee or local fire department. (HM.1.7, HM.25.1, HM.30.1)
- Unlabeled drums and containers. (HM.1.10)
- Lack of correct signs on storage areas. (Depends on type of storage)
- Storage of flammable/combustible materials in cabinets or storage buildings that do not meet regulatory criteria. (HM.35.4, HM.35.6, and HM.35.7)
- Compressed gas cylinders stored without being chained or restrained in another manner. (HM.45.1)

#### **Hazardous Waste Management**

- Unusable hazardous materials stored with usable hazardous materials when they need to be disposed of as hazardous waste. (HW.10.1)
- Containers of unknown substances stored at facilities. (HW.10.1)
- No records of the disposal of potentially hazardous waste in a nonhazardous manner (i.e., recycling batteries). (HW.10.2)
- Not following the requirements for a conditionally exempt small quantity generator (CESQG) as mandated by the FWS and Federal regulations. (Category HW.15)

#### **Pesticide Management**

- Equipment used for the application of pesticides not clearly identified as such. (PM.48.7)



### **Petroleum, Oil, and Lubricant (POL) Management**

- No Spill Prevention Control and Countermeasure (SPCC) plan. (PO.5.1)
- No spill equipment or containment to prevent petroleum product spills from entering waterways. (PO.15.1)
- No secondary containment for aboveground storage tanks (ASTs) of greater than 660 gal. (PO.40.1)

### **Solid Waste Management**

- Trash piled up in an unauthorized dump site. (SW.10.1 and SW.35.1)
- No recycling program. (SW.25.1, Moved to GR.25.1 [September 2000])
- Abandoned landfill sites. (SW.1.2 and SW.40.1)

### **Special Pollutants Management**

- Personnel repairing water pipes that are asbestos-containing without accredited training. (SP.65.1 and SP.65.2)
- Lack of labels on remaining asbestos. (SP.55.2 and SP.55.3)
- The facility is unaware as to whether or not transformers at the site are polychlorinated biphenyl (PCB)-contaminated. (SP.15.1)

### **Underground Storage Tank (UST) Management**

- No records of release detection monitoring. (UT.40.1)
- No drawings, schematics, or information as to the type of UST at the facility. (UT.70.1 and UT.70.2)
- USTs abandoned without correct closure or no documentation of state approved closure. (UT.1.2 and category UT.75)

### **Wastewater Management**

- No National or State Pollution Discharge Elimination System (NPDES/SPDES) Permit for discharge of wastewater. (WW.10.1)

### **Greening [Added September 2000]**

- New Chapter – no common findings established.

## B. REFUGES

### Air Quality

- Repairing chlorofluorocarbon (CFC)-containing apparatus' without recycling/ reclaiming. (A.90.1, A.90.3 through A.90.6, and A.90.10)
- Old refrigerators sitting in the boneyard, increasing the possibility of venting CFCs. (A.90.4 or A.90.11)
- Missing signs from fuel dispensing pumps. (A.55.2 and A.55.3)
- Operation of small incinerators without state approval. (A.1.2)

### Drinking Water Management

- Incomplete or no records of testing of drinking water. (depends on classification of system)
- Drinking water systems not testing according to FWS required standards. (DW.1.6 and DW.1.7)
- Old wells not capped or closed. (DW.1.2)

### Hazardous Materials Management

- No written Hazard Communication Program. (HM.10.1)
- Incomplete file of Material Safety Data Sheets (MSDSs). (HM.1.9)
- No list of hazardous materials or copies of MSDSs submitted to the local emergency response committee or local fire department. (HM.1.7, HM.25.1, and HM.30.1)
- Unlabeled drums and containers. (HM.1.10)
- Lack of correct signs on storage areas.(Depends on type of storage)
- Storage of flammable/combustible materials in cabinets or storage buildings that do not meet regulatory criteria. (HM.35.4, HM.35.6, and HM.35.7)
- Compressed gas cylinders stored without being chained or restrained in another manner. (HM.45.1)

### Hazardous Waste Management

- Unusable hazardous materials stored with usable hazardous materials when they need to be disposed of as hazardous waste. (HW.10.1)
- Containers of unknown substances stored at facilities. (HW.10.1)
- No records of the disposal of potentially hazardous waste in a nonhazardous manner (i.e., recycling batteries). (HW.10.2)
- Not following the requirements for a conditionally exempt small quantity generator (CESQG) as mandated by the FWS and Federal regulations. (Category HW.15)

### Pesticide Management

- Equipment used for the application of pesticides is not clearly marked as such. (PM.48.7)
- No records are kept of the applications of pesticides. (PM.45.1 and PM.45.2)

### **Petroleum, Oil, and Lubricant Management**

- No SPCC plan. (PO.5.1)
- No spill equipment or containment to prevent petroleum product spills from entering waterways. (PO.15.1)
- No secondary containment for aboveground storage tanks (ASTs) of greater than 660 gal. (PO.40.1)
- Unlabeled or mislabeled containers of used oil. (PO.65.3)

### **Solid Waste Management**

- Trash piled up in an unauthorized dump site. (SW.10.1 and SW.35.1)
- No recycling program. (SW.25.1, Moved to GR.25.1 [September 2000])
- Abandoned landfill sites. (SW.1.2 and SW.40.1)

### **Special Pollutants Management**

- Lack of labels on remaining asbestos. (SP.55.2 and SP.55.3)
- The facility is unaware as to whether or not transformers at the site are polychlorinated biphenyl (PCB)-contaminated. (SP.15.1)

### **Underground Storage Tank (UST) Management**

- No records of release detection monitoring. (UT.40.1)
- No drawings, schematics, or information as to the type of UST at the facility (UT.70.1 and UT.70.2)
- USTs abandoned without correct closure or no documentation of state approved closure. (UT.1.2 and category UT.75)

### **Wastewater Management**

- No NPDES/SPDES permit. (WW.10.1)

### **Greening [Added September 2000]**

- New Chapter – no common findings established.

Appendix A

Environmental Compliance Questionnaire

Please fill out this questionnaire as completely as possible. It will provide background information necessary to plan and conduct an environmental compliance audit at the facility.

Name of Facility: \_\_\_\_\_

Location/State: \_\_\_\_\_

County: \_\_\_\_\_

Region: \_\_\_\_\_

Organizational Code: \_\_\_\_\_

Point of Contact: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Date Completed: \_\_\_\_\_



QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
<b>Section 1. Air Emissions Management</b>		
1. Does the facility operate a fuel burner (central steam plant, or hot water steam boiler) or incinerator?	_____	A.1.1, A.1.5, A.1.6
If YES for boilers, how large and what fuel is used?		
Size _____ _____ _____	Fuel _____ _____ _____	
If Yes for Incinerators, which of the following is burned (circle the applicable option):		
trash plant waste animal carcasses other _____		
2. Does the facility dispense, store, or transfer gasoline?  Type: _____	_____	A.55.1 through A.55.6
3. Is the facility located in an area with an oxygenated gasoline program?	_____	A.55.3
4. Does the facility use any degreasers (solvent baths)?  What is used in the degreasers? _____	_____	A.116.1 through A.118.7
5. Does the facility procure/use CFCs or halon substances?	_____	A.85.1 through A.85.4
6. Does the facility repair any units containing refrigerant (circle the applicable options):  motor vehicles air conditioners refrigerators freezers window air conditioning units building (central) refrigeration	_____	A.90.1 through A.90.19

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
<b>Section 2. Drinking Water Management</b>		
1. Does the facility purchase its drinking water from a nearby municipality's water system?	_____	None applicable
2. Does the facility treat and distribute its own drinking water? If yes, answer the following:	_____	DW.1.1 through DW.30.3
How many people (family members included) reside year round on the refuge? _____		
Does the Visitor's Center have its own drinking water fountain? _____		
How many visitors does the facility average in a year? _____		
What is typically the largest number of visitors in any one month? _____		
3. Does the facility draw water from its own well?	_____	DW.1.2
4. Has the facility been classified by the state as a community water system?	_____	DW.35.1 through DW.50.10
5. Has the facility been classified by the state as a noncommunity water system?	_____	DW.60.1 through DW.65.2
6. Has the facility been classified by the state as a nontransient noncommunity, water system?	_____	DW.70.1 through DW.78.10
7. Has the facility been classified by the state as a transient noncommunity water system?	_____	DW.80.1
8. Is the facility located near a sole source aquifer?	_____	DW.95.1
<b>Section 3. Hazardous Materials Management</b>		
1. Have there been any spills or releases of hazardous substances such as paints, solvents, acids, fuel, and/or pesticides at the facility?	_____	HM.20.1 through HM.20.5
2. Does the facility stored onsite more than 1379 gal of fuel at any one time or 1350 lb of formalin?	_____	HM.30.1 through HM.30.3

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
3. Does the facility operate a laboratory?	_____	HM.15.1 through HM.15.4
4. Does the facility store any flammable/combustible liquids (i.e., paints, solvents) in lockers, storage sheds, tanks, or industrial areas? (circle applicable types of storage)	_____	HM.25.1 through HM.42.5
5. Does the facility store compressed gases?	_____	HM.45.1 and HM.45.2
6. Does the facility store acids?	_____	HM.47.1
7. Does the facility transport or offer for transport hazardous materials?	_____	HM.50.1 through HM.50.12
<b>Section 4. Hazardous Waste Management</b>		
1. Is the facility a producer/generator/creator of hazardous waste?  Examples include waste paint, waste solvent, waste paint thinner, waste acids, and waste batteries.	_____	HW.1.1 through HW.10.4
2. Does the facility generate less than 100 kg [220.46 lb, approx. 26.5 gal] of hazardous waste in 1 mo?	_____	HW.15.1 through HW.15.11
3. Does the facility generate more than 100 kg [220.46 lb] but less than 1000 kg [2204.62 lb, approx. 265 gal] of hazardous waste in 1 mo?	_____	HW.20.1 through HW.45.5
4. Does the facility generate more than 1000 kg [2204.62 lb] of hazardous waste in 1 mo?	_____	HW.55.1 through HW.110.6
The following are hazardous wastes that may typically be found at a facility (check if used at this facility and indicate amount typically used in a year):		
solvents * _____	liquid paint or spray paint booth air filters _____	
paint stripper or thinner _____	pesticides, insecticides, herbicides _____	
ammunition, explosives _____	battery acid/unserviceable batteries _____	
Fluorescent light bulbs _____		
printing ink, ink solvents, and cleaners _____		
absorbent material and soil contaminated with hazardous waste _____		



QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
used oil (some states consider this a hazardous waste) _____		
other _____		
other _____		
other _____		
*This includes trichloroethane, methylene chloride, tetrachloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, chlorinated fluorocarbons, toluene, MEK, mineral spirits, xylene.		
5. Does the facility transport hazardous waste in its own vehicles?	_____	HW.120.1 through HW.120.5
6. Is the facility considered a treatment, storage, and disposal facility? If yes, indicate if it is:	_____	See the regulations
Interim Status _____ Permitted (Part B Permit) _____		
<b>Section 5. Pesticide Management</b>		
1. Do facility personnel engage in the application of pesticides?	_____	PM.1.2, PM.5.1 through PM.45.2
2. Does the facility use contractor personnel to apply pesticides?	_____	PM.1.2, PM.5.1 through PM.45.2
3. Does the facility store, mix, or formulate pesticides?	_____	PM.47.1 through PM.48.8
4. Does the facility store/use pesticides that are labeled DANGER, WARNING, POISON, or with the skull and crossbones?	_____	PM.48.1 through PM.48.8
5. Does the facility apply agricultural pesticides?	_____	PM.20.1 through PM.20.2
6. Does the facility dispose of pesticides?	_____	PM.55.1 through PM.55.6
<b>Section 6. Petroleum, Oil, and Lubricant (POL) Management</b>		
1. Does the facility have a Spill Prevention Control and Counter measure (SPCC) plan?	_____	PO.5.1 through PO.5.8
2. Have there been any discharges or spills of petroleum products at the facility of more than 5 gal to the environment?	_____	PO.15.1 and PO.15.2

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
3. Does the facility have any aboveground POL storage tanks that are over 660 gal?	_____	PO.40.1 through PO.40.4
4. Does the facility have any pipelines?	_____	PO.45.1 through PO.45.11
5. Does the facility generate/store used oil?	_____	PO.60.1 through PO.90.1
<b>Section 7. Solid Waste Management [Revised September 2000]</b>		
1. Does the facility collect or store solid waste onsite?	_____	SW.10.1 through SW.10.8
2. Does the facility contract out the collection of its solid waste?	_____	SW.1.5
3. Does the facility have any dumps/landfills/land disposal sites on the property?	_____	SW.30.1 through SW.40.1
Active? _____ Closed? _____ If closed, when was it closed? _____		
If known, what was typically placed in the dump/landfill/disposal site? _____ _____		
4. Is the facility planning or operating a new landfill?	_____	SW.45.1 through SW.45.3
5. Does the facility handle or dispose of medical waste such as needles, bloody wastes, pathogenic waste, etc.?	_____	SW.110.1 through SW.110.6
<b>Section 8. Special Pollutants Management</b>		
1. Does the facility have any equipment that contains PCBs?	_____	SP.5.1 through SP.45.11
If YES, indicate which of the following are at the facility:		
transformers capacitors circuit breakers electromagnets switches heat transfer systems voltage regulators		

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
reclosers light ballast other _____		
2. Does the facility use PCBs in research?	_____	SP.30.1
3. Has the facility had a PCB spill?	_____	SP.20.1 through SP.20.3
4. Does the facility store PCBs or PCB items?	_____	SP.35.1 through SP.35.6
5. Does the facility transport or dispose of items containing PCBs?	_____	SP.40.1 through SP.45.11
6. Has the facility surveyed its buildings for asbestos?	_____	SP.55.1 through SP.55.4
Which sites tested positive for asbestos? _____		
7. Does the facility have personnel that remove asbestos, perform maintenance work on asbestos covered structures, pipes, or insulation?	_____	SP.65.1 and SP.65.2
8. Have structures at the facility which contain asbestos under gone, or are currently undergoing, renovation, stripping, or demolition?	_____	SP.60.1 through SP.60.9
9. Do facility personnel transport or dispose of asbestos-containing waste?	_____	SP.70.1 through SP.70.4
10. Has the facility conducted a radon survey of its buildings?	_____	SP.80.1 through SP.80.3
11. Has the facility received any noise complaints?	_____	SP.85.1
Section 9. Underground Storage Tank (UST) Management		
1. Does the facility have any USTs in the process of being replaced or upgraded?	_____	UT.10.1
How many and what are their contents? _____		
2. Has the facility installed any new USTs (after May 1986)?	_____	UT.15.1 through UT.15.5

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
How many and what are their contents? _____ _____		
3. Have any of the facility USTs been closed?	_____	UT.75.1 through UT.75.7
How many? _____		
4. Have any of the facility USTs undergone a change in service?	_____	UT.75.1 through UT.75.7
How many? _____		
Section 10. Wastewater Management		
1. Does the facility have any potential sources discharging to the environment? (circle the applicable)	_____	WW.10.1 through WW.10.6
wastewater treatment plant oil/water separator washrack septic system		
2. Does the facility have a NPDES/SPDES permit?	_____	WW.10.1 through WW.10.6
3. Does the facility discharge to a local wastewater treatment plant? (circle the appropriate sources of discharge)	_____	WW.25.1 through WW.25.9
domestic sewage wastewater treatment plant oil/water separator washrack		
4. Has the facility had any pretreatment standards imposed upon it by the local wastewater treatment plant?	_____	WW.1.2
5. Does the facility operate a feedlot?	_____	WW.45.1
6. Does the facility do land application of sludge?	_____	WW.105.1 through WW.125.8
7. Does the facility do land disposal of sludge?	_____	WW.135.1 through WW.140.6

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
8. Does the facility incinerate sludge?	_____	WW.150.1 through WW.150.8
<b>Section 11. Greening [Added September 2000]</b>		
1. Does the facility have an Environmental Management Plan?		GR.12.1
2. Does the facility have a recycling program?		GR.25.1
3. Does the facility purchase products containing recovered materials?		GR.12.3
<b>Re-Refined Oils and Lubricants:</b>		
1. Approximately how many vehicles are serviced for replacement or addition of oils and lubricants by the shop or facility annually?		GR.12.3      and GR.12.4
_____		
2. What type of vehicles are serviced (e.g., sedans, trucks, heavy equipment, aircraft)? _____		
3. What is the estimated annual consumption of oil and lubricants in the shop?		
Motor Oil: _____ gallons		
Other Lubricants: _____ gallons		
4. Approximately how frequently is the engine oil replaced in facility vehicles? Every _____ miles or _____ months.		
5. Does the facility or shop test the oil to determine if replacement is needed?      Yes _____      No _____		
6. Does the shop or facility use re-refined oil for replacement engine lubricating (motor) oils?      Yes _____      No _____		
7. Does the shop or facility use re-refined oil for replacement hydraulic fluids?      Yes _____      No _____		
8. Does the shop or facility use re-refined oil for replacement gear oils?      Yes _____      No _____		
9. Do shop containers containing unused oils and other lubricants indicate these products are re-refined?		
Oil:      Yes _____      No _____		
Hydraulic Fluids:      Yes _____      No _____		
Gear Oils:      Yes _____      No _____		
10. Is the shop or facility aware of the RCRA/CPG requirement to use re-refined oils or lubricants?      Yes _____      No _____		

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)															
<p>11. If the facility is aware of the requirement to use re-refined oils and lubricants and still does not use these products, what is their explanation for not using these products?</p>																	
<p>Re-refined is too expensive _____  Specifications don't allow use of re-refined _____  Re-refined is not available _____  Other _____</p>																	
<p>12. Where does the shop or facility purchase oil and other lubricants?</p>																	
<p>Commercial bulk vendor (e.g., Safety Kleen)? Yes ___ No ___  Govt. vendor (e.g., DLA, GSA) ? Yes ___ No ___  Local commercial vendor (e.g., auto supply)? Yes ___ No ___  Other? _____</p>																	
<p>13. Do shop or facility personnel purchase oil or other lubricants for use in the shop using a government charge card or account at a commercial vendor (e.g., K-Mart or Sears) outside of the facility?</p>																	
<p>Always _____ Occasionally _____ Never _____</p>																	
<p>14. What is the fate of used oil removed from the facility's vehicles?</p>																	
<p>Disposed of as hazardous waste? _____  Picked up by vendor for recycling? _____  Reused at facility for heating fuel? _____  Other? _____</p>																	
<p>15. If the oil is collected or sent out to a recycler, is it ultimately used for energy recovery or is it re-refined?</p>																	
<p>Energy Recovery _____ Re-Refined _____ Don't Know _____</p>																	
<b>Retread Tires</b>																	
<p>1. Approximately how many tires does the shop or facility replace annually? _____</p>																	
<p>2. What type(s) of replacement tires does the shop or facility use?</p>																	
<table> <tr> <td>Bus</td> <td>Yes _____</td> <td>No _____</td> </tr> <tr> <td>Heavy Truck</td> <td>Yes _____</td> <td>No _____</td> </tr> <tr> <td>Pickup Truck</td> <td>Yes _____</td> <td>No _____</td> </tr> <tr> <td>Passenger Vehicle</td> <td>Yes _____</td> <td>No _____</td> </tr> <tr> <td>Other</td> <td>Yes _____</td> <td>No _____</td> </tr> </table>	Bus	Yes _____	No _____	Heavy Truck	Yes _____	No _____	Pickup Truck	Yes _____	No _____	Passenger Vehicle	Yes _____	No _____	Other	Yes _____	No _____		
Bus	Yes _____	No _____															
Heavy Truck	Yes _____	No _____															
Pickup Truck	Yes _____	No _____															
Passenger Vehicle	Yes _____	No _____															
Other	Yes _____	No _____															

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
3. Does the shop or facility install retread tires on facility vehicles onsite? Yes _____ No _____		
If Yes, for which types of tires?		
Bus _____		
Heavy Truck _____		
Pickup Truck _____		
Passenger Vehicle _____		
Other _____		
4. Does the shop or facility have in place an agreement or contract with a "retreader" to retread the facility's tires? Yes _____ No _____		
5. Does the shop or facility use an outside service or vendor for tire replacement? Yes _____ No _____		
If yes, does the vendor offer retread tires? Yes _____ No _____ Don't Know _____		
If yes, does the facility purchase these tires? Yes _____ No _____		
6. Is the shop or facility aware of the RCRA/CPG requirement to use retread tires? Yes _____ No _____		
7. If the shop or facility is aware of the requirement to do so yet still does not use retread tires, what is the explanation for not using these products?		
Retread tires are "unsafe" _____		
Specifications don't allow use of retread tires _____		
Retread tires are not available to the facility _____		
Other _____		
8. Does the shop or facility purchase retread tires for use in the shop using a government charge card or account at a commercial vendor (e.g., Bandag, Goodyear, or other retreader) outside of the facility? Always _____ Occasionally _____ Never _____		
9. How are used tires disposed of by the facility?		
_____		
<b>Engine Coolant</b>		
1. Approximately how many vehicles are services for replacement or addition of coolants by the shop or facility annually? _____		

QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
2. What type of vehicles are serviced? (e.g., sedans, trucks, heavy equipment) _____		
3. Where does the shop or facility purchase coolant (reclaimed or virgin)?		
Commercial bulk vendor (e.g., Safety Kleen) Yes _____ No _____		
Govt vendor (e.g., DLA, GSA) Yes _____ No _____		
Local commercial vendor (e.g., auto supply) Yes _____ No _____		
Other _____		
4. Approximately how frequently is the coolant changed in each vehicle? Every _____ miles <i>or</i> _____ months?		
5. What is the estimated average annual usage of coolant in this shop or facility? _____ gallons		
6. Does the shop or facility use reclaimed engine coolant?		
Yes _____ No _____		
7. Does the shop or facility have in place an agreement or contract with a vendor to reclaim the facility's used coolant?		
Yes _____ No _____		
8. Does the shop or facility have onsite, a reclamation device to reclaim used coolant? Yes _____ No _____		
9. Is the shop aware of the RCRA/CPG requirement to use reclaimed coolant? Yes _____ No _____		
If the facility is aware of the requirement to do so yes still does not use reclaimed coolant, what is the explanation for not using this product?		
Reclaimed coolant is not effective _____		
Specifications don't allow use of reclaimed coolant _____		
Reclaimed coolant is not available to the facility _____		
Coolant reclamation devices are too costly _____		
Other _____		



QUESTION/DESCRIPTION	RESPONSE	REFERENCE (If YES, see checklist items:)
<p>10. Does the facility purchase coolant (reclaimed or virgin) for use in the shop using a government charge card at a commercial vendor (e.g., K-Mart or Sears) outside of the facility? Yes ____ No ____</p> <p>11. How does the facility dispose of coolant that is removed from facility vehicles (and is not reclaimed)? _____</p>		

Signature of individual completing this form: \_\_\_\_\_

Date completed: \_\_\_\_\_

## Pollution Control Records

ATTENTION: The following records should be available for review by the audit team either prior to the audit or immediately upon arrival at the facility. (NOTE: Not all facilities will have, or are even required to have, all of the following.)

### General

1. Copies of NOV's, USEPA audit reports, or waivers issued to the facility in any of these areas and a site map.

### Air Emissions Management

1. Air emissions inventory.
2. All air related permits.
3. A list of steam generating units and boilers and their size, fuel used, and locations.
4. Emissions monitoring and operating records
5. Air emissions episode plan
6. CFC training certification

### Drinking Water Management

1. Copies of drinking water test results.
2. Copies of reports to the state.
3. Permit.
4. Operator certification.
5. UIC records.
6. Sanitary surveys.

### Hazardous Materials Management [Revised September 2000]

1. A list of hazardous material storage/use areas.
2. MSDSs.
3. Documentation of personnel training.
4. The Hazard Communication Plan.
5. A copy of any reports of spills.
6. Copies of the Tier I or Tier II reports.
7. Chemical Hygiene Plan.

### Hazardous Waste Management

1. The Hazardous Waste Management Plan.
2. A list of hazardous wastes generated at the facility.
3. USEPA identification number.
4. Manifests and exception reports.
5. Any permits.
6. The biennial report.
7. Personnel training records.

## **Pesticides Management**

1. The Pesticide Management Plan.
2. A list of pesticide storage sites.
3. Application records.
4. MSDSs for pesticides.
5. Personnel Certifications for applicators.
6. Contracts for pesticide application.

## **POL Management**

1. The SPCC plan.
2. Used oil disposal records.
3. Spill training documentation.

## **Solid Waste Management [Revised September 2000]**

1. Any contracts with waste haulers.
2. All documentation pertaining to landfill operation or closure.
3. Records on groundwater sampling resulting from monitoring wells.

## **Special Pollutants Management**

1. The PCB inventory.
2. The PCB annual report.
3. The results of the asbestos survey.
4. Asbestos training records.
5. Noise complaints.
6. Radon survey results.
7. Inspection, storage, and maintenance records for PCBs and asbestos containing materials.

## **Underground Storage Tank (USTs) Management**

1. Closure documentation/approval.
2. A list of all USTs and their locations.
3. Release detection documentation.
4. Integrity test results.
5. Site contamination reports after tank removals.

## **Wastewater Management**

1. All NPDES/SPDES permits and associated maintenance and monitoring records.
2. Maps of the storm, sanitary, and industrial sewers.
3. A copy of pretreatment standards imposed on the facility.
4. Test results on sludge disposed of through land application, land disposal, or incineration.
5. Locations of holding ponds, sedimentation pits, and open/end of-pipe discharge points.

Greening [Added September 2000]

1. Environmental Management Plan.



## Appendix B

### Informal Audits

In Fiscal Year (FY) 1995 the U.S. Fish and Wildlife Service implemented an environmental compliance auditing program to assist its field stations in ensuring compliance with Federal, State, and local environmental regulations. Due to their size and/or configurations, some of our facilities do not warrant a formal onsite audit by a team of three individuals and the associated travel costs. Therefore, the EFC in cooperation with the Regional Environmental Coordinators has developed a process that is called an "informal audit".

The informal audit, or self audit, will be performed by station personnel through the use of the attached questionnaire. Prior to the informal audit, the station, Regional Environmental Coordinator, and perhaps a person from the EFC will participate in an inbrief conference call to explain and answer any questions associated with the process.

After the station personnel have physically walked through their facilities and addressed each item in the questionnaire, an outbrief will be accomplished through a conference call with the Regional Environmental Coordinator, and perhaps a person from the EFC.

This is not intended to be a desk audit. A detailed visual inspection of each building and associated facilities must be performed to meet the intent of the informal auditing process. The intent is to accomplish this process in a 30-day period.



**Informal Compliance Audit**

Please fill out this questionnaire as completely as possible.

Name of Facility: \_\_\_\_\_

Location/State: \_\_\_\_\_

County: \_\_\_\_\_

Region: \_\_\_\_\_

Organizational Code: \_\_\_\_\_

Point of Contact: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Date Completed: \_\_\_\_\_

Has the facility received a Notice of Violation (NOV) or Notice of Noncompliance (NON) from the state, county, or local government for any environmental issue? \_\_\_\_\_

If yes, what was done as a result of the NOV/NON? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





**QUESTION/DESCRIPTION**

**Section 1. Air Emissions Management**

1. Does the facility operate a fuel burner (central steam plant, or hot water steam boiler) or incinerator?

If YES for boilers, how large and what fuel is used?

Size	Fuel	Emissions tested for:
_____	_____	_____
_____	_____	_____
_____	_____	_____

If Yes for Incinerators, which of the following is burned (circle the applicable option):

- trash
- plant waste
- animal carcasses
- other \_\_\_\_\_

2. Has emissions testing been done on any of the facilities air emission sources other than boilers?  
\_\_\_\_\_

3. Are there labels on the facility fuel dispensing pumps indicating what type of fuel is being dispensed?  
\_\_\_\_\_

4. Does the facility have any air quality permits? \_\_\_\_\_

5. Does the facility do any open burning? \_\_\_\_\_

6. Does the facility use any degreasers (solvent baths)? What cleaner is used in the degreasers?  
\_\_\_\_\_

Where is used solvent disposed of and how often? \_\_\_\_\_

Is the degreaser lid left open when not in use? \_\_\_\_\_

7. Does the facility repair any units containing refrigerant? (circle the applicable options)

- motor vehicles air conditioners
- refrigerators
- freezers
- window air conditioning units
- building (central) refrigeration

8. Have the facility vehicles undergone vehicle emissions testing? \_\_\_\_\_

**QUESTION/DESCRIPTION**

**Section 2. Drinking Water Management**

1. Does the facility purchase its drinking water from a nearby municipality's water system? \_\_\_\_\_
2. Does the facility treat and distribute its own drinking water? If yes, answer the following:  
How many people (family members included) reside year round on the station? \_\_\_\_\_  
How many service connections (i.e. water distribution lines into buildings) are at the facility? \_\_\_\_\_  
Does the Visitor's Center/Picnic area have its own drinking water fountain? \_\_\_\_\_  
How many visitors does the facility average in a year? \_\_\_\_\_  
What is typically the largest number of visitors in any one month? \_\_\_\_\_
3. Does the facility have any drinking water wells in use? How many? \_\_\_\_\_  
Are the wells all drawing from the same aquifer? \_\_\_\_\_
4. Has the drinking water at the facility been tested for anything (e.g. lead, bacteria, arsenic etc.)? If yes, what and when?

Substance	Last tested (date)	Future Planned Testing (date)
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

5. Has the drinking water ever failed a bacteriological test (coliform)? \_\_\_\_\_  
If yes, what did the facility do in response? \_\_\_\_\_  
\_\_\_\_\_
6. Does the facility have any abandoned water wells? \_\_\_\_\_  
Have these wells been officially closed? \_\_\_\_\_  
Is there paperwork documenting the closure? \_\_\_\_\_

**Section 3. Hazardous Materials Management**

**(Please attach a copy of the hazardous materials inventory for the facility to this questionnaire.)**

1. Does the facility have a written hazard communication plan that is tailored to their facility? (For laboratories this is called a Chemical Hygiene Plan). \_\_\_\_\_

**QUESTION/DESCRIPTION**

2. Does the facility conduct onsite (at the facility) training for the storage/handling of hazardous substance? This includes actions such as how to read a Material Safety Data Sheet (MSDS), safety equipment needed for chemical use. \_\_\_\_\_

Is the training done in the following circumstances:

For each new employees/volunteers? \_\_\_\_\_

Whenever a new chemical/hazardous substance is brought onsite for use? \_\_\_\_\_

Whenever a new process/procedure is implemented? \_\_\_\_\_

3. Does the facility have MSDSs for all the hazardous substances stored onsite? \_\_\_\_\_

Where are they kept? \_\_\_\_\_

Who has access to the MSDSs? \_\_\_\_\_

4. Do all containers have hazard class labels identifying contents and hazard warnings (i.e. flammable, corrosive, explosive etc.)? \_\_\_\_\_

5. Does the facility store onsite more than 1379 gal of fuel at any one time or 1350 lb (148 gal at 30% solution) of formalin? \_\_\_\_\_

If yes, have these amounts been reported to the local fire department or State emergency response commission? \_\_\_\_\_

6. Does the facility operate a laboratory? If yes, describe the activities that occur

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

7. Does the facility store any flammable/combustible liquids (i.e., paints, solvents) in (circle applicable types of storage):

lockers,  
storage sheds,  
storage rooms within buildings  
tanks?  
outdoor storage  
other, where? \_\_\_\_\_

8. Does the facility store incompatible materials together in such a way that if there is a spill a reaction will occur? (See Appendix A) \_\_\_\_\_

Examples include storing flammable substances with corrosive substances.

9. Does the facility store any compressed gases? If yes, what? \_\_\_\_\_

\_\_\_\_\_

Where are the full and empty cylinders stored? \_\_\_\_\_

**QUESTION/DESCRIPTION**

Are the full and empty cylinders stored together? How far apart? \_\_\_\_\_

Are the cylinders containing gas chained to a solid structure (a wall, a post, etc.?) \_\_\_\_\_

**Section 4. Hazardous Waste Management**

1. Is the facility a producer/generator/creator of hazardous waste? \_\_\_\_\_

Examples include waste paint, waste solvent, waste paint thinner, waste pesticides, waste acids, waste batteries, expired hazardous materials. (NOTE: Solvents include trichloroethane, methylene chloride, tetrachloroethylene, carbon tetrachloride, chlorinated fluorocarbons, toluene, MEK, mineral spirits, and xylene)

List the types of waste being generated and typically how much is disposed of in 1 yr.:

Waste	Quantity	Where did it go?
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

2. Does the facility have outdated hazardous materials that should be discarded as hazardous waste? What types?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Does the facility recycle or send to a recycler/waste burner any of its hazardous waste? If yes, does the facility have documentation of the amounts being sent? \_\_\_\_\_

\_\_\_\_\_

4. Does the facility generate/dispose of less than 100 kg [220.46 lb, approx. 26.5 gal] of hazardous waste in 1 mo? \_\_\_\_\_

5. Does the facility generate/dispose of more than 100 kg [220.46 lb] but less than 1000 kg [2204.62 lb, approx. 265 gal] of hazardous waste in 1 mo? \_\_\_\_\_

6. Does the facility generate/dispose of more than 1000 kg [2204.62 lb] of hazardous waste in 1 mo?

\_\_\_\_\_

7. Has anyone at the facility been designated as responsible for the hazardous waste activities at the site? Who? \_\_\_\_\_

8. Has anyone at the facility had training on how to handle hazardous waste? \_\_\_\_\_

\_\_\_\_\_

**QUESTION/DESCRIPTION**

9. What do the labels on containers of hazardous waste awaiting disposal say? \_\_\_\_\_  
\_\_\_\_\_

10. Where is hazardous waste stored at the facility? \_\_\_\_\_  
\_\_\_\_\_

11. Does the facility utilize any services such as Safety Kleen for the recycling of its hazardous waste?  
\_\_\_\_\_

12. Does the facility have a firing range? \_\_\_\_\_

13. Does the facility have any contaminated sites? \_\_\_\_\_

**Section 5. Pesticide Management**

1. Do facility personnel engage in the application of pesticides, herbicides, fungicides, or termaticides? If yes, what products are used and how much is used in a year?

Product name	Amount used
_____	_____
_____	_____
_____	_____
_____	_____

2. Does the facility use contractor personnel to apply pesticides? \_\_\_\_\_

3. Is anyone at the facility licensed or certified to apply pesticides by the state? \_\_\_\_\_

Are Service employees which apply pesticides/herbicides undergoing health monitoring for the effects of the pesticides/herbicides? \_\_\_\_\_

4. Where are pesticides/herbicides stored at the facility? \_\_\_\_\_  
\_\_\_\_\_

Does the area have a drain? if yes, where does the drain go? \_\_\_\_\_

5. Where are pesticides/herbicides mixed for application at the facility? \_\_\_\_\_  
\_\_\_\_\_

Does the area have secondary containment? \_\_\_\_\_

Does the area have a drain? If yes where does the drain go? \_\_\_\_\_

6. What personal protective equipment does the facility have available for its pesticide applicators?  
\_\_\_\_\_  
\_\_\_\_\_

**QUESTION/DESCRIPTION**

7. Are there at least 2 people present for each mixing and application? \_\_\_\_\_

8. How does the facility dispose of pesticides? \_\_\_\_\_  
\_\_\_\_\_

**Section 6. Petroleum, Oil, and Lubricant (POL) Management**

1. How many gallons of petroleum products are stored at the facility? Include all fuels, hydraulic fluids, lubricating oils, etc., in tanks, barrels, and smaller containers. \_\_\_\_\_  
\_\_\_\_\_

How many gallons are stored aboveground? \_\_\_\_\_

How many gallons are stored underground? \_\_\_\_\_

2. Does the facility have a Spill Prevention Control and Countermeasure Plan tailored to its' activities? \_\_\_\_\_

3. Does the facility have any aboveground POL storage tanks that are over 660 gal? \_\_\_\_\_  
If yes, do these tanks have secondary containment? \_\_\_\_\_

4. Do the aboveground storage tanks at the facility undergo tank integrity tests or is there a reconciliation log of the input and outflow of the tank in order to check for leaks? \_\_\_\_\_  
\_\_\_\_\_

5. How does the facility dispose of its used oil? \_\_\_\_\_  
\_\_\_\_\_

Where are the records of disposal kept? \_\_\_\_\_

6. What does the label on used/waste oil tanks or drums say? \_\_\_\_\_  
\_\_\_\_\_

**Section 7. Solid Waste Management**

1. Where does the trash/garbage from the facility, including animal carcasses, go for disposal?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Does the facility have any dumps/landfills/land disposal sites on the property?

Active? \_\_\_\_\_

Closed? \_\_\_\_\_

If closed, when was it closed? \_\_\_\_\_

If closed, was the state/county consulted? \_\_\_\_\_

If closed, where are the closure records? \_\_\_\_\_

**QUESTION/DESCRIPTION**

If known, what was typically placed in the dump/landfill/disposal site?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Does the facility operate a boneyard or storage area for excess materials? If yes, what is currently in the boneyard?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Does the facility handle or dispose of human medical waste such as needles, bloody wastes, pathogenic waste, etc.? If yes, how? \_\_\_\_\_

\_\_\_\_\_

5. Do refuse containers have lids? \_\_\_\_\_

**Section 8. Special Pollutants Management**

1. Does the facility have any electrical transformers on the property? If yes, do they belong to the Service or the Utility company and are they marked in any manner indicating whether or not they contain PCBs?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Does the facility use PCBs in research? \_\_\_\_\_

3. Does the facility have a copy of an asbestos survey of the buildings? \_\_\_\_\_

If yes, did any of the buildings test positive and how did they test positive? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

If no, when were they built? \_\_\_\_\_

4. Does the facility have personnel that remove asbestos, perform maintenance work on asbestos covered structures, pipes, or insulation? \_\_\_\_\_

Are these personnel certified to perform work on asbestos? \_\_\_\_\_

5. How is asbestos containing waste from the facility disposed of? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_



**QUESTION/DESCRIPTION**

What records are there of the disposal actions? \_\_\_\_\_

6. Does the facility have a copy of a radon survey of its buildings?

Were any of the test results over 4 pci? \_\_\_\_\_

If yes, what remediation actions were performed? \_\_\_\_\_

7. Has the facility received any noise complaints from its neighbors? \_\_\_\_\_

**Section 9. Underground Storage Tank (UST) Management**

1. Does the facility have any USTs in the process of being replaced or upgraded?

How many, what are their contents, and what is being done? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Have any of the facility USTs been removed?

How many? \_\_\_\_\_

Has the state/county given you a letter of final closure for the sites where tanks were removed?

\_\_\_\_\_

3. Does the facility have any USTs that are still in the ground that are not in the process of being replaced or upgraded? If yes, how old are they? \_\_\_\_\_

\_\_\_\_\_

How is monitoring for leak detection done on these USTs? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Section 10. Wastewater Management**

1. Does the facility have any potential sources discharging to the environment? (circle the applicable)

wastewater treatment plant

oil/water separator

washrack

septic system (with or without leach fields)

other \_\_\_\_\_

**QUESTION/DESCRIPTION**

What is discharged?

Source	Effluent
_____	_____
_____	_____
_____	_____
_____	_____

2. Does the facility have a National Pollutant Discharge Elimination System (NPDES)/ State Pollutant Discharge Elimination System (SPDES) permit?

If yes, what tests/samples does it require? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Does the facility discharge to a local wastewater treatment plant? (circle the appropriate sources of discharge)

- domestic sewage
- wastewater treatment plant
- oil/water separator
- washrack
- laboratory sinks

What is discharged?

Source	Effluent
_____	_____
_____	_____
_____	_____

4. Has the facility had any pretreatment standards imposed upon it by the local wastewater treatment plant? An example of a pretreatment standards would be a prohibition from putting specific substance down the drain or a limit on how much of a substance can go down the drain or the concentration of substances that can be put down the drain.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. If the facility has a wastewater treatment facility other than a septic system what is the treatment process?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Section 11. Greening [Added September 2000]**

1. Does the facility have an Environmental Management Plan? \_\_\_\_\_

**QUESTION/DESCRIPTION**

- 2. Does the facility have a recycling program? \_\_\_\_\_
- 3. Does the facility purchase products containing recovered materials? \_\_\_\_\_

Date completed: \_\_\_\_\_

Signature \_\_\_\_\_

## Hazardous Materials/Hazardous Waste Storage Incompatibility Chart

Substances in bold have detailed example lists on the next page.

If the material contains:	It may not be stored with any of the following:
Acid (pH below 2.0)	Caustics (pH above 12.5) Reactive Metals Alcohol Water Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b> Spent Cyanide and Sulfide Solutions Oxidizers
Caustic (pH above 12.5)	Acid (pH below 2.0) Reactive Metals Alcohol Water Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b>
Reactive Metals	Caustics Acids Alcohol Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b> Oxidizers
Reactive Organic Compounds and Solvents	Caustics Acids Reactive Metals
Spent Cyanide and Sulfide Solutions	Acids
Oxidizers	Acetic or Other Organic Acids Concentrated Mineral Acids Reactive Metals <b>Reactive Organic Compounds and Solvents</b> <b>Ignitable [Flammable/Combustible] Wastes*</b>

\* "Ignitable" in this context refers to substances with a flashpoint below 140 × °F, and includes:

Combustible substances, with a flashpoint below 140 × °F

Flammable substances, with a flashpoint below 100 × °F.

### Some Deadly Combinations

Acids + Oil or Grease = Fire      Flammable Liquids + Hydrogen Peroxide = Fire/Explosion

Acids + Caustics = Heat/Spattering      Aluminum Powder + Ammonium Nitrate = Explosion

Caustics + Epoxies = Extreme Heats      Sodium Cyanide + Sulfuric Acid = Lethal Hydrogen Cyanide

Chlorine Gas + Acetylene = Explosion      Ammonia + Bleach = Noxious Fumes

In general: **Reactives** must be segregated from **Ignitables**

**Acids** must be segregated from **Caustics**

**Corrosives** should be segregated from **Flammables**

Oxidizers should be segregated from **EVERYTHING**

Many Corrosives are "Water Reactive"

Most Organic Reactives must be segregated from **Inorganic Reactives** (metals)

Ignitables (Flammables/Combustibles)	Corrosives	
	Acids	Caustics
Carburetor Cleaners Engine Cleaners Epoxy, Resins, Adhesives, and Rubber Cements Finishes Fuels Lacquers Paints Paint Thinners Paint Wastes Pesticides that contain Solvents (such as Methyl Alcohol, Ethyl Alcohol, Isopropyl Alcohol, Toluene, Xylene). Petroleum Solvents (Drycleaning Fluid) Solvents: Acetone Benzene Carbon Tetrachloride (Carbon Tet) Ethanol (Ethyl Alcohol) Ethyl Benzene Isopropanol (Isopropyl Alcohol) Kerosene (Fuel Oil #1) Methanol (Wood Alcohol) Methyl Ethyl Ketone (MEK) Petroleum Distillates Tetrahydrofuran (THF) Toluene (Methacide, Methylbenzene, Methylbenzol, Phenylmethane, Toluol, Antisal 1A) White Spirits (White Spirits, Mineral Spirits, Naptha) Xylene (Xylol) Stains Stripping Agents Varsol Waste Fuels Waste Ink Wax Removers Wood Cleaners	Battery Acids Degreasers and Engine Cleaners Etching Fluids Hydrobromic Acid Hydrochloric Acid (Muriatic Acid) Nitric Acid (< 40%) (Aquafortis) Phosphoric Acid Rust Removers Sulfuric Acid (Oil of Vitriol)	Acetylene Sludge Alkaline Battery Acids Alkaline Cleaners Alkaline Degreasers Alkaline Etching Fluids Lime and Water Lime Wastewater Potassium Hydroxide (Caustic Potash) Rust Removers Sodium Hydroxide (Caustic Soda, Soda Lye)
	<hr/> <b>Reactive Metals</b> <hr/> Lithium (Batteries) Aluminum Beryllium Calcium Magnesium Sodium Zinc Powder	<hr/> <b>Reactive Organic Compounds and Solutions</b> <hr/> Alcohols Aldehydes Chromic Acids (from chrome plating, copper stripping and aluminum anodizing) Cyanides (from electroplating operations) Hypochlorides (from water treatment plants, swimming pools, sanitizing operations) Organic Peroxides (including Hydrogen Peroxide) Perchlorates Permanganates Sulfides
	<b>Oxidizers</b> Chlorine Gas Nitric Acid (>40%), aka Red Fuming Nitric Nitrates (Sodium Nitrate, Ammonium Nitrate) Perchlorates Perchloric Acid Peroxides Calcium Hypochlorite (> 60%)	

## Definitions

- *Aquifer* - a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding groundwater to wells or springs (40 CFR 503.21(b)).
- *Acquisition* – the acquiring by contract with appropriate funds for supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed; demonstrated, and evaluated. Acquisition begins at the point when an agency’s needs are established and includes the description of requirements to satisfy agency needs, solicitation, and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Acute Hazardous Waste* - any waste listed under 40 CFR 261.31 - 261.33(c) with a hazard code of H. These include USEPA Hazardous waste numbers: F020, F021, F022, F023, F026, and F027 (40 CFR 261.31 through 261.33).
- *Appliance* - any device which contains and uses a Class I or Class II substance as a refrigerant and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer (40 CFR 82.152).
- *Asbestos* - substances comprised of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite (40 CFR 61.14).
- *Asbestos-Containing Waste Materials* - means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of 40 CFR 141. This term also includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. However, as applied to demolition and renovation operations, this term includes regulated ACM waste and materials contaminated with asbestos including disposable equipment and clothing (40 CFR 61.141).
- *Asbestos Material* - asbestos or any material containing asbestos (40 CFR 61.141).
- *Biobased Products (Biobased-Content Product or BCP)* – a commercial or industrial product (other than food or feed) that utilizes biological products or renewable domestic agricultural (plant, animal, and marine) or forestry products (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Bulky Wastes* - large items of solid waste such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversize wastes which large size precludes or complicates their handling by normal solid waste collection, processing, or disposal methods (40 CFR 243.101).
- *Certified Applicator* - any individual who is certified by the USEPA or the state to use or supervise the use of any restricted use pesticide covered by that individual’s certification (7 CFR 110.2).
- *Characteristics of Hazardous Waste* - the characteristics of ignitability, corrosivity, reactivity, and toxicity which identify hazardous waste (40 CFR 261.20 through 261.24).

- *Cold Cleaning Machine* - any device or piece of equipment that contains and/or uses liquid solvent, into which parts are placed to remove soils from the surface of the parts or to dry the parts. Cleaning machines that contain and use heated, nonboiling, solvent to clean the parts are classified as cold cleaning machine (40 CFR 63.461).
- *Combustible Liquid* - a liquid having a flashpoint at or above  $100 \times F$  ( $37.8 \times C$ ). Combustible liquids are categorized as Class II or Class III liquids and are further subdivided as follows (29 CFR 1910.106(a)(18)):
  1. Class II liquids are those having a flashpoint at or above  $100 \times F$  ( $37.8 \times C$ ), and below  $140 \times F$  ( $60 \times C$ ) except any mixture having components with flashpoints of  $200 \times F$  ( $93.3 \times C$ ) or higher, the volume of which makes up 99 percent or more of the total volume of the mixture.
  2. Class III A liquids are those having flashpoints at or above  $140 \times F$  ( $60 \times C$ ), and below  $200 \times F$  ( $93.3 \times C$ ) except any mixture having components with flashpoints of  $200 \times F$  ( $93.3 \times C$ ) or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.
  3. Class III B liquids are those having flashpoints at or above  $200 \times F$  ( $93.3 \times C$ ).
- *Commercial Applicator* - a certified applicator, other than a private applicator, who uses or supervises the use of any pesticide, for any purpose, on any property, or performs other pest control related activities (40 CFR 171.2).
- *Community Water System* - a public water system that serves at least 15 service connections used by year round residents or regularly serves at least 25 year-round residents (40 CFR 141.2)
- *Construction and Demolition Wastes* - the waste building materials, packaging and rubble resulting from the construction, renovation, repair, and demolition operation on pavements, houses, commercial buildings, and other structures (40 CFR 243.101).
- *Deferred USTs* - USTs which are exempt from meeting the requirements in 40 CFR 280 except those concerning release response and corrective action for UST systems containing petroleum or hazardous substances in 40 CFR 280.60 through 280.67. These tanks include (40 CFR 280.10(e)):
  1. wastewater treatment tank systems
  2. any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954
  3. any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A
  4. airport hydrant fuel distribution systems
  5. UST system with field-constructed tanks.
 See also the definitions for USTs and Excluded USTs.
- *Effluent Limitations* - any restriction established by the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources, other than new sources, into navigable waters, the waters of the contiguous zone, or the ocean (40 CFR 401.11(i)).
- *Environmentally Preferable* - products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product

or service (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].

- *Excluded USTs* - these are USTs which are not required to meet the requirements found in 40 CFR 280 and include (40 CFR 280.10(b)):
  1. any UST system holding hazardous wastes listed under Subtitle C of the *Solid Waste Disposal Act* (SWDA), or a mixture of such hazardous waste and other regulated substances
  2. any wastewater treatment tank system that is part of a wastewater treatment facility regulated under Section 402 or 307(b) of the *Clean Water Act* (CWA)
  3. equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment
  4. any UST system whose capacity is 110 gal [416.40 L] or less
  5. any UST system that contains a de minimis concentration of a regulated substance
  6. any emergency spill or overflow containment UST system that is expeditiously emptied after use.See also the definitions for Deferred USTs and USTs.
- *Extremely Hazardous Substances* - all substances listed in Appendices A and B in 40 CFR 355 (see the column labeled in Appendix 3-1) (40 CFR 355.20).
- *Federally Enforceable* - all limitations and conditions enforceable by the Administrator, including those requirements developed pursuant to 40 CFR 60 and 61, requirements within any applicable state implementation plan, and any permit requirements established pursuant to 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24 (40 CFR 60.41b).
- *Flammable Aerosol* - an aerosol that is required to be labeled FLAMMABLE under the *Federal Hazardous Substance Labeling Act* (15 USC 1261). These aerosols are considered Class IA liquids (29 CFR 1910.106(a)(19)).
- *Flammable Liquid* - a liquid with a flashpoint below 100 °F (37.8 °C) except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture. Flammable liquids are categorized as Class 1 liquids, and are further subdivided as follows (29 CFR 1910.106(a)(19)):
  1. Class IA are those that have a flashpoint below 73 °F (22.8 °C) and boiling point below 100 °F (37.8 °C)
  2. Class IB are those that have flashpoints below 73 °F (22.8 °C) and boiling points at or above 100 °F (37.8 °C)
  3. Class IC are those that have flashpoints at or above 73 °F (22.8 °C) and below 100 °F (37.8 °C).
- *Flashpoint* - the minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. Flashpoints are established using several standard closed cup test methods (29 CFR 1910.106(a)(14)).
- *Friable Asbestos Material* - any material that contains more than 1 percent asbestos by weight and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure (40 CFR 61.141).



- *Hazardous Chemical* - in relationship to laboratories, a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees (29 CFR 1910.1450(b)).
- *Hazardous Substance* - any substance designated pursuant to 40 CFR 302 (see the column titled Hazardous Substance Reportable Quantity (RQ) in Appendix 3-1) (40 CFR 302.3).
- *Hazardous Waste* - a solid waste identified as a characteristic or listed hazardous waste in 40 CFR 261.3 (40 CFR 260.10).
- *Hazardous Waste Constituent* - a constituent that caused the hazardous waste to be listed in 40 CFR 261, Subpart D (lists of hazardous wastes from nonspecific and specific sources, and listed hazardous wastes), or a constituent listed in the table of maximum concentrations of contaminants for the toxicity characteristic) (40 CFR 260.10).
- *Incompatible Waste* - a hazardous waste that is unsuitable for (40 CFR 280.10):
  1. placement in a particular device or facility because it may cause corrosion or decay of containment materials (e.g., container liners or tank walls)
  2. commingling with another waste or material under uncontrolled conditions because the commingling conditions produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mist, fumes or gases, or flammable fumes or gases.
- *Infectious Waste* - (40 CFR 240.101):
  1. equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies
  2. laboratory wastes such as pathological specimens and disposable fomites (any substance that may harbor or transmit pathological organisms)
  3. surgical operating room pathological specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.
- *Laboratory* - a facility where the laboratory use of hazardous chemicals occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a nonproduction basis (29 CFR 1910.1450(b)).
- *Life Cycle Assessment* - the comprehensive examination of a product's environmental and economic aspects and potential impacts throughout its lifetime, including raw material extraction, transportation, manufacturing, use, and disposal (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Life Cycle Cost* - the amortized annual cost of a product, including capital costs, installation costs, operating costs, maintenance costs, and disposal costs discounted over the lifetime of the product (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Manifest* - the shipping document originated and signed by the generator containing the information required by 40 CFR 262, Subpart B (40 CFR 260.10).

- *Material Safety Data Sheet (MSDS)* - written or printed material which contains information on hazardous chemicals such as common name, physical hazards, health hazards (29 CFR 1910.1200(c)).
- *Medical/Pathological Wastes* - any solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. This does not include hazardous waste or household waste (40 CFR 259.10).
- *Motor Vehicle Air-Conditioner (MVAC)* - any appliance that is an MVAC as defined in 40 CFR 82, subpart B (40 CFR 82.152).
- *MVAC-Like Appliance* - mechanical vapor compression, open-drive compressor appliances used to cool the driver's or passenger's compartment of a nonroad motor vehicle. This includes the air conditioning equipment found on agricultural or construction vehicles. This definition is not intended to cover appliances using HCFC-22 refrigerant (40 CFR 82.152).
- *Noncommunity Water System* - a public water system that is not a community water system (40 CFR 141.2).
- *Nontransient, Noncommunity Water System (NTNCWS)* - a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 mo/yr (40 CFR 141.2).
- *NPDES Permit* - a permit granted by USEPA to a direct discharger which permits wastewater discharge to a watercourse in accordance with the conditions of the permit. NPDES means National Pollutant Discharge Elimination System (40 CFR 403.3(l)).
- *Open Dump* - a land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, are susceptible to open burning, and are exposed to the elements, vectors, and scavengers (40 CFR 240.101).
- *Open Top Vapor Cleaning Machine* - a batch solvent cleaning machine that has its upper surface open to the air and boils solvents to create solvent vapor used to clean and/or dry parts (40 CFR 63.461).
- *PCB or PCBs* - a chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance (40 CFR 761.3).
- *Pesticide* - any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or disinfectant; and is further categorized into the following (40 CFR 165.1):
  1. Excess pesticides means all pesticides that cannot be legally sold pursuant to the Act or that are to be discarded.
  2. Organic pesticides means carbon-containing substances used as pesticides, excluding metallo-organic compounds.
  3. Inorganic pesticides means noncarbon-containing substances used as pesticides.
  4. Metallo-organic pesticides means a class of organic pesticides containing one or more metal or metalloid atoms in the structure.

- *Point Source* - any discernible confined and discrete conveyance including but not limited to a pipe, ditch, channel, or conduit from which pollutants are or may be discharged (40 CFR 401.11(d)).
- *Pollution Prevention* - Source Reduction as defined in the Pollution Prevention Act of 1990 (42 USC 13102), and other practices that reduce or eliminate the creation of pollutants through: (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) **[Added September 2000]**:
  1. increased efficiency in the use of raw materials, energy, water, or other resources
  2. protection of natural resources by conservation.
- *Postconsumer Material* - a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is part of a broader category of Recovered Material (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) **[Added September 2000]**.
- *Public Water System* - a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. This term includes (40 CFR 141.2):
  1. any collection, treatment, storage, and distribution facilities under control of the operator of such system
  2. any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

A public water system is either a community water system or a noncommunity water system.

- *Publicly Owned Treatment Works (POTW)* - a treatment works which is owned by the state or a municipality. This includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey waste to a POTW (40 CFR 403.3(o)).
- *Radon-222* - a naturally occurring, inert, radioactive gas that is formed from the radioactive decay of uranium.
- *Recover Refrigerant* - to remove refrigerant in any condition from an appliance and to store it in an external container without necessarily testing or processing it in any way (40 CFR 182.52(s)).
- *Recovered Materials* - waste materials and by-products that have been recovered or diverted from solid waste, but such term does not include those materials and by-products generated from and commonly reused within an original manufacturing process (42 USC 6903(19)) **[Added September 2000]**.
- *Recyclability* - the ability of a product or material to be recovered from, or otherwise diverted from, the solid waste stream for the purpose of recycling (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) **[Added September 2000]**.
- *Recycle Refrigerant* - to extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such

as replaceable core filter-driers, which reduce moisture, acidity, and particulate matter. These procedures are usually implemented at the field job site (40 CFR 82.152).

- *Recycled-Content Product or RCP* – products or services that include in their manufacture, recovered materials (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Recycling* – the series of activities, including collection, separation, and processing by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion. For purposes of this *Strategic Plan*, recycling shall include composting of green organic waste (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Restricted-Use Pesticides* - pesticides designated for restricted use under the provisions of Section 3(d)(1)(c) of FIFRA (40 CFR 171.2).
- *Sanitary Landfill* - a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day (40 CFR 240.101).
- *Sewage Sludge* - solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage, scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludges in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewerage in a treatment works (40 CFR 257.2).
- *Small Appliance* - any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with 5 lb or less of refrigerant (40 CFR 82.152):
  1. refrigerators designed for home use
  2. freezers designed for home use
  3. room air conditioners (including window air conditioners and packaged terminal air conditioners)
  4. packaged terminal heat pumps
  5. dehumidifiers
  6. under-the-counter ice makers
  7. vending machines
  8. drinking water coolers.
- *Small Quantity Generator* - a generator who generates less than 1000 kg [2204.62 lb] or hazardous waste in a calendar month but more than 100 kg [220.46 lb] (40 CFR 260.10).
- *Solvent Cleaning Machine* - any device or piece of equipment that uses halogenated HAP solvent liquid or vapor to remove soils from the surface of materials. Types of solvent cleaning machines include, but are not limited to, batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machines. Buckets, pails, and beakers with capacities of 7.6 L (2 gal) or less are not considered solvent cleaning machines (40 CFR 63.461).

- *Spill Prevention, Control, and Countermeasure (SPCC) Plan* - the SPCC plan shall be a carefully thought-out plan prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources (40 CFR 112.3).
- *Treatment Works* - either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature (40 CFR 503.9(aa)).
- *Underground Storage Tank (UST)* - any one or a combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. This term does not include any (40 CFR 280.12):
  1. Farm or residential tank of 1100 gal [4163.95 L] or less capacity used for storing motor fuel for noncommercial purposes.
  2. Tank used for storing heating oil for consumptive use on the premises where stored.
  3. Septic tanks.
  4. Pipeline facility (including gathering lines) which are regulated by other Acts.
  5. Surface impoundment, pit, pond, or lagoon.
  6. Stormwater or waste water collection system.
  7. Flow-through process tank.
  8. Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations.
  9. Storage tank situated in an underground area if the storage tank is situated upon or above the surface of the floor such as basements or tunnels.
  10. Tanks holding 110 gal [416.40 L] or less.
  11. Emergency spill and overfill tanks.

(NOTE: The definition of UST does not include any pipes connected to any tank which is described in para (1) through (9) of this definition. Also refer to the definition for Deferred UST and Excluded UST.)

- *Used Oil* - any oil that has been refined from crude oil or any synthetic oil that has been used and as a result of such use is contaminated by physical or chemical impurities (40 CFR 279.1).
- *Used Oil Generator* - any person, by site, whose act or process produces used oil or whose act first causes used oil to become subject to regulation (40 CFR 279.1).
- *Volatile Organic Compound (VOC)* - any compound of carbon, excluding CO, CO<sub>2</sub>, carbonic acid, metallic carbides, or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions (40 CFR 51.100).
- *Waste Prevention* - any change in the design, manufacturing, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they are discarded. Waste prevention also refers to the reuse of products or materials (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Waste Reduction* - preventing or decreasing the amount of waste being generated through waste prevention, recycling, or purchasing recycled and environmentally preferable products (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].

- *Wetlands* - those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include playa lakes, swamps, marshes, bogs, and similar areas such as sloughs, prairie potholes, wet meadows, prairie river overflows, mudflats, and natural ponds (40 CFR 110.2).



Appendix C

Major Activities at FWS Facilities and Their Related Sections			
Facilities	Sections		
	1 Air Emissions Management	2 Drinking Water Management	3 Hazardous Materials Management
1. Incinerators	•		
2. Heat/Power Production	•		
3. Fuel Storage	•		•
4. Sanitary Wastewater		•	
5. Stormwater Runoff			
6. Sludge Disposal			
7. POL Dispensing	•		
8. Wastewater Treatment			
9. Vehicle Maintenance	•		•
10. Shop Activities	•		•
11. Solid Waste Generation	•		•
12. Water Supply		•	•
13. Hazardous Materials Use		•	•
14. Firefighting Training	•		•
15. PCB Electrical Equipment			
16. Pesticide/Herbicide Use			•
17. Environmental Noise			
18. Emergency Planning			•
19. Asbestos Removal			
20. Underground Storage Tanks			
21. Remodeling Activities			
22. Construction Activities	•		•
23. Soil Removal	•		
24. Laboratories		•	•
25. Unexploded Ordnance			•
26. Medical Waste			•
27. Livestock Management	•		



Major Activities at FWS Facilities and Their Related Sections			
Facilities	Sections		
	4 Hazardous Waste Management	5 Pesticide Management	6 POL Management
1. Incinerators	•		
2. Heat/Power Production			•
3. Fuel Storage			•
4. Sanitary Wastewater		•	
5. Stormwater Runoff			
6. Sludge Disposal	•		
7. POI Dispensing			•
8. Wastewater Treatment	•		
9. Vehicle Maintenance	•		•
10. Show Activities	•		•
11. Solid Waste Generation			
12. Water Supply			
13. Hazardous Materials Use		•	
14. Firefighting Training			•
15. PCB Electrical Equipment			
16. Pesticide/Herbicide Use		•	
17. Environmental Noise			
18. Emergency Planning	•	•	•
19. Asbestos Removal			
20. Underground Storage Tanks			
21. Remodeling Activities			
22. Construction Activities			
23. Soil Removal			
24. Laboratories	•	•	•
25. Unexploded Ordnance	•		
26. Medical Waste			
27. Livestock Management		•	

**Major Activities at FWS Facilities and Their Related Sections [Revised September 2000]**

Facilities	Sections				
	7 Solid Waste Management	8 Special Pollutants Management	9 UST Management	10 Wastewater Management	11 Greening
1. Incinerators	•				
2. Heat/Power Production	•			•	
3. Fuel Storage			•		
4. Sanitary Wastewater				•	
5. Stormwater Runoff				•	
6. Sludge Disposal	•			•	
7. POI Dispensing			•		
8. Wastewater Treatment	•			•	
9. Vehicle Maintenance	•		•	•	•
10. Shop Activities	•		•	•	•
11. Solid Waste Generation	•				•
12. Water Supply					
13. Hazardous Materials Use					•
14. Firefighting Training			•	•	
15. PCB Electrical Equipment		•			
16. Pesticide/Herbicide Use				•	
17. Environmental Noise		•			
18. Emergency Planning					
19. Asbestos Removal		•			
20. Underground Storage			•		
21. Remodeling Activities		•			•
22. Construction Activities					•
23. Soil Removal					
24. Laboratories	•			•	
25. Unexploded Ordnance	•				
26. Medical Waste	•				
27. Livestock Management	•			•	



## Appendix D

### Organization of Environmental Records

To facilitate environmental compliance audits and management of environmental information, it is important to organize pertinent paperwork in a manner that is clear, concise, and helpful. The following are suggestions for organizing files affiliated with environmental compliance issues. These topics are not hard and fast, just suggestions to be adapted to a facility's particular operations, and will enable the auditors/regulators to quickly review the necessary information.

#### **Drinking Water Management**

Correspondence/NOVs (includes all correspondence with state or local authorities other than routine submissions of sampling data and any notices of violation).

Inspections (copies of any and all inspection results by the EPA, state/local, and FWS investigation).

Maintenance and repair (includes all receipt, data, schematics, etc. of any repair or maintenance work).

Operations (includes logs of water treatment done by the FWS facility staff).

Permit and certification (includes a copy of any permit or authorization to operate a drinking after system, a copy of the permit application, and any water treatment plant operator certifications that are required).

Reports (includes copies of all reports submitted to the state/local authorities on sampling results).

Sampling results (includes the results of all sample analyses, chemical and biological).

Well logs for all active wells (including casing, pump, and screen information).

Well closure (create a separate file folder for every well that is closed on the facility).

#### **Hazardous Waste Management**

Correspondence/NOVs (includes all correspondence with state or local authorities other than routine submissions of sampling data and any notices of violation).

EPA Identification Number (include the paperwork assigning the facility its EPA Identification Number and hazardous waste generation status).

Inspections (copies of any and all inspection results by the EPA, state/local, and FWS investigation).

Manifests (copies of any and all manifests for hazardous waste).

Training (documentation of training).

## **Pesticides Management**

Application contract.

Application records (what was applied where, when, and by whom).

Correspondence/NOVs (includes all correspondence with state or local authorities other than routine submissions of sampling data and any notices of violation).

Permits/Certification (copies of all permits and the applicator certifications).

Personnel (include training records and health monitoring records).

## **UST Management (every separate aboveground storage tank should have a separate set of files)**

Correspondence/NOVs (includes all correspondence with state or local authorities other than routine submissions of sampling data and any notices of violation).

Closure records, including history of removal of USTs.

Maintenance and repair (includes all receipts, data, schematics etc., of any repair or maintenance work).

Operations (includes logs of visual inspections, capacity reconciliation records, results of tank tightness inspections or pipeline testing).

Registration (includes a copy of the application for registration and the state registration).

## **Wastewater Management**

Correspondence/NOVs (includes all correspondence with state or local authorities other than routine submissions of sampling data and any notices of violation).

Maintenance and Repair (includes all receipts, data, schematics., etc., of any repair or maintenance work on the wastewater treatment works, septic system, or oil/water separators).

Operations (includes logs of activities done to treat the wastewaters).

Permit and Certification (includes a copy of any permit or authorization to operate a wastewater treatment system or septic system, including a copy of the permit application and any water treatment plant operator certifications that are required. If the facility has more than one permit related to wastewater - keep them in separate files).

Pretreatment standards (copy of any pretreatment standards imposed upon the facility by the state/local governments).

Reports (includes copies of all reports submitted to the state/local authorities on sampling results).

Sampling results (includes the results of all samples analysis).

### Greening

Environmental Management Plan.  
Solid Waste Diversion Records.

### The following are additional files that might be helpful to keep:

Air emissions sources (if you have an air emissions sources that requires emissions testing, create a file for the source include the test data, potential sources requiring emissions testing are incinerators and boiler).

CFC/halons certification, purchase receipts, and records for the quantity of CFCs and halons that were recycled or disposed of.

Chemical Hygiene Plan and training documentation.

Community Right-to-Know (EPCRA) Reports.

Disposal contracts (copy of contracts for pick up and disposal of trash, recyclable, hazardous waste).

Hazardous Communication Program and training documentation.

Material safety data sheets (MSDSs).

Oil/water separators (a separate file for each separator with documentation of its design and when it was last cleaned out).

Open Burning (include any plans, permits, letters of approval, log of burning operations).

Spill Prevention Control and Countermeasure (SPCC) Plan.

Spills/releases (any reports, documentation of spills or releases of any substances).

Used oil (records of the quantity and final disposal site for waste petroleum products, including products that are recycled).



## Appendix E

### FWS Environmental Compliance Audit Program (ECAP) Inbrief

#### Purpose

The purpose of this audit is to:

- Identify areas of potential and actual environmental noncompliance that need to be addressed before they are identified by a regulatory agency.
- Establish FWS-wide standards for environmental compliance audits as a means of ensuring the Service's observance of all applicable environmental laws and regulations.
- Assure Regional Directors and environmental program managers that environmental programs are effectively addressing environmental problems that could:
  - a. impact FWS mission effectiveness
  - b. jeopardize the health of Service personnel or the general public
  - c. significantly degrade the environment
  - d. expose the FWS to avoidable financial liabilities as a result of noncompliance with environmental requirements
  - e. erode public confidence in the FWS and the U.S. Department of the Interior (DOI)
  - f. expose individuals to civil and criminal liability.
- Secure information that will permit FWS Managers to anticipate and prevent future environmental problems.
- Provide data for use in identifying, validating, prioritizing, programming, and budgeting environmental requirements.

#### Scope of the Audit

This audit will cover FWS facilities and activities. It will address the facilities or activities of tenants occupying FWS property.

The audit incorporates both a review of paperwork and a physical review of paperwork and structures.

#### Topics for audit

Air Emissions Management  
Drinking Water Management  
Hazardous Materials Management  
Hazardous Waste Management  
Pesticide Management  
Petroleum, Oil, and Lubricant (POL) Management  
Solid Waste Management  
Special Pollutants Management (includes asbestos, PCBs, radon, and noise)  
Underground Storage Tank (UST) Management  
Wastewater Management  
Greening [Added September 2000]



## Audit Results

Each site audit will result in the creation of "finding sheets" which document both the positive and the negative situations identified at the facility. A copy of all finding sheets will be left at the assessed facility.

## Scoring of Findings

**Significant:** A problem categorized as significant requires immediate attention. It poses, or has a high likelihood to pose, a direct and immediate threat to human health, safety, the environment, or the facility's mission. A leaking PCB transformer that is located next to a dining facility, for example, would likely be a significant deficiency.

**Major:** A major deficiency requires action, but not necessarily immediate action. Major deficiencies may pose a threat to human health, safety, or the environment. Any immediate threat, however, must be categorized as significant.

**Minor:** Minor deficiencies are usually administrative in nature, even though those findings might possibly result in a notice of violation. This category may also include temporary or occasional instances of noncompliance.

**Management Practice:** MP items are those for which there is no specific regulatory requirement.

**Required Practice:** RP items are those derived from FWS/DOI policy. While not a Federal or state regulatory requirement, they are still required practices.

A finding may be positive or negative. A positive finding is for a job, activity, or person who has gone above and beyond the regulatory requirements. A negative finding is when there is an issue of noncompliance or a poor management practice.

## After the Audit

1. The audit team will send a copy of the Draft findings report to the regional representative who will forward it on to the facility and another copy is sent to the EFC.
2. Upon receipt of the report, the facility is required to respond to each of the regulatory and/or RP findings. A response can be as simple as "situation corrected on 30 June 1994," "work order request submitted on 30 May 1994 for construction of cement pad." The facility is required to develop a corrective action for every regulatory and RP finding. The facility is not required to respond to the MP findings in Section Four of the report but it is strongly urged to do so. If the facility has received a "Significant" finding, this finding will be forwarded to the Directorate level. Replies to the findings will be sent to the Region within 60 days after receipt of the Draft Findings Report. If a reply/corrective action is not appropriate to the finding, the audit team will contact the Region who in turn will contact the facility and develop an alternative plan.
3. The audit team will produce a final report. The team leader will send one copy of the final report to the Region, the facility, and the EFC.

Appendix F  
FINDING SUMMARY

Facility Name: NWR XYZ Audit Date: March 2000

Federal Handbook Date: September 1999 Audit Type: (circle) F or I  
State Handbook Date: \_\_\_\_\_

Team: A TEAM Repeat Finding? NO

Universal Code: 9Z Section Code: HW2 Question Number: HW.30.1  
Criteria : 40 CFR 262.24(d)(2) and 265.171

TYPE	FINDING CATEGORY (circle) :
<u>Detailed Regulatory</u> Required Practice Management Practice	Significant <u>Major</u> Minor Negative Positive Negative Positive

Air ( ) DW ( ) HM ( ) HW (X) Pest ( ) POL ( ) SW ( ) SPM ( ) UST ( ) WW ( ) Green ( )

Location: Building 500, South East Corner

**CONDITION:** Five of the eight drums stored in the hazardous waste shed are rusted and bulging. These drums were not noted on the weekly inspection log as being deficient. The drums were situated behind 4 other drums of material and not easily accessible. The storage shed does not have an impervious floor and therefore any spill/leak would be released to the environment. There are three, 55-gal drums of waste antifreeze, two, 55-gal drums of POL-contaminated soil, and three, 25-gal drums of sued solvent.

**RECOMMENDATIONS:** Put the damaged drums into overpacks to contain any spills/leaks and determine why such a large volume of waste is being stored.

**COMMENTS:** Refuge manager ordered overpack drums before departure of the audit team.

**CORRECTIVE ACTION:** Drums were placed in overpacks on April 15, 2000 and waste was removed by the contractor on April 20, 2000.

Est. Cost of Audit Correction: \$ \_\_\_\_\_ Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

## Explanation of Finding Categories

Deficiencies noted on the Finding Summary are rated as follows:

**Significant:** A problem categorized as significant requires immediate attention. It poses, or has a high likelihood to pose, a direct and immediate threat to human health, safety, the environment, or the facilities' mission. A leaking PCB Transformer that is located next to a dining facility, for example, would likely be a significant deficiency.

**Major:** A major deficiency requires action, but not necessarily immediate action. Major deficiencies may pose a threat to human health, safety, or the environment. Any immediate threat, however, must be categorized as significant.

**Minor:** Minor deficiencies are usually administrative in nature, even though those findings might possibly result in a notice of violation. This category may also include temporary or occasional instances of noncompliance.

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**Required Practice:** RP items are those derived from FWS policy. While not a Federal or state regulatory requirements, they are still required practices.

A finding may be positive or negative. A positive finding is for a job, activity, or person who has gone above and beyond the regulatory requirements for protecting the environment. A negative finding is where there is an issue of noncompliance or a poor management practice.

FINDING SUMMARY

Facility Name: \_\_\_\_\_ Audit Date: \_\_\_\_\_

Federal Handbook Date: \_\_\_\_\_ Audit Type: (circle) F or I

State Handbook Date: \_\_\_\_\_

Team: \_\_\_\_\_ Repeat Finding? \_\_\_\_\_

Universal Code: \_\_\_\_\_ Section Code: \_\_\_\_\_ Question Number: \_\_\_\_\_

Criteria : \_\_\_\_\_

TYPE  
Detailed Regulatory  
Required Practice  
Management Practice

FINDING CATEGORY (circle) :  
Significant    Major    Minor  
Negative        Positive  
Negative        Positive

Air ( ) DW ( ) HM ( ) HW ( ) Pest ( ) POL ( ) SW ( ) SPM ( ) UST ( ) WW ( ) Green ( )

Location: \_\_\_\_\_

CONDITION:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

RECOMMENDATIONS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

COMMENTS:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

CORRECTIVE ACTION:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Est. Cost of Audit Correction: \$ \_\_\_\_\_ Prepared By: \_\_\_\_\_ Date: \_\_\_\_\_

## Explanation of Finding Categories

Deficiencies noted on the Finding Summary are rated as follows:

**Significant:** A problem categorized as significant requires immediate attention. It poses, or has a high likelihood to pose, a direct and immediate threat to human health, safety, the environment, or the facilities' mission. A leaking PCB Transformer that is located next to a dining facility, for example, would likely be a significant deficiency.

**Major:** A major deficiency requires action, but not necessarily immediate action. Major deficiencies may pose a threat to human health, safety, or the environment. Any immediate threat, however, must be categorized as significant.

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A finding may be positive or negative. A positive finding is for a job, activity, or person who has gone above and beyond the regulatory requirements for protecting the environment. A negative finding is where there is an issue of noncompliance or a poor management practice.

## FWS Environmental Compliance Audit Findings Root Causes

### Purpose

The purpose for using root cause codes is to better enable the EFC to track trends in noncompliance.

Universal Codes (Pick a maximum of two)			
Code		Code	
1Z	Labels/Markings	7Z	Certifications/Licenses
2Z	Recordkeeping	8Z	Training
3Z	Reports	9Z	Operational Practice
4Z	Plans	10Z	Inadequate Facility
5Z	Surveys/Inventories/Testing	11Z	Spills/Leaks
6Z	Permits	12Z	Other

Section Codes (Pick a maximum of two)			
Code		Code	
A1 A2 A3 A4 A5 A6	Air Emissions Management Fuel Burners Incinerators Open Burning CFCs/Halons Fugitive Emissions Other	PO1 PO2 PO3 PO4 PO5	POL Management Drum storage ASTs Pipelines Used Oil Other
D1 D2 D3 D4 D5 D6	Drinking Water Management Public Water Systems Community Water Systems Noncommunity Water Systems Wells State Classifications other than Federal Classifications Other	SW1 SW2 SW3 SW4  SW6 SW7 SW8	Solid Waste Management Operating Open Dump Old Dump/landfill site Operating Landfill Receptacles  Medical Waste Regulated Materials Other
HM1 HM2 HM3 HM4 HM5 HM6	Hazardous Materials Management General Hazardous Materials Laboratories EPCRA Flammables/Combustibles Compressed gases Other	SP1 SP2 SP3  SP4 SP5 SP6	Special Pollutants PCB Transformers PCB Items Demolition/Renovation: Asbestos Disposal Radon Other
HW1 HW2 HW3 HW4 HW5 HW6 HW7	Hazardous Waste Management CESQG SQG Generator Uncharacterized Waste Satellite Accumulation Points TSDF Other	U1 U2 U3 U4 U5	Underground Storage Tanks Substandard tanks Upgraded tanks Closed Tanks Release Detection Other
P1 P2 P3 P4 P5 P6	Pesticide Management Applications Applicators Restricted Use Pesticides Storage Mixing/Preparation Other	W1 W2 W3 W4 W5 W6 W7	Wastewater Management Discharge to Treatment Works Treatment Works operation Stormwater Discharge Oil/Water Separators Washracks Individual Sewage Systems Other
		G1 G2	Greening Pollution Prevention Recycling

Appendix G [Revised September 2000]

SUMMARY OF FINDINGS

Topic	Significant	Major	Minor	Negative MPs	Negative RPs	Positive Findings
Air Emissions Management						
Drinking Water Management						
Hazardous Materials Management						
Hazardous Waste Management						
Pesticide Management						
Petroleum, Oil, and Lubricant (POL) Management						
Solid Waste Management						
Special Pollutants Management (PCBs, Asbestos, Radon, and Noise)						
Underground Storage Tank (UST) Management						
Wastewater Management						
Greening [Added September 2000]						
TOTALS						





## Appendix H

### Acronyms and Abbreviations

AAR	annual application rate
ACM	asbestos-containing material
ANSI	American National Standards Institute
API	American Petroleum Institute
AQCR	Air Quality Control Region
ARI	Air-Conditioning and Refrigeration Institute
ASME	American Society of Mechanical Engineers
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
BAT	best available technology
Btu	British thermal unit
C	compliance
CAA	<i>Clean Air Act</i>
CAMU	Corrective Action Management Unit
CAP	Corrective Action Plan
CAS	Chemical Abstract Service
CDL	Commercial Drivers License
CEMS	Continuous Emissions Monitoring System
CEQ	Council on Environmental Quality
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act</i>
CESQG	conditionally exempt small quantity generator
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
CT	residual disinfectant concentration (C in CT calculation)
CWA	<i>Clean Water Act</i>
DHMIR	detailed hazardous materials incident report
DIY	do-it-yourself
DOI	Department of the Interior
DOT	Department of Transportation
EE/CA	engineering evaluation/cost analysis
EIS	environmental impact statement
EO	Executive Order
EPA	Environmental Protection Agency
EPCRA	<i>Emergency Planning and Community Right-to- Know Act</i>
ESA	<i>Endangered Species Act</i>
FFCA	<i>Federal Facilities Compliance Act</i>
FIFRA	<i>Federal Insecticide, Fungicide, and Rodenticide Act</i>
FNSI	finding of no significant impact
FOTW	Federally owned treatment works
FR	Federal Register
FUDS	formally used defense sites
FWCA	<i>Fish and Wildlife Conservation Act</i>

FWS	Fish and Wildlife Service
FY	fiscal year
GOTP	gamma glutamyl transpeptidase
HCFC	hydrogenated chlorofluorocarbons
HCL	hydrochloric acid
HOC	halogenated organic compounds
HPC	heterotrophic plate count
HTRW	hazardous, toxic, and radioactive waste
ID	identification
IOPP	International Oil Pollution Prevention
LDR	land disposal restriction
LPG	liquid petroleum gas
MBtu	Million British thermal units
MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MDL	maximum detection level
MOU	memorandum of understanding
MP	management practice
MPN	most probable number
MSDS	material safety data sheet
MSWLF	municipal solid waste landfill
MVAC	motor vehicle air conditioning
MWC	municipal waste combustor
NA	not applicable
NAAQS	<i>National Ambient Air Quality Standards</i>
NACE	National Association of Corrosion Engineers
NEPA	<i>National Environmental Policy Act</i>
NFPA	National Fire Protection Association
NHPA	<i>National Historic Preservation Act</i>
NIOSH	National Institute of Occupational Safety and Health
NLS	noxious liquid substance
NOI	notice of intent
NOV	notice of violation
NPDES	National Pollutant Discharge Elimination System
NRC	National Response Center
NSPS	new source performance standards
NTNC	nontransient noncommunity
O&M	operations and maintenance
ODA	<i>Ocean Dumping Act</i>
OHSPC	Oil and Hazardous Substances Pollution Contingency Plan
OMB	Office of Management and Budget
OPA	<i>Oil Pollution Act</i>
OSC	On-Scene Coordinator
OSHA	<i>Occupational Safety and Health Act</i>
PCB	polychlorinated biphenyl
PL	Public Law
POC	point of contact
POHC	principle organic hazardous constituent
POL	petroleum, oil, and lubricant

POTW	publicly owned treatment works
PSD	prevention of significant deterioration
PSES	pretreatment standards for existing sources
PSNS	pretreatment standards for new indirect sources
QA	quality assurance
RACM	regulated asbestos-containing material
RCRA	<i>Resource Conservation and Recovery Act</i>
RMA	requires management action
RQ	reportable quantity
RSPA	Research and Special Programs Administration
SARA	<i>Superfund Amendments and Reauthorization Act</i>
SDWA	<i>Safe Drinking Water Act</i>
SGOT	serum glutamic oxaloacetic transaminase
SGPT	serum glutamic pyuvic transaminase
SIP	State Implementation Plan
SOI	Secretary of the Interior
SOP	standard operating procedure
SOUR	specific oxygen uptake rate
SPCC	Spill Prevention Control and Countermeasure Plan
SPDES	State Pollution Discharge Elimination System
SQG	small quantity generator
STP	sewage treatment plant
SWMU	solid waste management unit
TCLP	toxicity characteristics leaching procedure
THM	trihalomethanes
TNT	ammonia nitrate explosive
TPQ	threshold planning quantity
TRI	Toxic Release Inventory
TSCA	<i>Toxic Substances Control Act</i>
TSDF	treatment, storage, or disposal facility
TSS	total suspended solid
TTHM	total trihalomethanes
TTO	total toxic organics
TU	temporary unit
UIC	underground injection control
UL	Underwriter's Laboratory
USACERL	U.S. Army Construction Engineering Research Laboratories
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VHAP	volatile hazardous air pollutant
VOC	volatile organic compound
VOL	volatile organic liquid



### Commonly Used Abbreviations

bbl	barrel	mg	microgram
C	Celsius	mm	micrometer
cm	centimeter	min	minute
cm <sup>2</sup>	square centimeter	MJ	Megajoule
F	Fahrenheit	mo	month
ft	foot	mm	millimeter
ft <sup>2</sup>	square feet	mrem	millirem
ft <sup>3</sup>	cubic feet	MW	Megawatt
g	gram	ng	nanogram
gal	gallon	NTU	nephelometric turbidity unit
gJ	gigajoule	oz	ounce
h	hour	pCi	picoCurie
hp	horsepower	ppm (v/w)	part per million (by volume/ weight)
in.	inch	psi	pound per square inch
J	Joule	psia	pounds per square inch absolute
kg	kilogram	psig	pounds per square inch gauge
km	kilometer	s	second
kPa	kilopascals	scf	standard cubic foot
L	liter	scm	standard cubic meter
lb	pound	V	volt
m	meter	yd	yard
m <sup>3</sup>	cubic meter	yd <sup>2</sup>	square yard
mg	milligram	yr	year
mi	mile		

#### Chemicals

CO	carbon monoxide	NO <sub>2</sub>	nitrogen dioxide
CO <sub>2</sub>	carbon dioxide	NO <sub>x</sub>	nitrogen oxide
Hg	mercury	SO <sub>2</sub>	sulfur dioxide



Appendix I

USEPA Contacts, Hotlines, and FWS Regional Contacts  
[Revised June 1998]

(NOTE: The USEPA WWW site is [www.epa.gov](http://www.epa.gov))

<p>Region 1 (CT, ME, MA, NH, RI, VT)</p> <p>Environmental Protection Agency 1 Congress St., 11th Floor Boston, MA 02203 617-565-3715</p>	<p>Region 6 (AK, LA, NM, OK, TX)</p> <p>Environmental Protection Agency 1445 Ross Ave, Suite 1200 Dallas, TX 75202 214-665-2200</p>
<p>Region 2 (NJ, NY, Puerto Rico, Virgin Islands)</p> <p>Environmental Protection Agency 290 Broadway New York, NY 10007 212-637-3000</p>	<p>Region 7 (IA, KS, MO, NE)</p> <p>Environmental Protection Agency 726 Minnesota Ave Kansas City, KS 66401 913-551-7003</p>
<p>Region 3 (DC, DE, MD, PA, VA, WV)</p> <p>Environmental Protection Agency 841 Chestnut St. Philadelphia, PA 19107 215-566-2950</p>	<p>Region 8 (CO, MT, ND, SD, UT, WY)</p> <p>Environmental Protection Agency 999 18th St, Suite 500 Denver, CO 80202-2466 800-227-8917</p>
<p>Region 4 (AL, FL, GA, KY, MS, NC, SC, TN)</p> <p>Environmental Protection Agency Atlanta Federal Center 61 Forsyth St, SW. Atlanta, GA 30303-3104 404-562-9900</p>	<p>Region 9 (AZ, CA, HI, NV, the Pacific Islands subject to U.S. law)</p> <p>Environmental Protection Agency 75 Hawthorne St. San Francisco, CA 94105 415-744-1500</p>
<p>Region 5 (IL, IN, MI, MN, OH, WI)</p> <p>Environmental Protection Agency 77 W. Jackson Chicago, IL 60604 312-353-2000</p>	<p>Region 10 (AK, ID, OR, WA)</p> <p>Environmental Protection Agency 1200 Sixth Ave Seattle, WA 98101 206-553-1200</p>



## ENVIRONMENTAL INFORMATION HOTLINES

**Air Risk Hotline** 919-541-0888

Information on health, exposure, and risk assessment with regard to toxic air pollutants

**Bureau of Explosives Hotline** 202-639-2222

Offers assistance in hazardous materials incidents involving railroads and is often contacted through CHEMTREC.

**Cancer Information Service Hotline** 800-422-6237

Provides information on cancer risk and referrals to proper sources for local support services.

**Center for Hazardous Materials (CHMR)** 800-334-2467

Information on hazardous waste regulations, minimization, pollution prevention. Distributes related publications/referrals.

**CHEMTREC Hotline** 800-424-9300

The Chemical Transportation Emergency Center will identify unknown chemicals, advise on response methods and procedures for chemicals and situations, provide help in contacting shippers/ carriers/manufacturers/product response teams.

**Consumer Product Safety Commission** 800-638-2772

Information on consumer safety and guidelines on what to do if you come in contact with formaldehyde, asbestos, lime, and air pollutants. Also provides product recall information.

**Control Technology Center for Air Toxics** 919-541-0800

Provides information to state and local pollution control agencies or sources of emissions of air toxics.

**Department of Transportation Hotline** 202-366-4488

Information assistance pertaining to Federal regulations for transportation of hazardous materials, Code of Federal Regulations (CFR) 49.

**Emergency Plan and Community Right-To-Know Hotline, EPA** 800-535-0202

Regulatory, policy, and technical assistance related to EPCRA requirements.

**EPA Control Technology Center** 919-541-0800

General assistance and information on the Clean Air Act and its requirements and air pollution control technologies.

<b>Environmental Defense Fund Recycling Hotline</b>	212-505-2100
Recycling information and locations.	
<b>Environmental Protection Agency</b>	900-245-4505
Information for vendors treating groundwater, soil, sludge, sediments, and solid waste.	
<b>GSA Shelf-Life Hotline</b>	209-946-6333
Provides federal customers information on shelf-life extension.	
<b>Hazardous Materials and Oil Spills, USEPA</b>	800-424-8802
National Response Center in the advent of hazardous material spills	
<b>Indoor air Quality Information Clearinghouse</b>	800-438-4318
Information on indoor air pollutants, sources, health effects, testing, measuring and control.	
<b>National Pesticide Telecommunications Network Hotline</b>	800-858-7378
Information regarding all aspects of pesticide handling.	
<b>Plastics Recyclers Information Line</b>	800-243-5790
Information regarding plastic recycling locations according to area.	
<b>Poison Control Center (National Capital)</b>	202-626-3333
Provides info on exposure to chemicals, poisons, or drugs.	
<b>Public Information Hotline, USEPA</b>	202-260-2080
Will answer inquiries from the public about USEPA and offers a variety of general, nontechnical information materials.	
<b>RCRA/Superfund/EPCRA Hotline</b>	800-424-9346
Answers questions about EPA programs under RCRA, Superfund, and EPCRA, and responds to requests for relevant documents	
<b>RCRA/Superfund (OUST Hotline)</b>	800-424-9346
Information on RCRA regulations and policies. Referrals for obtaining related documents RCRA, USTs, Superfund/CERCLA. Pollution Prevention.	
<b>Safe Drinking Water Hotline</b>	800-426-4791
Information on policy and regulations regarding public water supply programs.	

**Solid Waste Assistance Program (SWAP)**

800-677-9424

Source reduction, recycling, composting, planning, education/training, public participation, legislation/regulation, waste combustion, collection, transfer and disposal, landfill gas, and special wastes.

**Stratosphere Ozone Hotline, USEPA**

800-296-1996

General information on stratospheric ozone depletion and its protection. Consultation on ozone protection regulations and requirements under the CAA 1990 amendments.

**Superfund Technical Information**

800-346-5009

Superfund message center allowing caller to leave messages.

**Toxic Substances (Asbestos)**

800-462-6706

Information on funding for asbestos cleanup projects.

**Toxic Substance Control Act (TSCA) Assistance Information Service**

202-554-1404

Information on TSCA regulations in addition to technical information and referral.

**Used Filter Hotline**

919-549-4800

Sponsored by the Motor and Equipment Manufacturers Association. Provides information on proper filter disposal.

**Waste Reduction Assistance Program OER (FL)**

904-488-0300

Advice, information, and counseling services for pollution prevention.

**Wetlands Protection Hotline, USEPA**

800-832-7828

Information regarding values of wetlands and efforts for wetlands protection.

**Whistle Blower Hotline, USEPA**

800-424-4000

Allows for reporting of fraud, waste, and abuse in USEPA programs.

**FWS Regional Environmental Compliance Coordinators (ECC)**

Revised July 2000

Region/Name	Address	Telephone	Fax
Region 1 – Dan Forney	Regional Engineering 911 NE 11th Ave. Portland, OR 97232-4181	503-231-6143	503-231-6847
Region 2 - Bernard Freeman	Division of Engineering 123 4th St. SW, Room 152 Albuquerque, NM 87102	505-248-7956	505-248-7950
Region 3 - Patrick McDermott	Regional Engineering 1 Federal Drive Fort Snelling, MN 55111-4056	612-713-5235	612-713-5291
Region 4 – Jim Poje	Regional Engineering 1875 Century Blvd., Ste 306 Atlanta, GA 30345	404-670-4113	404-679-4121
Region 5 – Dave Washburn Ed Kaiser	Regional Engineering 300 Westgate Center Dr. Hadley, MA 01035-9589	413-253-8296 413-253-8312	413-253-8451 413-253-8451
Region 6 – Jim Behrmann	Safety and Occupational Health PO Box 25486 Denver Federal Center Denver, CO 80225-0486	303-236-8116	303-236-6958
Region 7 – Charles Grant	Regional Engineering 1011 East Tudor Rd Anchorage, AK 99503	907-786-3506	907-786-3370

**U.S. Fish and Wildlife Service  
Regional Coordinators For Waste Prevention, Recycling, and Federal Acquisition**

**Directory  
[Added September 2000]**

**Servicewide Coordinator For Waste Prevention, Recycling, and Federal Acquisition**

James "Jim" W. McKoy, Jr.  
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## SECTION 1

### AIR EMISSIONS MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section includes regulations, responsibilities, and compliance requirements associated with air pollution emissions from stationary and mobile sources. The significant types and sources of air pollution emissions include:

- Particulates, SO<sub>2</sub>, NO<sub>x</sub>, VOC, hazardous air pollutants (HAP), and CO from fuel burning at steam and hot water generation plants and boilers.
- Particulates and toxic air emissions from the operation of hazardous waste, general waste, classified material, and medical, pathological, and/or infectious waste incinerators.
- Particulates, CO, metals, and toxic air pollutant emissions from open burning and open detonation operations.
- The emission of volatile organic compound (VOC) vapors from the storage and transfer of certain petroleum fuels and chemicals (solvents), and the operation of degreasers and other processes (paint stripping and metal finishing) that use solvents.
- The emission of CO from vehicles and equipment operated on the facility.
- Fugitive particulate emissions from training activities and construction/demolition operations.

Most facilities have air emissions sources in one or more of these categories. Therefore, this section is applicable to some extent at all facilities.

#### B. Federal Legislation

- *The Clean Air Act* Amendments of 1990 (CAAA90). This act, Public Law (PL) 101-549 (42 U.S. Code (USC) 7401-7671q), is currently the Federal legislation regulating the prevention and control of air pollution. It is composed of seven major titles that address various aspects of the national air pollution control program:
  1. Title I describes air pollution control requirements for geographic areas in the United States with respect to the National Ambient Air Quality Standards (NAAQS).
  2. Title II deals mostly with revised tailpipe emission standards for motor vehicles. These requirements compel automobile manufacturers to improve design standards to limit CO, hydrocarbon, and NO<sub>x</sub> emissions. Oxygenated gasoline will be required in cities with the worst ozone and CO nonattainment. Reformulated gasoline and gasoline with reduced Reid vapor pressure is used in ozone nonattainment areas.



3. Title III potentially contains the most costly requirement of the CAAA90. The major elements of Title III deal with hazardous air pollutants through control of routine emissions, and contingency planning for accidental releases.
4. Title IV addresses acid deposition control and applies only to commercial utilities that produce electricity for sale.
5. Title V outlines the requirement of having states issue Federally enforceable operating permits to major stationary sources. The permits are designed to enhance the ability of the USEPA, state regulatory agencies, and private citizens to enforce the requirements of the CAAA90. Permits will also be used to specify operation and control requirements for stationary sources.
6. Title VI limits the emissions of chlorofluorocarbons (CFC), halons, and other halogenated chemicals that contribute to the destruction of stratospheric ozone. These requirements closely follow the control strategies recommended in June 1990 by the second meeting of parties to the Montreal Protocol.
7. Title VII describes civil and criminal penalties that may be imposed for violation of new and existing air pollution control requirements. This title also gives authority to the USEPA to issue field citations for many types of violations.

The Department of Justice, Office of Legal Counsel decision issued 16 July 1997 stipulates the USEPA is administratively authorized under the CAA to assess civil penalties against Federal agencies for violations of the CAA. States on the other hand, do not have the authority to assess civil penalties against Federal agencies for violations of the CAA [Added June 1998].

- EO 13148, *Greening the Government through Leadership in Environmental Management*. This EO, dated 21 April 2000, mandates that environmental management considerations must be a fundamental and integral component of Federal Government policies, operations, planning, and management. In relation to air emissions, the primary goals of this EO is to evaluate present and future uses of ozone-depleting substances and maximize the purchase and the use of safe, cost-effective, and environmentally preferable alternatives, each agency shall develop a plan to phase out the procurement of Class I ozone-depleting substances for all nonexcepted uses by 31 December 2010 [Added July 2000].
- Federal regulations used to develop the checklist include:
  - 40 CFR 60, *Standards of Performance for New Stationary Sources*.
  - 40 CFR 61, *National Emission Standards for Hazardous Air Pollutants*.
  - 40 CFR 80, *Regulation of Fuels and Fuel Additives*.
  - 40 CFR 82, *Protection of Stratospheric Ozone*.

### C. State/Local Regulations

The primary mechanisms regulating air pollutant emissions are the state or air quality control region (AQCR) regulations. These regulations will normally follow the Federal guidelines for state programs and will have many similar features. However, depending on the type and degree of air pollutant problems within the state/region, the individual regulations will vary. As an example, ozone problems are widespread in California and, therefore, the individual AQCRs in that state have stringent VOC emission requirements. The state of North Dakota has no such problem and, therefore, has fewer and less stringent VOC regulations.

New source performance standards (NSPSs) are established for particular pollutants in industrial categories based upon adequately demonstrated control technology. A permit is normally required

for new, expanded, or modified sources of air pollutants. These permitted sources could include incinerators, boilers, and open burning activities.

Some state regulations apply directly to some facilities and operations without requiring a permit. At a minimum, state regulations should be reviewed for the following activities:

1. Fugitive dust emissions.
2. Control of particulate emissions from the transportation of refuse or materials in open vehicles.
3. Certification requirements for boiler operators.
4. Emissions and emission control requirements for the operation of existing fossil fuel-fired steam generators.
5. Open burning.
6. Vehicle exhaust emissions testing.
7. Spray painting of vehicles, buildings, or furniture.
8. Certification of vehicles transporting VOC liquids.
9. Paving of roads and parking lots.
10. Toxic air pollutants.
11. Operation of cold cleaners, degreasers, and open top vapor degreasers.
12. Vapor control requirements for fuel pumps.

#### **D. FWS/DOI Manuals**

- 561 FW 2, *Compliance Requirements, Clean Air Act (CAA)*. This chapter, dated 22 March 1995 provides the guidance necessary to ensure FWS compliance with the CAA.

#### **E. Key Compliance Requirements**

- Gasoline Dispensing - Leaded gasoline shall not be introduced into any motor vehicle that is labeled UNLEADED GASOLINE ONLY, or that is equipped with a gasoline tank filler inlet designed for introduction of unleaded gasoline. Fuel pumps are required to display signs stating the type of fuel in each pump and that only unleaded gas can be introduced into labeled vehicles. The nozzles of the pumps are required to be properly sized. Depending on whether the oxygenated gas is still in the control period, or the area has an oxygenated gasoline program with a credit program, pumps dispensing oxygenated gasoline are required to be labeled. During 1992 and later high ozone seasons and regulatory control periods, gasoline shall not be sold, offered for sale, imported, dispensed, supplied, or transported that exceeds Reid vapor pressure standards in 93. No low sulfur diesel fuel shall be distributed, transported, offered for sale, or dispensed for use in motor vehicles unless it is free of the dye 1,4-dialkylamino-antraquinone and has a cetane index of at least 40, or a maximum aromatic content of 35 volume percent and a sulfur percentage of less than 0.05 percent (40 CFR 80.22(a), 80.22(d), 80.22(e), 80.24(a)(1), 80.27(a)(2), 80.35, 80.80(d), and 80.29(a)).
- Chlorofluorocarbons (CFCs) and Halons - To protect the ozone layer, no person repairing or servicing motor vehicles for payment can service a motor vehicle air-conditioner (MVAC) in any way that affects the refrigerant unless they have been trained and certified and are using approved equipment. Additionally, persons who maintain, service, or repair appliances, except MVACs, and persons who dispose of appliances, except for small appliances, room air conditioners, MVACs, and MVAC-like appliances are required to be certified through an approved technician certification program. As of 15 November 1992, no Class I or Class II substances suitable for use in motor vehicles as a refrigerant can be sold or distributed in any container that is less than 20 lb to any person unless that person is trained and certified. Facilities that sell Class I or Class II substances

suitable for use as a refrigerant in containers of less than 20 lb are required to display a sign with certain wording. The servicing of appliances containing CFCs and halons is required to be done in a manner to prevent emissions (40 CFR 82.34(a), 82.34(b), 82.42(a) through 82.42(c), 80.150 through 80.166, and 82.270) **[Revised March 1998]**.

- **Medical Waste Incinerators** - Hospital/medical/infectious waste incinerators (HMIWI) are required to limit discharges of particulates, CO, dioxins/furans, hydrogen chloride, SO<sub>2</sub>, NO<sub>x</sub>, lead, cadmium, and mercury. Emissions limitations will be performed by the use of appropriate filters and scrubbers and the implementation of extensive monitoring and operating parameters. Existing HMIWIs will be required to comply with the new regulations as USEPA approves state-developed plans. The deadline for compliance will be no later than September 2002. The definition for medical infectious waste as related to these incinerators includes "any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto" (40 CFR 60.50c through 60.58c) **[December 1997]**.
- **Degreasing Operations** - Batch cold cleaning machines, batch vapor cleaning machines, and in-line cleaning machines have to have tightly fitting covers and assorted emission control devices to prevent excess emissions. Operators of these types of units are also required to submit notifications, operating reports, exceedance reports, and solvent use reports. These regulations specifically apply to each individual batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machine that uses any solvent containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform or any combination of these halogenated HAP solvents, in total concentration greater than 5 percent by weight, as a cleaning and/or drying agent.
- **Recordkeeping** - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### **F. Key Compliance Definitions**

- **Affected Source** - the group of all equipment that comprise the POTW treatment plant (40 CFR 63.1595) **[Added April 2000]**.
- **Air Blanket** - the layer of air inside the solvent cleaning machine freeboard located above the solvent/air interface. The centerline of the air blanket is equidistant between the sides of the machine (40 CFR 63.461).
- **Air Knife System** - a device that directs forced air at high pressure, high volume, or a combination of high pressure and high volume, through a small opening directly at the surface of a continuous web part. The purpose of this system is to remove the solvent film from the surfaces of the continuous web part (40 CFR 63.461) **[Added April 2000]**.
- **Annual Capacity Factor** - the ratio between the actual heat input to a steam generating unit from an individual fuel or combustion of fuels during a period of 12 consecutive calendar months and the potential heat input to the steam generating unit from all fuels, had the steam generating unit been operated for 8700 h during that 12-mo period at the maximum design heat input capacity (40 CFR 60.41c).
- **Appliance** - any device which contains and uses a Class I or Class II substance as a refrigerant and which is used for household or commercial purposes, including any air conditioner, refrigerator, chiller, or freezer (40 CFR 82.152).

- *Apprentice* - any person who is currently registered as an apprentice in service, maintenance, repair, or disposal of appliances with the U.S. Department of Labor's Bureau of Apprenticeship and Training (or a State Apprenticeship Council recognized by the Bureau of Apprenticeship and Training). If more than 2 yr have elapsed since the person first registered as an apprentice, the person shall not be recognized as an apprentice (40 CFR 82.152).
- *Approved Equipment Testing Organization* - any organization which has applied for and received approval from the Administrator pursuant to 40 CFR 82.160 (40 CFR 82.152).
- *Area Source* - any stationary source of HAP that is not a major source (40 CFR 63.1595) [**Added April 2000**].
- *Automated Parts Handling System* - a mechanical device that carries all parts and parts baskets at a controlled speed from the initial loading of soiled or wet parts through the removal of the cleaned or dried parts. Automated parts handling systems include, but are not limited to, hoists and conveyors (40 CFR 63.461).
- *Average Daily Concentration* - the arithmetic mean of the concentration of a pollutant in milligrams per kilogram of sewage sludge (dry weight basis) in the samples collected and analyzed in a month (40 CFR 503.41) [**Added April 2000**].
- *Batch Cleaning Machine* - a solvent cleaning machine in which individual parts or a set of parts move through the entire cleaning cycle before new parts are introduced into the solvent cleaning machine. An open top vapor cleaning machine is a type of batch cleaning machine. A solvent cleaning machine, such as a ferris wheel or a cross rod degreaser, that cleans multiple batch loads simultaneously and is manually loaded is a batch cleaning machine (40 CFR 63.461).
- *Batch HMIWI* - an HMIWI that is designed such that neither waste charging nor ash removal can occur during combustion (40 CFR 60.51c) [**December 1997**].
- *Biologicals* - preparations made from living organisms and their products, including vaccines, cultures, etc., intended for use in diagnosing, immunizing, or treating humans or animals or in research pertaining thereto (40 CFR 60.51c) [**December 1997**].
- *Blood Products* - any product derived from human blood, including but not limited to, blood plasma, platelets, red or white blood corpuscles, and other derived licensed products, such as interferon, etc. (40 CFR 60.51c) [**December 1997**].
- *Body Fluids* - liquid emanating or derived from humans and limited to blood; dialysate; amniotic, cerebrospinal, synovial, pleural, peritoneal and pericardial fluids; and semen and vaginal secretions (40 CFR 60.51c) [**December 1997**].
- *Bypass Stack* - a device used for discharging combustion gases to avoid severe damage to the air pollution control device or other equipment (40 CFR 60.51c) [**December 1997**].
- *Carbon Adsorber* - a bed of activated carbon into which an air solvent gas vapor stream is routed and which adsorbs the solvent on the carbon (40 CFR 63.461).
- *Cartridge Filter* - a discrete filter unit containing both filter paper and activated carbon that traps and removes contaminants from petroleum solvent, together with the piping and ductwork used in installing this device (40 CFR 60.621).

- *Certified Refrigerant Recovery or Recycling Equipment* - equipment certified by an approved equipment testing organization to meet the standards in 40 CFR 82.158(b) or (d), equipment certified pursuant to 40 CFR 82.36(a), or equipment manufactured before 15 November 1993 that meets the standards in 40 CFR 82.158(c), (e), or (g) (40 CFR 82.152).
- *Chemotherapeutic Waste* - waste material resulting from the production or use of antineoplastic agents used for the purpose of stopping or reversing the growth of malignant cells (40 CFR 60.51c) **[December 1997]**.
- *Clean Liquid Solvent* - fresh, unused solvent, recycled solvent, or used solvent that has been cleaned of soils (e.g., skimmed of oils or sludge and strained of metal shavings) (40 CFR 63.461).
- *Cleaning Capacity* - for a cleaning machine without a solvent/air interface, the maximum volume of parts that can be cleaned at one time. In most cases, the cleaning capacity is equal to the volume (length time width time height) of the cleaning chamber (40 CFR 63.461).
- *Closed-Vent System* - a system that is not open to the atmosphere and is composed of piping, connections, and, if necessary, flow inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device (40 CFR 61.241).
- *Cold Cleaning Machine* - any device or piece of equipment that contains and/or uses liquid solvent, into which parts are placed to remove soils from the surface of the parts or to dry the parts. Cleaning machines that contain and use heated, nonboiling, solvent to clean the parts are classified as cold cleaning machine (40 CFR 63.461).
- *Combined Squeegee and Air-Knife System* - a system consisting of a combination of a squeegee system and an air-knife system within a single enclosure (40 CFR 63.461) **[Added April 2000]**.
- *Commercial Refrigeration* - for the purposes of 40 CFR 82.156(i), the refrigeration appliances utilized in the retail food and cold storage warehouse sectors. Retail food includes the refrigeration equipment found in supermarkets, convenience stores, restaurants, and other food service establishments. Cold storage includes the equipment used to store meat, produce, dairy products, and other perishable goods. All of the equipment contains large refrigerant charges, typically over 75 lb (40 CFR 82.152).
- *Continuous Cleaning Machine* - see In-Line Cleaning Machine.
- *Continuous HMIWI* - an HMIWI that is designed to allow waste charging and ash removal during combustion (40 CFR 60.51c) **[December 1997]**.
- *Continuous Web Cleaning Machine* - a solvent-cleaning machine in which parts such as film, coils, wire, and metal strips are cleaned at speeds typically in excess of 11 feet per minute. Parts are generally uncoiled, cleaned such that the same part is simultaneously entering and exiting the solvent application area of the solvent-cleaning machine, and then recoiled or cut. For the purposes of this subpart, all continuous web cleaning machines are considered to be a subset of in-line solvent-cleaning machines (40 CFR 63.461) **[Revised April 2000]**.
- *Cover* - a device that prevents or reduces air pollutant emissions to the atmosphere by forming a continuous barrier over the waste material managed in a treatment unit. A cover may have openings (such as access hatches, sampling ports, gauge wells) that are necessary for operation, inspection, maintenance, and repair of the treatment unit on which the cover is used. A cover

may be a separate piece of equipment which can be detached and removed from the treatment unit, or a cover may be formed by structural features permanently integrated into the design of the treatment unit. The cover and its closure devices must be made of suitable materials that will minimize exposure of the waste material to the atmosphere, to the extent practical, and will maintain the integrity of the cover and its closure devices throughout its intended service life (40 CFR 63.461) **[Added April 2000]**.

- *Critical Component* - for the purpose of 82.156(i), a component without which industrial process refrigeration equipment will not function, will be unsafe in its intended environment, and/or will be subject to failures that would cause the industrial process served by the refrigeration appliance to be unsafe (40 CFR 82.152).
- *Cross Rod Solvent Cleaning Machine* - a batch solvent cleaning machine in which parts baskets are suspended from "cross-rods" as they are moved through the machine. In a cross rod cleaning machine, parts are loaded semi-continuously, and enter and exit the machine from a single portal (40 CFR 63.431).
- *Custom Built* - for the purpose of 82.156(i), the equipment or any of the critical components cannot be purchased and/or installed without being uniquely designed, fabricated, and/or assembled to satisfy a specific set of industrial process conditions (40 CFR 82.152).
- *Designated Volatility Attainment Area* - an area not designated as being in nonattainment with the NAAQS for ozone (40 CFR 80.2).
- *Designated Volatility Nonattainment Area* - any area designated as being in nonattainment with the National Ambient Air Quality Standard (NAAQS) for ozone pursuant to rule making under Section 107(d)(4)(A)(ii) of the CAAA90 (40 CFR 80.2).
- *Diesel Fuel* - any fuel sold in any state and suitable for use in diesel motor vehicles and diesel motor vehicle engines, and which is commonly or commercially known or sold as diesel fuel (40 CFR 80.2).
- *Dioxins/Furans* - the combined emissions of tetra- through octa-chlorinated dibenzo-para-dioxins and dibenzofurans, as measured by EPA Reference Method 23 (40 CFR 60.51c) **[December 1997]**.
- *Disposal* - the process leading to and including (40 CFR 82.152):
  1. the discharge, deposit, dumping, or placing of any discarded appliance into or on any land or water
  2. the disassembly of any appliance for discharge, deposit, dumping, or placing of its discarded component parts into or on any land or water
  3. the disassembly of an appliance for reuse of its component parts.
- *Disposal of Halon* - the process leading to and including discarding of halon from halon-containing equipment (40 CFR 82.260) **[Added March 1998]**.
- *Dry Scrubber* - an add-on air pollution control system that injects dry alkaline sorbent (dry injection) or sprays an alkaline sorbent (spray dryer) to react with and neutralize acid gases in the HMIWI exhaust stream forming a dry powder material (40 CFR 60.51c) **[December 1997]**.

- *Dwell* - the technique of holding parts within the freeboard area but above the vapor zone of the solvent cleaning machine. Dwell occurs after cleaning to allow solvent to drain from the parts or parts baskets back into the solvent cleaning machine (40 CFR 63.461).
- *Disposal of Halon-containing Equipment* - the process leading to and including (40 CFR 82.260) **[Added March 1998]**:
  1. The discharge, deposit, dumping, or placing of any discarded halon-containing equipment into or on any land or water
  2. The disassembly of any halon-containing equipment for discharge, deposit, or dumping or placing of its discarded component parts into or on any land or water
  3. The disassembly of any halon-containing equipment for reuse of its component parts.
- *Existing* - any solvent cleaning machine the construction or reconstruction of which was commenced on or before 29 November 1993, but did not meet the definition of a solvent cleaning machine on 2 December 1994 because it did not use halogenated HAP solvent liquid or vapor covered under this subpart to remove soils, becomes an existing source when it commences to use such liquid or vapor. A solvent cleaning machine moved within a contiguous facility or to another facility under the same ownership, constitutes an existing machine (40 CFR 63.461).
- *Fabric Filter or Baghouse* - an add-on air pollution control system that removes particulate matter (PM) and nonvaporous metals emissions by passing flue gas through filter bags (40 CFR 60.51c) **[December 1997]**.
- *Federally Enforceable* - all limitations and conditions enforceable by the Administrator, including those requirements developed pursuant to 40 CFR 60 and 61, requirements within any applicable state implementation plan, and any permit requirements established pursuant to 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24 (40 CFR 60.41b).
- *Followup Verification Test* - for the purpose of 82.156(i), these are tests that involve checking the repairs within 30 days of the appliance's returning to normal operating characteristics and conditions. Follow-up verification tests for appliances from which the refrigerant charge has been evacuated means a test conducted after the appliance or portion of the appliance has resumed operating at normal operating characteristics and conditions of temperature and pressure, except in cases where sound professional judgment dictates that these tests will be more meaningful if performed prior to the return to normal operating characteristics and conditions. A followup verification test with respect to repairs conducted without evacuation of the refrigerant charge means a reverification test conducted after the initial verification test and usually within 30 days of normal operating conditions. Where an appliance is not evacuated, it is only necessary to conclude any required changes in pressure, temperature, or other conditions to return the appliance to normal operating characteristics and conditions (40 CFR 82.152).
- *Fraction Emitted* - the fraction of the mass of HAP entering the POTW wastewater treatment plant which is emitted prior to secondary treatment. The value is calculated using the following steps (40 CFR 63.1583) **[Added April 2000]**:
  1. Determine mass emissions from all equipment up to but not including secondary treatment for each HAP listed in Table 1 to 40 CFR 63, subpart DD
  2. Sum the HAP emissions ( $\sigma E$ )
  3. Sum the HAP mass loadings ( $\sigma L$ ) in the influent to the POTW wastewater treatment plant
  4. Calculate the fraction emitted ( $f_e$  monthly) using  $f_e$  monthly =  $\sigma E / \sigma L$ .
- *Freeboard Area* - for a batch cleaning machine, this is the area within the solvent cleaning machine that extends from the solvent/air interface to the top of the solvent cleaning machine; for an in-

line cleaning machine, it is the area within the solvent cleaning machine that extends from the solvent/air interface to the bottom of the entrance or exit opening, whichever is lower (40 CFR 63.461).

- *Freeboard Ratio* - the ratio of the solvent cleaning machine freeboard height to the smaller interior dimensions (length, width, or diameter) of the solvent cleaning machine (40 CFR 63.461)
- *Full Charge* - For the purposes of 82.156(i) this is the amount of refrigerant required for normal operating characteristics and conditions of the appliance as determined by using one of the following four methods or a combination of one of the following four methods (40 CFR 82.152):
  1. the equipment manufacturers' determination of the correct full charge for the equipment
  2. determining the full charge by appropriate calculations based on component sizes, density of refrigerant, volume of piping, and all other relevant considerations
  3. the use of actual measurements of the amount of refrigerant added or excavated from the appliance
  4. the use of an established range based on the best available data, regarding the normal operating characteristics and conditions for the appliance, where the midpoint of the range will serve as the full charge, and where records are maintained in accordance with 82.166(q).
- *Gasoline Carrier* - any distributor who transports or stores, or causes the transportation or storage of, gasoline or diesel fuel without taking title to or otherwise having any ownership of the gasoline, and without altering either the quality or quantity of the gasoline or diesel fuel (40 CFR 80.2).
- *Gasoline Distributor* - any person who transports or stores, or causes the transportation or storage of gasoline or diesel fuel at any point between any gasoline refinery or importer's facility and any retail outlet or wholesale purchaser consumer facility (40 CFR 80.2).
- *HAP* - hazardous air pollutants (40 CFR 63.1583) **[Added April 2000]**.
- *Halogenated Hazardous Air Pollutant (HAP) Solvent* - methylene chloride (CAS No. 75-09-2), perchloroethylene (CAS No. 127-18-4), trichloroethylene (CAS No. 79-01-6), 1,1,1-trichloroethane (CAS No. 71-55-6), carbon tetrachloride (CAS No. 56-23-5), and chloroform (CAS 67-66-3) (40 CFR 63.461).
- *Halon* - any of the Class I, Group II substances listed in subpart A, Appendix A of 40 CFR Part 82. This group consists of the three halogenated hydrocarbons known as Halon 1211, Halon 1301, and Halon 2402, and all isomers of these chemicals (40 CFR 82.260) **[Added March 1998]**.
- *Halon Blend* - any mixture or combination of substances that contains two or more halons (40 CFR 82.260) **[Added March 1998]**.
- *Halon-Containing Equipment* - equipment used to store, transfer, and/or disperse halon (40 CFR 82.260) **[Added March 1998]**.
- *Halon Product* - any mixture or combination of substances that contains only one halon (e.g., Halon 1301 plus dinitrogen gas) (40 CFR 82.260) **[Added March 1998]**.
- *High-Pressure Appliance* - an appliance that uses a refrigerant with a boiling point between -50 and 10 °C [-58 and 50 × °F] at atmospheric pressure (29.9 in. of Hg). This definition includes, but is not limited to, appliances using refrigerants -12, -22, -114, -500, or -502 (40 CFR 82.152).



- *Hospital* - any facility which has an organized medical staff, maintains at least six inpatient beds, and where the primary function of the institution is to provide diagnostic and therapeutic patient services and continuous nursing care primarily to human inpatients who are not related and who stay on average in excess of 24 h per admission. This definition does not include facilities maintained for the sole purpose of providing nursing or convalescent care to human patients who generally are not acutely ill but who require continuing medical supervision (40 CFR 60.51c) [December 1997].
- *Hospital/Medical/Infectious Waste Incinerator or HMIWI or HMIWI Unit* - any device that combusts any amount of hospital waste and/or medical/infectious waste (40 CFR 60.51c) [December 1997].
- *Hospital/Medical/Infectious Waste Incinerator Operator or HMIWI Operator* - any person who operates, controls, or supervises the day-to-day operation of an HMIWI (40 CFR 60.51c) [December 1997].
- *Hospital Waste* - discards generated at a hospital, except unused items returned to the manufacturer. The definition of hospital waste does not include human corpses, remains, and anatomical parts that are intended for interment or cremation (40 CFR 60.51c) [December 1997].
- *Idling Mode* - the time period when a solvent cleaning machine is not actively cleaning parts and the sump heating coils, if present, are turned on (40 CFR 63.461).
- *Idling Mode Cover* - any cover or solvent cleaning machine design that allows for the cover to shield the cleaning machine openings during the idling mode. A cover that meets this definition can also be used as a working mode cover if that definition is also met (40 CFR 63.461).
- *Immersion Cold Cleaning Machine* - a cold cleaning machine in which the parts are immersed in the solvent when being cleaned. A remote reservoir cold cleaning machine that is also an immersion cold cleaning machine is considered an immersion cold cleaning machine for the purposes of this subpart (40 CFR 63.461).
- *Industrial POTW* - a POTW that accepts a waste stream regulated by an industrial NESHAP and provides treatment and controls as an agent for the industrial discharger. The industrial discharger complies with its NESHAP by using the treatment and controls located at the POTW. For example, an industry discharges its benzene-containing waste stream to the POTW for treatment to comply with 40 CFR 61, Subpart FF--National Emission Standard for Benzene Waste Operations. This definition does not include POTW treating waste streams not specifically regulated under another NESHAP (40 CFR 63.1583) [Added April 2000].
- *Industrial Process Refrigeration* - means, for the purposes of 40 CFR 82.156(i), complex customized appliances used in the chemical, pharmaceutical, petrochemical, and manufacturing industries. This sector also includes industrial ice machines, appliances used directly in the generation of electricity, and ice rinks (40 CFR 82.152).
- *Industrial Process Shutdown* - for the purposes of 82.156(i) this is an industrial process or facility that temporarily ceases to operate or manufacture whatever is being produced at that facility (40 CFR 82.152).
- *Industrial User* - a nondomestic source introducing any pollutant or combination of pollutants into a POTW. Industrial users can be commercial or industrial facilities whose wastes enter local sewers (40 CFR 63.1583) [Added April 2000].

- *Infectious Agent* - any organism (such as a virus or bacteria) that is capable of being communicated by invasion and multiplication in body tissues and capable of causing disease or adverse health impacts in humans (40 CFR 60.51c) [December 1997].
- *Initial Verification Test* - for the purposes of 82.156(i), these are those leak tests that are conducted as soon as practicable after the repair is completed (40 CFR 82.152).
- *In-Line Cleaning Machine or Continuous Cleaning Machine* - a solvent cleaning machine that uses an automated parts handling system, typically a conveyor, to automatically provide a continuous supply of parts to be cleaned. These units are fully enclosed except for the conveyor inlet and exit portals. In-line cleaning machines can be either cold or vapor cleaning machines (40 CFR 63.461).
- *Intermittent HMIWI* - an HMIWI that is designed to allow waste charging, but not ash removal, during combustion (40 CFR 60.51c) [December 1997].
- *Large HMIWI* (40 CFR 60.51c) [December 1997]:
  1. Except as provided in 2:
    - a. An HMIWI whose maximum design waste burning capacity is more than 500 lb/h.
    - b. A continuous or intermittent HMIWI whose maximum charge rate is more than 500 lb/h.
    - c. A batch HMIWI whose maximum charge rate is more than 4000 lb/day.
  2. The following are not large HMIWI:
    - a. A continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 500 lb/h.
    - b. A batch HMIWI whose maximum charge rate is less than or equal to 4000 lb/day.
- *Lip Exhaust* - a device installed at the top of the opening of a solvent cleaning machine that draws in air and solvent vapor from the freeboard area and ducts the air and vapor away from the solvent cleaning area (40 CFR 63.461).
- *Low-level Radioactive Waste* - waste material which contains radioactive nuclides emitting primarily beta or gamma radiation, or both, in concentrations or quantities that exceed applicable Federal or state standards for unrestricted release. Low-level radioactive waste is not high-level radioactive waste, spent nuclear fuel, or by-product material as defined by the *Atomic Energy Act* of 1954 (42 U.S.C. 2014(e)(2)) (40 CFR 60.51c) [December 1997].
- *Low-Loss Fitting* - any device that is intended to establish a connection between hoses, appliances, or recovery or recycling machines and that is designed to close automatically or to be closed manually when disconnected, minimizing the release of refrigerant from hoses, appliances, and recovery or recycling machines (40 CFR 82.152).
- *Low-Pressure Appliance* - an appliance that uses a refrigerant with a boiling point above 10 °C [50 °F] at atmospheric pressure (29.9 in. of Hg). This definition includes, but is not limited to, equipment utilizing refrigerants -11, -113, and -123 (40 CFR 82.152).
- *Major Maintenance, Service, or Repair* - any maintenance, service, or repair involving the removal of any or all of the following appliance components (40 CFR 82.152):
  1. Compressor.
  2. Condenser.
  3. Evaporator.

4. Auxiliary heat exchanger coil.

- **Malfunction** - any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused, in part, by poor maintenance or careless operation are not malfunctions. During periods of malfunction the operator shall operate within established parameters as much as possible, and monitoring of all applicable operating parameters shall continue until all waste has been combusted or until the malfunction ceases, whichever comes first (40 CFR 60.51c) [December 1997].
- **Management Practice (MP)** - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- **Maximum Charge Rate** (40 CFR 60.51c) [December 1997]:
  1. For continuous and intermittent HMIWI, 110 percent of the lowest 3-h average charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.
  2. For batch HMIWI, 110 percent of the lowest daily charge rate measured during the most recent performance test demonstrating compliance with all applicable emission limits.
- **Maximum Design Waste Burning Capacity** (40 CFR 60.51c) [December 1997]:
  1. For intermittent and continuous HMIWI:
$$C = P_v \times 15,000/8500$$
Where,  
C = HMIWI capacity, lb/h.  
 $P_v$  = Primary chamber volume, ft<sup>3</sup>.  
15,000 = Primary chamber heat release rate factor, Btu/ft<sup>3</sup>/h.  
8500 = Standard waste heating value, Btu/lb.
  2. For batch HMIWI:
$$C = P_v \times 4.5/8$$
Where,  
C = HMIWI capacity, lb/h.  
 $P_v$  = Primary chamber volume, ft<sup>3</sup>.  
4.5 = Waste density, lb/ft<sup>3</sup>.  
8 = Typical hours of operation of a batch HMIWI, hours.
- **Maximum Fabric Filter Inlet Temperature** - 110 percent of the lowest 3-h average temperature at the inlet to the fabric filter (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the dioxin/furan emission limit (40 CFR 60.51c) [December 1997].
- **Maximum Flue Gas Temperature** - 110 percent of the lowest 3-h average temperature at the outlet from the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the mercury (Hg) emission limit (40 CFR 60.51c). [December 1997]
- **Medical/Infectious Waste** - any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals that is listed in paragraphs (1) through (7) of this definition. The definition of medical/infectious waste does not include hazardous waste identified or listed under the regulations in part 261 of this chapter; household waste, as defined in Section 261.4(b)(1) of this

chapter; ash from incineration of medical/infectious waste, once the incineration process has been completed; human corpses, remains, and anatomical parts that are intended for interment or cremation; and domestic sewage materials identified in Section 261.4(a)(1) of this chapter (40 CFR 60.51c) [December 1997]:

1. Cultures and stocks of infectious agents and associated biologicals, including: cultures from medical and pathological laboratories; cultures and stocks of infectious agents from research and industrial laboratories; wastes from the production of biologicals; discarded live and attenuated vaccines; and culture dishes and devices used to transfer, inoculate, and mix cultures.
2. Human pathological waste, including tissues, organs, and body parts and body fluids that are removed during surgery or autopsy, or other medical procedures, and specimens of body fluids and their containers.
3. Human blood and blood products including:
  - a. Liquid waste human blood.
  - b. Products of blood.
  - c. Items saturated and/or dripping with human blood.
  - d. Items that were saturated and/or dripping with human blood that are now caked with dried human blood; including serum, plasma, and other blood components, and their containers, which were used or intended for use in either patient care, testing and laboratory analysis, or the development of pharmaceuticals. Intravenous bags are also included in this category.
4. Sharps that have been used in animal or human patient care or treatment or in medical, research, or industrial laboratories, including hypodermic needles, syringes (with or without the attached needle), pasteur pipettes, scalpel blades, blood vials, needles with attached tubing, and culture dishes (regardless of the presence of infectious agents). Also included are other types of broken or unbroken glassware that were in contact with infectious agents, such as used slides and cover slips.
5. Animal waste including contaminated animal carcasses, body parts, and bedding of animals that were known to have been exposed to infectious agents during research (including research in veterinary hospitals), production of biologicals or testing of pharmaceuticals.
6. Isolation wastes including biological waste and discarded materials contaminated with blood, excretions, exudates, or secretions from humans who are isolated to protect others from certain highly communicable diseases, or isolated animals known to be infected with highly communicable diseases.
7. Unused sharps including the following unused, discarded sharps: hypodermic needles, suture needles, syringes, and scalpel blades.

• *Medium HMIWI* (40 CFR 60.51c) [December 1997]:

1. Except as provided in paragraph (2):
  - a. An HMIWI whose maximum design waste burning capacity is more than 200 lb/h but less than or equal to 500 lb/h.
  - b. A continuous or intermittent HMIWI whose maximum charge rate is more than 200 lb/h but less than or equal to 500 lb/h.
  - c. A batch HMIWI whose maximum charge rate is more than 1600 lb/day but less than or equal to 4000 lb/day.
2. The following are not medium HMIWI:
  - a. A continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 200 lb/h or more than 500 lb/h.
  - b. A batch HMIWI whose maximum charge rate is more than 4000 lb/day or less than or equal to 1600 lb/day.

- *Minimum Dioxin/Furan Sorbent Flow Rate* - 90 percent of the highest 3-h average dioxin/furan sorbent flow rate (taken, at a minimum, once every hour) measured during the most recent performance test demonstrating compliance with the dioxin/furan emission limit (40 CFR 60.51c) [December 1997].
- *Minimum Hg Sorbent Flow Rate* - 90 percent of the highest 3-h average Hg sorbent flow rate (taken, at a minimum, once every hour) measured during the most recent performance test demonstrating compliance with the Hg emission limit (40 CFR 60.51c) [December 1997].
- *Minimum Hydrogen Chloride (HCl) Sorbent Flow Rate* - 90 percent of the highest 3-h average HCl sorbent flow rate (taken, at a minimum, once every hour) measured during the most recent performance test demonstrating compliance with the HCl emission limit (40 CFR 60.51c) [December 1997].
- *Minimum Horsepower or Amperage* - 90 percent of the highest 3-h average horsepower or amperage to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the applicable emission limits (40 CFR 60.51c) [December 1997].
- *Minimum Pressure Drop Across the Wet Scrubber* - 90 percent of the highest 3-h average pressure drop across the wet scrubber PM control device (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM emission limit (40 CFR 60.51c) [December 1997].
- *Minimum Scrubber Liquor Flow Rate* - 90 percent of the highest 3-h average liquor flow rate at the inlet to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with all applicable emission limits (40 CFR 60.51c) [December 1997].
- *Minimum Scrubber Liquor pH* - 90 percent of the highest 3-h average liquor pH at the inlet to the wet scrubber (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance the HCl emission limit (40 CFR 60.51c) [December 1997].
- *Minimum Secondary Chamber Temperature* - 90 percent of the highest 3-h average secondary chamber temperature (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM, CO, or dioxin/furan emission limits (40 CFR 60.51c) [December 1997].
- *Modification* - in relation to new source performance standards (NSPS), any physical or operational change to an existing facility that results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies except (40 CFR 60.14) [December 1997]:
  1. Maintenance, repair, and replacement which the administrator determines to be routine for a source category.
  2. An increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on the facility.
  3. An increase in the hours of operation.
  4. Use of an alternate fuel or raw material if, prior to the date any standard under this part becomes applicable to that source type, the existing facility was designed to accommodate that alternate use. A facility will be designed to accommodate an alternative fuel or raw material if that use could be accomplished under the facility's construction specifications as assessed prior to the change.

5. The addition or use of any system or device whose primary function is the reduction of air pollutants, except when an emission control system is removed or replaced by a system which the Administrator determines to be less than environmentally beneficial.
  6. The relocation or change in ownership of an existing facility.
- *Modification or Modified HMIWI* - any change to an HMIWI unit after the effective date of these standards such that (40 CFR 60.51c):
    1. The cumulative costs of the modifications, over the life of the unit, exceed 50 percentum of the original cost of the construction and installation of the unit (not including the cost of any land purchased in connection with such construction or installation) updated to current costs.
    2. The change involves a physical change in or change in the method of operation of the unit which increases the amount of any air pollutant emitted by the unit for which standards have been established under section 129 or section 111.
  - *Motor Vehicle Air-Conditioner (MVAC)* - mechanical vapor compression refrigeration equipment used to cool the driver's or passenger's compartment of any motor vehicle. This definition is not intended to encompass hermetically sealed refrigeration systems used on motor vehicles for refrigerated cargo and the air conditioning systems on passenger buses using HCFC-22 refrigerant (40 CFR 82.32(d)) **[December 1997]**.
  - *MVAC-Like Appliance* - mechanical vapor compression, open-drive compressor appliances used to cool the driver's or passenger's compartment of a nonroad motor vehicle. This includes the air-conditioning equipment found on agricultural or construction vehicles. This definition is not intended to cover appliances using HCFC-22 refrigerant (40 CFR 82.152).
  - *New* - in relation to solvent cleaning machines, any solvent cleaning machine the construction or reconstruction of which is commenced after 29 November 1993 (40 CFR 63.461).
  - *Non-industrial POTW* - a POTW that does not meet the definition of an industrial POTW (40 CFR 63.1583) **[Added April 2000]**.
  - *Normal Operating Characteristics or Conditions* - for the purposes of 82.156(i), this means temperature, pressures, fluid flows, speeds, and other characteristics that would normally be expected for a given process load and ambient conditions during operation. Normal operating characteristics and conditions are marked by the absence of atypical conditions affecting the operation of the refrigeration appliance (40 CFR 82.152).
  - *Normally Containing a Quantity of Refrigerant* - containing the quantity of refrigerant within the appliance or appliance component when the appliance is operating with a full charge of refrigerant (40 CFR 82.152).
  - *Opacity* - the degree to which emissions reduce the transmission of light and obscure the view of an object in the background (40 CFR 60.2).
  - *Open Top Vapor Cleaning Machine* - a batch solvent cleaning machine that has its upper surface open to the air and boils solvents to create solvent vapor used to clean and/or dry parts (40 CFR 63.461).
  - *Opening An Appliance* - any service, maintenance, or repair on an appliance that would release class I or class II refrigerant from the appliance to the atmosphere unless the refrigerant were previously recovered from the appliance (40 CFR 82.152).

- *Operating Day* - a 24-h period between 12:00 midnight and the following midnight during which any amount of hospital waste or medical/infectious waste is combusted at any time in the HMIWI (40 CFR 60.51c) [December 1997].
- *Operation* - the period during which waste is combusted in the incinerator, excluding periods of startup or shutdown (40 CFR 60.51c) [December 1997].
- *Pathological Waste* - waste material consisting of only human or animal remains, anatomical parts, and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable) (40 CFR 60.51c) [December 1997].
- *POTW Treatment Plant* - that portion of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste (40 CFR 63.1583) [Added April 2000].
- *Primary Chamber* - the chamber in an HMIWI that receives waste material, in which the waste is ignited, and from which ash is removed (40 CFR 60.51c) [December 1997].
- *Process Stub* - a length of tubing that provides access to the refrigerant inside a small appliance or room air conditioner and that can be resealed at the conclusion of repair or service (40 CFR 82.152).
- *Publicly Owned Treatment Works (POTW)* - a treatment works, as that term is defined by section 112(e)(5) of the CAA, which is owned by a municipality (as defined by section 502(4) of the *Clean Water Act (CWA)*), a state, an intermunicipal or interstate agency, or any department, agency, or instrumentality of the Federal Government. This definition includes any intercepting sewers, outfall sewers, sewage collection systems, pumping, power, and other equipment. The wastewater treated by these facilities is generated by industrial, commercial, and domestic sources. As used in this regulation, the term POTW refers to both any publicly owned treatment works which is owned by a state, municipality, or intermunicipal or interstate agency and therefore eligible to receive grant assistance under the Subchapter II of the CWA, and any federally owned treatment works as that term is described in section 3023 of the *Solid Waste Disposal Act* (40 CFR 63.1583) [Added April 2000].
- *Pyrolysis* - the endothermic gasification of hospital waste and/or medical/infectious waste using external energy (40 CFR 60.51c) [December 1997].
- *Pyrolysis/Combustion Unit* - a unit that produces gases, liquids, or solids through the heating of municipal solid waste, and the gases, liquids, or solids produced are combusted and emissions vented to the atmosphere (40 CFR 60.51b) [December 1997].
- *Reclaim Refrigerant* - to reprocess refrigerant to at least the purity specified in the Air Conditioning and Refrigeration Institute (ARI) Standard 700-1988, *Specifications for Fluorocarbon Refrigerants* (Appendix A to 40 CFR 82, subpart F) and to verify this purity using the analytical methodology prescribed in the ARI Standard 700-1988. In general, reclamation involves the use of processes or procedures available only at a reprocessing or manufacturing facility (40 CFR 82.152).
- *Reclaimer* - a machine used to remove perchloroethylene from articles by tumbling them in a heated air stream (40 CFR 63.321).

- *Reconstruction* - the replacement of components of an affected or a previously unaffected stationary source such that (40 CFR 63.1583) **[Added April 2000]**:
  1. The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source.
  2. It is technologically and economically feasible for the reconstructed source to meet the relevant standards established by the Administrator (or a state) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of HAP from that source.
- *Recover Refrigerant* - to remove refrigerant in any condition from an appliance and to store it in an external container without necessarily testing or processing it in any way (40 CFR 182.52(s)).
- *Recovery Efficiency* - the percentage of refrigerant in an appliance that is recovered by a piece of recycling or recovery equipment (40 CFR 82.152).
- *Recycle Refrigerant* - to extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such as replaceable core filter-driers, which reduce moisture, acidity, and particulate matter. These procedures are usually implemented at the field job site (40 CFR 82.152).
- *Refrigerated Condenser* - a vapor recovery system into which an air-perchloroethylene gas-vapor stream is routed and the perchloroethylene is condensed by cooling the gas-vapor stream (40 CFR 63.321).
- *Remote Reservoir Cold Cleaning Machine* - any device in which liquid solvent is pumped to a sink-like work area that drains solvent back into an enclosed container while parts are being cleaned, allowing no solvent to pool in the work area (40 CFR 63.461).
- *Remote Reservoir Continuous Web Cleaning Machine* - a continuous web cleaning machine in which there is no exposed solvent sump. In these units, the solvent is pumped from an enclosed chamber and is typically applied to the continuous web part through a nozzle or series of nozzles. The solvent then drains from the part and is collected and recycled through the sump, allowing no solvent to pool in the work or cleaning area (40 CFR 63.461) **[Added April 2000]**.
- *Secondary Chamber* - a component of the HMIWI that receives combustion gases from the primary chamber and in which the combustion process is completed (40 CFR 60.51c) **[December 1997]**.
- *Secondary Treatment* - treatment processes, typically biological, designed to reduce the concentrations of dissolved and colloidal organic matter in wastewater (40 CFR 63.1583) **[Added April 2000]**.
- *Self-Contained Recovery Equipment* - refrigerant recovery or recycling equipment that is capable of removing the refrigerant from an appliance without the assistance of components contained in the appliance (40 CFR 82.152).
- *Service Involving Refrigerant* - any service during which discharge or release of refrigerant from the MVAC or MVAC-like appliance to the atmosphere can reasonably be expected to occur. Service involving refrigerant includes any service in which an MVAC or MVAC-like appliance is charged with refrigerant but no other service involving refrigerant is performed (i.e., a top-off) (40 CFR 82.32.(h)) **[December 1997]**.



- *Small Appliance* - any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with 5 lb or less of refrigerant (40 CFR 82.152):
  1. Refrigerators designed for home use.
  2. Freezers designed for home use.
  3. Room air conditioners (including window air conditioners and packaged terminal air conditioners).
  4. Packaged terminal heat pumps.
  5. Dehumidifiers.
  6. Under-the-counter ice makers.
  7. Vending machines.
  8. Drinking water coolers.
  
- *Small HMIWI* (40 CFR 60.51c) **[December 1997]**:
  1. Except as provided in paragraph (2):
    - a. An HMIWI whose maximum design waste burning capacity is less than or equal to 200 lb/h.
    - b. A continuous or intermittent HMIWI whose maximum charge rate is less than or equal to 200 lb/h.
    - c. A batch HMIWI whose maximum charge rate is less than 1600 lb/day.
  2. The following are not small HMIWI:
    - a. A continuous or intermittent HMIWI whose maximum charge rate is more than 200 lb/h.
    - b. A batch HMIWI whose maximum charge rate is more than 1600 lb/day.
  
- *Solvent/Air Interface* - for a vapor cleaning machine, the location of contact between the concentrated solvent vapor layer and the air. This location of contact is defined as the in-line height of the primary condenser coils. For a cold cleaning machine, it is the location of contact between the liquid solvent and the air (40 CFR 63.461).
  
- *Solvent Cleaning Machine* - any device or piece of equipment that uses halogenated HAP solvent liquid or vapor to remove soils from the surface of materials. Types of solvent cleaning machines include, but are not limited to, batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machines. Buckets, pails, and beakers with capacities of 7.6 L (2 gal) or less are not considered solvent cleaning machines (40 CFR 63.461).
  
- *Squeegee System* - a system that uses a series of pliable surfaces to remove the solvent film from the surfaces of the continuous web part. These pliable surfaces, called squeegees, are typically made of rubber or plastic media, and need to be periodically replaced to ensure continued proper function (40 CFR 63.461) **[Added April 2000]**.
  
- *Standard Conditions* - a temperature of 20 °C and a pressure of 101.3 kPa (40 CFR 60.51c) **[December 1997]**.
  
- *Startup* - the period of time between the activation of the system and the first charge to the unit. For batch HMIWI, startup means the period of time between activation of the system and ignition of the waste (40 CFR 60.51c) **[December 1997]**.

- *Suitable Replacement Refrigerant* - for the purpose of 82.156(i)(7)(i), this is a refrigerant that is acceptable under section 612(c) of the CAAA90 and all regulations promulgated under that section, compatible with other materials with which it may come into contact, and able to achieve the temperatures required for the affected industrial process in a technically feasible manner (40 CFR 82.152).
- *Superheated Part Technology* - a system that is part of the continuous web cleaning process that heats the continuous web part either directly or indirectly to a temperature above the boiling point of the cleaning solvent. This could include a process step, such as a tooling die that heats the part as it is processed, as long as the part remains superheated through the cleaning machine (40 CFR 63.461) [Added April 2000].
- *Superheated Vapor System* - a system that heats the solvent vapor either passively or actively, to a temperature above the solvents boiling point. Parts are held in the superheated vapor before exiting the machine to evaporate the liquid solvent on them. Hot vapor recycle is an example of a superheated vapor system (40 CFR 63.461).
- *System-Dependent Recovery Equipment* - refrigerant recovery equipment that requires the assistance of components contained in an appliance to remove the refrigerant from the appliance (40 CFR 82.152).
- *System Mothballing* - the intentional shutting down of a refrigeration appliance undertaken for an extended period of time by the owners or operators of the facility, where the refrigerant has been evacuated from the appliance or the affected isolated section of the appliance, at least to atmospheric pressure (40 CFR 82.152).
- *Technician* - any person who performs maintenance, service, or repair that could reasonably be expected to release Class I or Class II refrigerants from appliances, except for MVACs, into the atmosphere. Technician also means any person who performs disposal of appliances except for small appliances, MVAC, and MVAC-like equipment that could be reasonably expected to release class I or class II refrigerants from the appliances into the atmosphere. Technician includes, but is not limited to, installers, contractor employees, in-house service personnel, and, in some cases, owners (40 CFR 82.152).
- *Technician* - any person who performs testing, maintenance, service, or repair that could reasonably be expected to release halons from equipment into the atmosphere. Technician also means any person who performs disposal of equipment that could reasonably be expected to release halons from the equipment into the atmosphere. Technician includes, but is not limited to, installers, contractor employees, in-house service personnel, and, in some cases, owners (40 CFR 82.260) [Added March 1998].
- *Vapor Cleaning Machine* - a batch or in-line solvent cleaning machine that boils liquid solvent generating solvent vapor that is used as a part of the cleaning or drying cycle (40 CFR 63.461).
- *Very High-Pressure Appliance* - an appliance that uses a refrigerant with a boiling point below -50 °C [-58 °F] at atmospheric pressure (29.9 in. of Hg). This definition includes, but is not limited to, equipment utilizing refrigerants -13 and -503 (40 CFR 82.152).
- *Very Low Sulfur Oil* - an oil that contains no more than 0.5 weight percent sulfur or that, when combusted without SO<sub>2</sub> emission control, has an SO<sub>2</sub> emission rate equal to or less than 215 ng/J (0.5 lb/MBtu) heat input (40 CFR 60.41b).

- *Volatile Organic Compound (VOC)* - any compound of carbon, excluding CO, CO<sub>2</sub>, carbonic acid, metallic carbides, or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions (40 CFR 51.100).
- *VOC Service* - in relationship to fugitive emissions, this is when a piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight (40 CFR 61.241).
- *Voluntary Certification Program* - a technician testing program operated by a person before that person obtained approval of a technician certification program (40 CFR 82.152).
- *Waste and Wastewater* - a material, or spent or used water or waste, generated from residential, industrial, commercial, mining, or agricultural operations or from community activities that contain dissolved or suspended matter, and that is discarded, discharged, or is being accumulated, stored, or physically, chemically, thermally, or biologically treated in a POTW (40 CFR 63.1583) [**Added April 2000**].
- *Wet Scrubber* - an add-on air pollution control device that utilizes an alkaline scrubbing liquor to collect particulate matter (including nonvaporous metals and condensed organics) and/or to absorb and neutralize acid gases (40 CFR 60.51c) [**December 1997**].
- *Wholesale Purchaser-Consumer* - any organization that is an ultimate consumer of gasoline or diesel fuel and which purchases or obtains gasoline or diesel fuel from a supplier for use in motor vehicles, and receives delivery of that product into a storage tank of at least 550-gal capacity substantially under the control of that organization (40 CFR 80.2).
- *Working Mode* - the time period when the solvent cleaning machine is actively cleaning parts (40 CFR 63.461).
- *Working Mode Cover* - any cover or solvent cleaning machine design that allows the cover to shield the cleaning machine openings from outside air disturbances while parts are being cleaned in the cleaning machine. A cover that is used during the working mode is opened only during parts entry and removal. A cover that meets this definition can also be used as an idling mode cover if that definition is also met (40 CFR 63.461).

**AIR EMISSIONS MANAGEMENT**  
**GUIDANCE FOR CHECKLIST USERS**

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	<b>REFER TO CHECKLIST ITEMS:</b>
All Facilities	A.1.1 through A.1.8
Medical Waste Incinerators	
General	A.30.1 through A.30.8
Monitoring	A.32.1 and A.32.2
Reporting/Recordkeeping Requirements	A.34.1 through A.34.4
Petroleum Products	A.55.1 through A.55.6
CFCs and Halons	
Purchasing/Procurement	A.85.1 through A.85.4
Repair/Recycling	A.90.1 through A.90.22
Recordkeeping	A.95.1 through A.95.3
Degreasing Operations	
Cold Cleaning	A.116.1 through A.116.3
Vapor Cleaning	A.117.1 through A.117.12
Reporting	A.118.1 through A.118.7

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## AIR EMISSIONS MANAGEMENT

### Records To Review

- State and local air pollution control regulations
- FWS air pollution control regulations
- Emissions inventory
- All air pollution source permits
- Emission monitoring records
- Opacity records
- Notices of violation (NOVs) from regulatory authorities
- Reports/complaints concerning air quality
- Air Emergency Episode Plan
- State and/or Federal regulatory inspections reports
- Documentation of preventive measure or action
- Results of air sampling at the conclusion of response action
- Training records and certificates pertaining to refrigerant reclaiming/recovery

### Physical Features To Inspect

- All air pollution sources (fuel burners, incinerators, VOC sources, etc.)
- Air pollution monitoring and control devices
- Air emission stacks
- Air intake vents



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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>A.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>A.1.2.</b> FWS facilities are required to comply with state and local air quality regulations (CAAA90, 42 USC 7418(a)).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local air quality requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: See Appendix 1-1 for a list of Service facilities located in Class I areas.)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> <li>- air pollution episode standby plans</li> <li>- permits for construction and operation of sources of emissions</li> <li>- placement of control devices on fuel burning sources</li> <li>- incinerators with less than 45 metric tons/day (50 tons/day) heat input</li> <li>- open burning and detonation</li> <li>- prescribed burning and trash burning</li> <li>- firefighting training</li> <li>- motor vehicle emissions and inspections</li> <li>- use of vapor control systems at gas dispensing facilities</li> <li>- transfer of fuel in tank trucks</li> <li>- solvent metal cleaners such as degreasers and cold cleaners</li> <li>- fugitive dust emissions from sources such as roads, quarries, sand and gravel pits, and construction activities</li> </ul>



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**A.1.3.** Facilities will meet regulatory requirements issued since the finalization of the handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).

- control of particulate emissions from woodworking shops
  - transportation of refuse or materials in open vehicles
  - emissions and emission control requirements for the operation of existing fossil fuel-fired steam generators
  - the spray painting of vehicles, buildings, and/or furniture
  - certification of vehicles transporting VOC liquids
  - certification for operators of boilers paving of roads and parking lots
  - certification for CFC replacement in vehicle air conditioning units
  - toxic air pollutants
  - indoor air pollution.)
- (NOTE: Under 42 USC 7418(c) and 7418(d), each department, agency, and instrumentality of executive, legislative, and judicial branches of the Federal Government is required to comply with valid vehicle inspection and maintenance programs, except for vehicles that are considered military tactical vehicles. Also, all employees operating vehicles on a property or a facility over which the Federal Government has jurisdiction are required to furnish proof of compliance with applicable requirements of any valid vehicle inspection and maintenance programs. The facility shall use one of the following methods to establish proof of compliance:
- presentation by the vehicle owner of a valid certificate of compliance
  - presentation by the vehicle owner of proof of vehicle registration within the geographic area covered by the vehicle inspection and maintenance program (except for any program whose enforcement mechanism is not through the denial of vehicle registration)
  - another method approved by the vehicle inspection and maintenance program administrator.)
- Determine if any new regulations concerning air quality have been issued since the finalization of the handbook.
- Verify that the facility is in compliance with newly issued regulations.

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.1.4.</b> FWS facilities should report all NOV's to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p> <p><b>A.1.5.</b> Facilities which have major sources are required to apply for CAAA90 Title V Permits (40 CFR 70.1).</p> <p><b>A.1.6.</b> Each facility located in an ozone nonattainment area with stationary sources of NO<sub>x</sub> or VOCs is required to provide the state with a statement showing actual emissions of NO<sub>x</sub> and VOCs from the sources (CAAA90, Section 182(a)(3)). [December 1997].</p> <p><b>A.1.7.</b> Facilities are required to develop and maintain an inventory of all stationary air pollution sources and an inventory of all systems using Class I and Class II substances (RP, 561 FW 2.6C(1) and 2.6C(2)) [Citation Revised June 1998].</p>	<p>Determine if the facility has received an NOV relating to air quality.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p> <p>Determine if the facility has any major sources.</p> <p>(NOTE: The emission threshold needed to qualify as a major source will vary depending on whether the source is classified as a major for criteria pollutants and whether it is located in an attainment or nonattainment area.)</p> <p>Verify that facilities with major air sources have applied for Title V permits.</p> <p>(NOTE: This is a state issued, Federally enforceable permit. If the state program has not been approved, the USEPA Region will issue the permit.)</p> <p>(NOTE: This checklist item is to be used only when a state has not implemented an equivalent state regulation.)</p> <p>Verify that the first statement, or inventory, was submitted by November 1993.</p> <p>Verify that the inventory is complete.</p> <p>Verify that statements have been submitted at least once a year after the initial statement indicating any changes or lack of change.</p> <p>(NOTE: See 40 CFR 81 for attainment status.)</p> <p>Verify that the facility has an inventory of all stationary sources and an inventory of all systems using Class I and Class II substances.</p> <p>(NOTE: See Appendix 1-3 for a list of Class I and Class II substances.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.1.8.</b> A risk management program (RMP) is required when there are processes involving regulated substances above specific threshold levels (40 CFR 68.2(c), 68.150. and 68.190) [Revised July 1999].</p>	<p>(NOTE: The requirements for an RMP must be met no later than 21 June 1999.)</p> <p>(NOTE: The effective date of 40 CFR 68 is stayed from 21 June 1999 to 21 December 1999 with respect to regulated flammable hydrocarbon substances when the substance is intended for use as a fuel and does not exceed 67,000 lb in a process that is not manufacturing the fuel, does not contain &gt; a threshold quantity of another regulated substance, and is not collocated or interconnected to another covered process.)</p> <p>Determine if any processes or activities exceed the threshold quantities (see Appendix 1-1a).</p> <p>(NOTE: Unlike the Title V permit program, applicability is determined by the amount of the chemical actually stored/used in a process.)</p> <p>(NOTE: If there are several propane tanks, chlorine cylinders, etc., which do not individually exceed the threshold quantities, they may still be covered under this regulation based on their proximity to each other. USEPA has defined close proximity as "a release from one could lead to a release from the other." If they are in close proximity, the summed quantity must be compared to the threshold limit.)</p> <p>Verify that, if the threshold limits have been exceeded, an RMP has been developed.</p> <p>Verify that the RMP contains all required information, see Appendix 1-1d.</p> <p>Verify that the owner or operator revises and updates the RMP within 5 yr of its initial submission or most recent update required by the following, whichever is later:</p> <ul style="list-style-type: none"> <li>- no later than 3 yr after a newly regulated substance is first listed by EPA</li> <li>- no later than the date on which a new regulated substance is first present in an already covered process above a threshold quantity</li> <li>- no later than the date on which a regulated substance is first present above a threshold quantity in a new process</li> <li>- within 6 mo of a change that requires a revised PHA or hazard review</li> <li>- within 6 mo of a change that requires a revised offsite consequence analysis</li> <li>- within 6 mo of a change that alters the Program level that applied to any covered process.</li> </ul>

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Verify that, if a stationary source is no longer subject to this requirement, the owner or operator submits a revised registration to EPA within 6 mo indicating that the stationary source is no longer covered.



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>MEDICAL WASTE INCINERATORS</b></p> <p><b>A.30 General</b></p>	<p>(NOTE: Existing medical waste incinerators will be required to comply with new regulations as EPA approves State-developed plans under Subpart Ce. The deadline for compliance with the new regulations will be no later than 15 September 2002.)</p> <p>(NOTE: The requirements of Subpart Ec do not apply to the following (40 CFR 60.50c(b) through 60.50c(h)):</p> <ul style="list-style-type: none"> <li>- a combustor during periods when only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste (see definitions) is burned, provided the owner or operator of the combustor: <ul style="list-style-type: none"> <li>- notifies the Administrator of an exemption claim</li> <li>- keeps records on a calendar quarter basis of the periods of time when only pathological waste, low-level radioactive waste and/or chemotherapeutic waste is burned</li> </ul> </li> <li>- any co-fired combustor (see definitions) if the owner or operator: <ul style="list-style-type: none"> <li>- notifies the Administrator of an exemption claim</li> <li>- provides an estimate of the relative amounts of hospital waste, medical/ infectious waste, and other fuels and wastes to be combusted</li> <li>- keeps records on a calendar quarter basis of the weight of hospital waste and medical/infectious waste combusted, and the weight of all other fuels and wastes combusted at the co-fired combustor</li> </ul> </li> <li>- any combustor required to have a permit under section 3005 of the <i>Solid Waste Disposal Act</i> (SWDA)</li> <li>- any combustor which meets the applicability requirements under subpart Cb, Ea, or Eb of this part (standards or guidelines for certain municipal waste combustors)</li> <li>- any pyrolysis unit (see definitions)</li> <li>- cement kilns firing hospital waste and/or medical/infectious waste</li> <li>- physical or operational changes made to an existing HMIWI solely for the purpose of complying with emission guidelines under subpart Ce are not considered a modification and do not result in an existing HMIWI becoming subject to this subpart.)</li> </ul>

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**A.30.1.** HMIWIs which started construction after 20 June 1996 or which started modification after 16 March 1998 must meet specific emissions limitations. (40 CFR 60.50c(a) and 60.52c) [December 1997].

(NOTE: Affected HMIWIs subject to this subpart are not subject to the requirements of 40 CFR 64.)

(NOTE: HMIWIs shall operate pursuant to a permit issued under the USEPA-approved state operating permit program by 15 September 2000 or on the effective date of a CAA Title V permit, whichever date is later.)

Verify that, on or after the date on which the initial performance test is completed or is required to be completed, whichever date comes first, no owner or operator of an HMIWI discharges into the atmosphere:

- from that HMIWI, any gases that contain stack emissions in excess of the limits presented in Appendix 1-1b
- from the stack of that HMIWI, any gases that exhibit greater than 10 percent opacity (6-min block average).

Verify that, on or after the date on which the initial performance test is completed or is required to be completed, whichever date comes first, no owner or operator utilizing a large HMIWI discharges into the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (i.e., 9 min per 3-h period), as determined by EPA Reference Method 22, except:

- visible emissions discharged inside buildings or enclosures of ash conveying systems
- during maintenance and repair of ash conveying systems.

(NOTE: Maintenance and/or repair shall not exceed 10 operating days per calendar quarter unless the owner or operator obtains written approval from the state agency establishing a date whereby all necessary maintenance and repairs of ash conveying systems shall be completed.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.30.2.</b> HMIWIs equipped with a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and a wet scrubber must comply with specific operating parameters (40 CFR 60.56c(d), 60.56c(h) through 60.56c(j)) [December 1997].</p>	<p>Verify that facilities equipped with the following control systems operate within the parameters in Appendix 1-1c:</p> <ul style="list-style-type: none"> <li>- a dry scrubber followed by a fabric filter</li> <li>- a wet scrubber</li> <li>- a dry scrubber followed by a fabric filter and a wet scrubber.</li> </ul> <p>(NOTE: Operating parameter limits do not apply during performance tests.)</p> <p>(NOTE: A facility may conduct a repeat performance test within 30 days of violation of applicable operating parameters to demonstrate that the facility is not in violation of the applicable emission limit.)</p> <p>Verify that, if the facility is using an air pollution control device other than a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and a wet scrubber, the facility petitions the Administrator for additional site-specific operating parameters to be established during the initial performance test and continuously monitored thereafter.</p> <p>(NOTE: The initial performance test cannot be conducted until after the petition has been approved by the Administrator.)</p> <p>(NOTE: A facility may conduct a repeat performance test at any time to establish new values for the operating parameters. The EPA Administrator may request a repeat performance test at any time as well.)</p>
<p><b>A.30.3.</b> HMIWIs equipped with a dry scrubber followed by a fabric filter are required to meet additional operating parameters (40 CFR 60.56c(e) and 60.56c(h)) [December 1997].</p>	<p>Verify that the HMIWI is not operated above the maximum charge rate and below the minimum secondary chamber temperature simultaneously.</p> <p>(NOTE: See Appendix 1-1c for operating parameters.)</p> <p>Verify that the HMIWI is not operated above the maximum fabric filter inlet temperature and below the minimum dioxin/furan sorbent flow rate simultaneously.</p> <p>Verify that the HMIWI is not operated above the maximum charge rate and below the minimum HCl sorbent flow rate simultaneously.</p> <p>Verify that the facility does not use the bypass stack except during startup, shutdown, or malfunction.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.30.4.</b> HMIWIs equipped with a wet scrubber are required to meet additional operating parameters (40 CFR 60.56c(f) and 60.56c(h)) [December 1997].</p>	<p>(NOTE: A facility may conduct a repeat performance test within 30 days of violation of applicable operating parameters to demonstrate that the facility is not in violation of the applicable emission limit.)</p> <p>Verify that the HMIWI is not operated above the maximum charge rate and below the minimum pressure drop across the wet scrubber or below the minimum horsepower or amperage to the system simultaneously.</p> <p>(NOTE: See Appendix 1-1c for operating parameters.)</p> <p>Verify that the HMIWI is not operated above the maximum charge rate and below the minimum secondary chamber temperature simultaneously.</p> <p>Verify that the HMIWI is not operated above the maximum charge rate, below the minimum secondary chamber temperature, and below the minimum scrubber liquor flow rate simultaneously.</p> <p>Verify that the HMIWI is not operated above the maximum charge rate and below the minimum scrubber liquor pH simultaneously.</p> <p>Verify that the HMIWI is not operated above the maximum flue gas temperature and above the maximum charge rate simultaneously.</p> <p>Verify that the facility does not use the bypass stack except during startup, shutdown, or malfunction.</p> <p>(NOTE: A facility may conduct a repeat performance test within 30 days of violation of applicable operating parameters to demonstrate that the facility is not in violation of the applicable emission limit.)</p>
<p><b>A.30.5.</b> HMIWIs equipped with a dry scrubber followed by a fabric filter and a wet scrubber are required to meet additional operating parameters (40 CFR 60.56c(g) and 60.56c(h)) [December 1997].</p>	<p>Verify that the HMIWI does not operate above the maximum charge rate and below the minimum secondary chamber temperature simultaneously.</p> <p>(NOTE: See Appendix 1-1c for operating parameters.)</p> <p>Verify that the HMIWI does not operate above the maximum fabric filter inlet temperature, above the maximum charge rate, and below the minimum dioxin/furan sorbent flow rate simultaneously.</p> <p>Verify that the HMIWI does not operate above the maximum charge rate and below the maximum scrubber liquor pH simultaneously.</p>

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**A.30.6.** HMIWI operators are required to be trained, qualified, and available (40 CFR 60.53c(a) through 60.53(g)) [December 1997].

Verify that the HMIWI does not operate above the maximum charge rate and below the minimum Hg sorbent flow rate simultaneously.

Verify that the facility does not use the bypass stack except during startup, shutdown, or malfunction.

(NOTE: A facility may conduct a repeat performance test within 30 days of violation of applicable operating parameters to demonstrate that the facility is not in violation of the applicable emission limit.)

Verify that a trained and qualified HMIWI operator is accessible, either at the facility or available within 1 h, at all times that the HMIWI is being operated.

(NOTE: The trained and qualified HMIWI operator may operate the HMIWI directly or be the direct supervisor of one or more HMIWI operators.)

Verify that HMIWI operators were trained at a state-approved program or by completing the following requirements:

- 24 h of training on the following subjects:
  - environmental concerns, including pathogen destruction and types of emissions
  - basic combustion principles, including products of combustion
  - operation of the type of incinerator to be used by the operator, including proper startup, waste charging, and shutdown procedures
  - combustion controls and monitoring
  - operation of air pollution control equipment and factors affecting performance (if applicable)
  - methods to monitor pollutants (continuous emission monitoring systems and monitoring of HMIWI and air pollution control device operating parameters) and equipment calibration procedures (where applicable)
  - inspection and maintenance of the HMIWI, air pollution control devices, and continuous emission monitoring systems
  - actions to correct malfunctions or conditions that may lead to malfunction
  - bottom and fly ash characteristics and handling procedures
  - applicable Federal, state, and local regulations
  - work safety procedures
  - pre-startup inspections
  - recordkeeping requirements

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**A.30.7.** HMIWIs must prepare a waste management plan (40 CFR 60.55c) [December 1997].

- an examination designed and administered by the instructor
- reference material distributed to the attendees covering the course topics.

Verify that HMIWI operators have obtained qualification by:

- completion of a training course described above, and
- either 6-mo experience as an HMIWI operator, 6-mo experience as a direct supervisor of an HMIWI operator, or completion of at least two burn cycles under the observation of two qualified HMIWI operators.

(NOTE: Qualification is valid from the date on which the examination is passed or the completion of the required experience, whichever is later.)

Verify that HMIWI operators have maintained qualification by completing and passing an annual review or refresher course of at least 4 h covering, at a minimum, the following:

- update of regulations
- incinerator operation, including startup and shutdown procedures
- inspection and maintenance
- responses to malfunctions or conditions that may lead to malfunction
- discussion of operating problems encountered by attendees.

(NOTE: A lapsed qualification shall be renewed by one of the following methods:

- for a lapse of less than 3 yr, the HMIWI operator shall complete and pass a standard annual refresher course as described above
- for a lapse of 3 yr or more, the HMIWI operator shall complete and pass a training course as described above. )

Verify that the HMIWI has prepared a waste management plan.

Verify that the waste management plan identifies both the feasibility and the approach to separate certain components of solid waste from the health care waste stream in order to reduce the amount of toxic emissions from incinerated waste.

(NOTE: A waste management plan may include, but is not limited to:

- elements such as:
  - paper
  - cardboard

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**A.30.8.** HMIWIs for which construction is commenced after 15 September 1997 must prepare an analysis of the impacts of the HMIWI (40 CFR 60.54c) [December 1997].

- plastics
- glass
- battery
- metal recycling
- purchasing recycled or recyclable products.)

(NOTE: A waste management plan may include different goals or approaches for different areas or departments of the facility and need not include new waste management goals for every waste stream.)

(NOTE: A waste management plan should identify, where possible, reasonably available additional waste management measures, taking into account the effectiveness of waste management measures already in place, the costs of additional measures, the emission reductions expected to be achieved, and any other environmental or energy impacts they might have.)

Verify that the American Hospital Association's publication entitled "An Ounce of Prevention: Waste Reduction Strategies for Health Care Facilities" was considered in the development of the waste management plan.

Verify that, if the facility commenced construction after 15 September 1997, an impact analysis was prepared.

Verify that, if the facility has not yet commenced construction, an impact analysis is being prepared.

Verify that the impact analysis considers air pollution control alternatives that minimize, on a site-specific basis, to the maximum extent practicable, potential risks to public health or the environment.

(NOTE: In considering alternatives, the analysis may consider:

- costs
- energy impacts
- non-air environmental impacts
- any other factors related to the practicability of the alternatives.)

(NOTE: Analyses of facility impacts prepared to comply with state, local, or other Federal regulatory requirements may be used to satisfy the facility impact analysis requirement, as long as they include the consideration of air pollution control alternatives as specified above.)

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Verify that the facility impact analysis was submitted to the regulatory authority.

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REGULATORY REQUIREMENTS	REVIEWER CHECKS SEPTEMBER 2000
<p><b>MEDICAL WASTE INCINERATORS</b></p> <p><b>A.32</b> Monitoring</p>	<p>(NOTE: Existing medical waste incinerators will be required to comply with new regulations as EPA approves state-developed plans under Subpart Ce. The deadline for compliance with the new regulations will be no later than 15 September 2002.)</p> <p>(NOTE: The requirements of Subpart Ec do not apply to the following (40 CFR 60.50c(b) through 60.50c(h)):</p> <ul style="list-style-type: none"> <li>- a combustor during periods when only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste (see definitions) is burned, provided the owner or operator of the combustor:               <ul style="list-style-type: none"> <li>- notifies the Administrator of an exemption claim; and</li> <li>- keeps records on a calendar quarter basis of the periods of time when only pathological waste, low-level radioactive waste and/or chemotherapeutic waste is burned</li> </ul> </li> <li>- any co-fired combustor (see definitions) if the owner or operator:               <ul style="list-style-type: none"> <li>- notifies the Administrator of an exemption claim</li> <li>- provides an estimate of the relative amounts of hospital waste, medical/ infectious waste, and other fuels and wastes to be combusted</li> <li>- keeps records on a calendar quarter basis of the weight of hospital waste and medical/infectious waste combusted, and the weight of all other fuels and wastes combusted at the co-fired combustor</li> </ul> </li> <li>- any combustor required to have a permit under section 3005 of the SWDA</li> <li>- any combustor which meets the applicability requirements under subpart Cb, Ea, or Eb of this part (standards or guidelines for certain municipal waste combustors)</li> <li>- any pyrolysis unit (see definitions)</li> <li>- cement kilns firing hospital waste and/or medical/infectious waste</li> <li>- physical or operational changes made to an existing HMIWI solely for the purpose of complying with emission guidelines under subpart Ce are not considered a modification and do not result in an existing HMIWI becoming subject to this subpart.</li> </ul>

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<p><b>A.32.1.</b> HMIWIs must conduct performance testing in accordance with specific provisions to determine compliance with emission limits (40 CFR 60.56c(b)) [December 1997].</p>	<p>(NOTE: The emission limits apply at all times except during periods of startup, shutdown, or malfunction, provided that no hospital waste or medical/infectious waste is charged to the HMIWI during startup, shutdown, or malfunction.)</p> <p>Verify that an initial performance test was conducted using approved testing methodology.</p> <p>(NOTE: The use of the bypass stack during any performance test shall invalidate that performance test.)</p> <p>Verify that, following the date on which the initial performance test was completed or was required to be completed, whichever date comes first, the facility determines compliance with:</p> <ul style="list-style-type: none"> <li>- the opacity limit by conducting an annual performance test (no more than 12 mo following the previous performance test) using appropriate procedures and test methods</li> <li>- the PM, CO, and HCl emission limits by conducting an annual performance test (no more than 12 mo following the previous performance test) using appropriate procedures and test methods</li> </ul> <p>(NOTE: If all three performance tests over a 3-yr period indicate compliance with the emission limit for a pollutant (PM, CO, or HCl), the facility may forego a performance test for that pollutant for the subsequent 2 yr.)</p> <p>(NOTE: At a minimum, a performance test for PM, CO, and HCl shall be conducted every third year (no more than 36 mo following the previous performance test). If a performance test conducted every third year indicates compliance with the emission limit for a pollutant (PM, CO, or HCl), the facility may forego a performance test for that pollutant for an additional 2 yr.)</p> <p>(NOTE: If any performance test indicates noncompliance with the respective emission limit, a performance test for that pollutant shall be conducted annually until all annual performance tests over a 3-yr period indicate compliance with the emission limit.)</p> <p>Verify that large HMIWIs annually determine compliance with the visible emission limits for fugitive emissions from flyash/bottom ash storage and handling.</p> <p>Verify that facilities using a CEMS to demonstrate compliance with any of the emission limits:</p>

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REGULATORY REQUIREMENTS	REVIEWER CHECKS SEPTEMBER 2000
<p><b>A.32.2.</b> HMIWIs must install, calibrate, maintain, and operate monitoring devices or establish methods to monitor operating parameters at applicable frequencies at all times except during periods of startup and shutdown (40 CFR 60.57c) [December 1997].</p>	<ul style="list-style-type: none"> <li>- determine compliance with the appropriate emission limit(s) using a 12-h rolling average, calculated each hour as the average of the previous 12 operating hours (not including startup, shutdown, or malfunction)</li> <li>- operate all CEMS in accordance with the applicable procedures under appendices B and F of 40 CFR 60.</li> </ul> <p>Verify that calibration of the monitoring devices is completed to manufacturer's specifications.</p> <p>Verify that, where a device is not installed, calibrated, maintained, and operated, a method has been established for monitoring the applicable operating parameters.</p> <p>Verify that the monitoring devices or methods used measure and record values for all operating parameters listed in Appendix 1-1c at the frequencies indicated at all times except during startup and shutdown.</p> <p>Verify that the facility is using (and appropriately calibrating, maintaining, and operating) a monitoring device or method to measure the use of the bypass stack including:</p> <ul style="list-style-type: none"> <li>- date</li> <li>- time</li> <li>- duration.</li> </ul> <p>Verify that, if site specific operating parameters were developed by the Administrator, the facility is using the equipment necessary to monitor these parameters.</p> <p>Verify that the facility is obtaining monitoring data at all times during HMIWI operation, except during periods of:</p> <ul style="list-style-type: none"> <li>- monitoring equipment malfunction</li> <li>- calibration</li> <li>- repair.</li> </ul> <p>(NOTE: At a minimum, valid monitoring data must be obtained for 75 percent of the operating hours per day and for 90 percent of the operating days per calendar quarter that the HMIWI is combusting hospital waste and/or medical/infectious waste.)</p>





<b>COMPLIANCE CATEGORY</b> <b>AIR EMISSIONS MANAGEMENT</b> <b>Fish and Wildlife Service</b>	
<b>REGULATORY REQUIREMENTS</b>	<b>REVIEWER CHECKS:</b> <b>SEPTEMBER 2000</b>
<b>MEDICAL WASTE INCINERATORS</b>  <b>A.34</b>  <b>Reporting/Recordkeeping Requirements</b>	<p>(NOTE: Existing medical waste incinerators will be required to comply with new regulations as EPA approves state-developed plans under Subpart Ce. The deadline for compliance with the new regulations will be no later than 15 September 2002.)</p> <p>(NOTE: The requirements of Subpart Ec do not apply to the following (40 CFR 60.50c(b) through 60.50c(h)):</p> <ul style="list-style-type: none"> <li>- a combustor during periods when only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste (see definitions) is burned, provided the owner or operator of the combustor: <ul style="list-style-type: none"> <li>- notifies the Administrator of an exemption claim</li> <li>- keeps records on a calendar quarter basis of the periods of time when only pathological waste, low-level radioactive waste and/or chemotherapeutic waste is burned</li> </ul> </li> <li>- any co-fired combustor (see definitions) if the owner or operator: <ul style="list-style-type: none"> <li>- notifies the Administrator of an exemption claim</li> <li>- provides an estimate of the relative amounts of hospital waste, medical/ infectious waste, and other fuels and wastes to be combusted</li> <li>- keeps records on a calendar quarter basis of the weight of hospital waste and medical/infectious waste combusted, and the weight of all other fuels and wastes combusted at the co-fired combustor</li> </ul> </li> <li>- any combustor required to have a permit under section 3005 of the SWDA</li> <li>- any combustor which meets the applicability requirements under subpart Cb, Ea, or Eb of this part (standards or guidelines for certain municipal waste combustors)</li> <li>- any pyrolysis unit (see definitions)</li> <li>- cement kilns firing hospital waste and/or medical/infectious waste</li> <li>- physical or operational changes made to an existing HMIWI solely for the purpose of complying with emission guidelines under subpart Ce are not considered a modification and do not result in an existing HMIWI becoming subject to this subpart.)</li> </ul> <p><b>A.34.1.</b> HMIWIs must submit notifications as provided in 40 CFR 60.7 in addition to other specified information (40 CFR 60.58c(a)) [December 1997].</p> <p>Verify that notification has been submitted as required for all NSPS.</p> <p>Verify that the following information has been submitted:</p> <ul style="list-style-type: none"> <li>- prior to commencement of construction: <ul style="list-style-type: none"> <li>- a statement of intent to construct</li> <li>- the anticipated date of commencement of construction</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.34.2.</b> HMIWIs must submit specified information to the appropriate authorities (40 CFR 60.58c(c)) [December 1997].</p>	<ul style="list-style-type: none"> <li>- all documentation produced as a result of siting requirements</li> <li>- prior to initial startup:               <ul style="list-style-type: none"> <li>- the type(s) of waste to be combusted</li> <li>- the maximum design waste burning capacity</li> <li>- the anticipated maximum charge rate</li> <li>- if applicable, the petition for site-specific operating parameters.</li> </ul> </li> </ul> <p>Verify that the facility submitted the following information no later than 60 days following the initial performance test with all reports signed by the facilities manager:</p> <ul style="list-style-type: none"> <li>- the initial performance test data as recorded</li> <li>- the values for the site-specific operating parameters</li> <li>- the waste management plan.</li> </ul> <p>Verify that the facility submitted an annual report 1 yr following the above submission and that subsequent reports are submitted no more than 12 mo following the previous report (under a Title V operating permit, these submissions are semi-annual).</p> <p>Verify that the annual report is signed by the facilities manager and includes:</p> <ul style="list-style-type: none"> <li>- the values for the site-specific operating parameters</li> <li>- the highest maximum operating parameter and the lowest minimum operating parameter, as applicable, for each operating parameter recorded for the calendar year being reported</li> <li>- the highest maximum operating parameter and the lowest minimum operating parameter, as applicable for each site-specific operating parameter for the calendar year preceding the year being reported, in order to provide the EPA Administrator with a summary of the performance of the HMIWI over a 2-yr period</li> <li>- any information, recorded for the calendar year being reported, related to:               <ul style="list-style-type: none"> <li>- identification of calendar days for which data on emission rates or operating parameters as described above have not been obtained, with an identification of the emission rates or operating parameters not measured, reasons for not obtaining the data, and a description of corrective actions taken</li> <li>- identification of calendar days, times, and durations of malfunctions with description of the malfunction and the corrective action taken</li> <li>- identification of calendar days for which data on emission rates or operating parameters as described above exceeded</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>the applicable limits, with a description of the exceedances, reasons for such exceedances, and a description of corrective actions taken</p> <ul style="list-style-type: none"> <li>-any information, recorded for the calendar year preceding the year being reported, in order to provide the EPA Administrator with a summary of the performance of the HMIWI over a 2-yr period, related to:               <ul style="list-style-type: none"> <li>-identification of calendar days for which data on emission rates or operating parameters as described above have not been obtained, with an identification of the emission rates or operating parameters not measured, reasons for not obtaining the data, and a description of corrective actions taken</li> <li>-identification of calendar days, times, and durations of malfunctions with a description of the malfunction and the corrective action taken</li> <li>-identification of calendar days for which data on emission rates or operating parameters as described above exceeded the applicable limits, with a description of the exceedances, reasons for such exceedances, and a description of corrective actions taken</li> </ul> </li> <li>-if a performance test was conducted during the reporting period, the results of that test</li> <li>-if no exceedances or malfunctions were reported for the calendar year being reported, a statement that no exceedances occurred during the reporting period</li> <li>-any use of the bypass stack, the duration, reason for malfunction, and corrective action taken.</li> </ul> <p>Verify that the facility submits semiannual reports no later than 60 days following the reporting period containing any recorded information regarding:</p> <ul style="list-style-type: none"> <li>-identification of calendar days for which data on emission rates or operating parameters as described above have not been obtained, with an identification of the emission rates or operating parameters not measured, reasons for not obtaining the data, and a description of corrective actions taken</li> <li>-identification of calendar days, times and durations of malfunctions, a description of the malfunction, and the corrective action taken</li> <li>-identification of calendar days for which data on emission rates or operating parameters as described above exceeded the applicable limits, with a description of the exceedances, reasons for such exceedances, and a description of corrective actions taken.</li> </ul>

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<b>REGULATORY REQUIREMENTS</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.34.3.</b> HMIWIs must maintain specific documentation at the facility (40 CFR 60.53c(h) through 60.53c(j)) [December 1997].</p>	<p>(NOTE: The first semiannual reporting period ends 6 mo following the submission of information as required above. Subsequent reports shall be submitted no later than 6 calendar months following the previous report. All reports shall be signed by the facilities manager.)</p> <p>Verify that all records specified above are maintained onsite in either paper copy or computer-readable format, unless an alternative format is approved by the Administrator.</p> <p>Verify that the following documentation is maintained at the HMIWI:</p> <ul style="list-style-type: none"> <li>- summary of the applicable standards</li> <li>- description of basic combustion theory applicable to an HMIWI</li> <li>- procedures for receiving, handling, and charging waste</li> <li>- HMIWI startup, shutdown, and malfunction procedures</li> <li>- procedures for maintaining proper combustion air supply levels</li> <li>- procedures for operating the HMIWI and associated air pollution control systems within the standards established under this subpart</li> <li>- procedures for responding to periodic malfunction or conditions that may lead to malfunction</li> <li>- procedures for monitoring HMIWI emissions</li> <li>- reporting and recordkeeping procedures</li> <li>- procedures for handling ash.</li> </ul> <p>Verify that a program has been established that requires all HMIWI operators to review annually the information in all required documentation.</p> <p>(NOTE: The initial review of the information in all required documentation shall be conducted by 16 September 1998 or prior to assumption of responsibilities affecting HMIWI operation, whichever date is later.)</p> <p>Verify that subsequent reviews of the information in all required documentation is conducted annually.</p> <p>Verify that all required documentation is kept in a readily accessible location for all HMIWI operators.</p> <p>(NOTE: All required documentation, as well as all training records, shall be available for inspection by the EPA or its delegated enforcement agent upon request.)</p>

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REGULATORY REQUIREMENTS	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>A.34.4.</b> HMIWIs must maintain specified information for a period of at least 5 yr (40 CFR 60.58c(b)) [December 1997].</p>	<p>(NOTE: Required records should be maintained onsite in either a paper copy or a computer-readable format.)</p> <p>Verify that the facility maintains the following information (as applicable) for a period of at least 5 yr:</p> <ul style="list-style-type: none"> <li>- calendar date of each record</li> <li>- records of the following data: <ul style="list-style-type: none"> <li>- concentrations of any pollutant listed in 60.52c or measurements of opacity as determined by the CEMS</li> <li>- results of fugitive emissions tests</li> <li>- HMIWI charge dates, times, and weights and hourly charge rates</li> <li>- fabric filter inlet temperatures during each minute of operation</li> <li>- amount and type of dioxin/furan sorbent used during each hour of operation</li> <li>- amount and type of Hg sorbent used during each hour of operation</li> <li>- amount and type of HCl sorbent used during each hour of operation</li> <li>- secondary chamber temperatures recorded during each minute of operation</li> <li>- liquor flow rate to the wet scrubber inlet during each minute of operation</li> <li>- horsepower or amperage to the wet scrubber during each minute of operation</li> <li>- pressure drop across the wet scrubber system during each minute of operation</li> <li>- temperature at the outlet from the wet scrubber during each minute of operation</li> <li>- pH at the inlet to the wet scrubber during each minute of operation</li> <li>- records indicating use of the bypass stack, including dates, times, and durations</li> <li>- for site-specific operating parameters, all operating parameter data collected</li> </ul> </li> <li>- identification of calendar days for which data on emission rates or operating parameters have not been obtained, with an identification of the emission rates or operating parameters not measured, reasons for not obtaining the data, and a description of corrective actions taken</li> <li>- identification of calendar days, times, and durations of malfunctions with a description of the malfunction and the corrective action taken</li> </ul>

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<b>REGULATORY REQUIREMENTS</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"><li>- identification of calendar days for which data on emission rates or operating parameters exceeded the applicable limits, with a description of the exceedances, reasons for such exceedances, and a description of corrective actions taken</li><li>- the results of the initial, annual, and any subsequent performance tests conducted to determine compliance with the emission limits and/or to establish operating parameters</li><li>- all documentation produced as a result of the siting requirements</li><li>- records showing the names of HMIWI operators who completed the review of information (see checklist item AE.34.2), including the date of the initial review and all subsequent annual reviews</li><li>- records showing the names of HMIWI operators who have completed training, including documentation of training and dates of training</li><li>- records showing the names of the HMIWI operators who have met the criteria for qualification and the dates of their qualification</li><li>- records of calibration of any monitoring devices.</li></ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: FY00 FINAL DRAFT FOR REVIEW</b>
<p><b>A.55</b></p> <p><b>PETROLEUM PRODUCTS</b></p> <p><b>A.55.1.</b> Facilities are required to follow specific provisions concerning the types of gasoline available onsite (40 CFR 80.22 (b)).</p> <p><b>A.55.2.</b> Fuel tanks should be labeled to indicate what type of fuel is being stored (MP).</p> <p><b>A.55.3.</b> Gasoline pumps dispensing oxygenated gasoline are required to meet specific labeling requirements (40 CFR 80.35) [May 1997].</p>	<p>Determine what grades of gasoline are used, where they are dispensed, and what controls are in place to ensure proper fueling of vehicles by interviewing personnel.</p> <p>Verify that, after 31 December 1995, no gasoline is sold, offered for sale, supplied, offered for supply, dispensed, transported, or introduced into commerce unless it contains lead additives of less than 0.05 g/gal.</p> <p>Verify that fuel tanks are labeled to indicate what type of fuel is being stored.</p> <p>Determine if the facility is located in an area with an oxygenated gasoline program with a minimum oxygen content per 1 gal or minimum oxygen content requirements in conjunction with a credit program.</p> <p>Verify that, if the facility is located in such an area, each gasoline pump dispensing oxygenated gasoline at a retail outlet has a label attached during the control period that states: The gasoline dispensed from this pump is oxygenated and will reduce CO pollution from motor vehicles.</p> <p>Verify that, if the facility is located in an area with an oxygenated gasoline program with a credit program and no minimum oxygen content requirement, the fuel pump at a retail outlet in the control area has a label that states the following: The fuel dispensed from this pump meets the requirements of the Clean Air Act as part of a program to reduce CO pollution from motor vehicles.</p> <p>Verify that the labels are:</p> <ul style="list-style-type: none"> <li>- in block letters of no less than 20-point bold type</li> <li>- in a color contrasting with the intended background</li> <li>- placed on the vertical surface of the pump on each side with gallonage and price meters and is on the upper two-thirds of the pump, clearly visible to the public.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: FY00 FINAL DRAFT FOR REVIEW</b>
<p><b>A.55.4.</b> During high ozone seasons, and regulatory control periods, gasoline shall not be sold, offered for sale, imported, dispensed, supplied, or transported, that exceeds specific Reid vapor pressure standards (40 CFR 80.27(a)(2) and 80.27(d)).</p> <p><b>A.55.5.</b> No diesel fuel for use in motor vehicles may be sold, supplied, or dispensed for motor vehicles unless it meets specific criteria (40 CFR 80.24(a)(1)) [May 1997].</p> <p><b>A.55.6.</b> After 1 July 1997 retailers and wholesale purchaser-consumers (see definitions) handling over 10,000 gal/mo of fuel are required to provide specific equipment on dispensing pumps (40 CFR 80.22(j)) [October 1996].</p>	<p>(NOTE: Consult with state and local authorities concerning control areas and control periods.)</p> <p>Verify that facilities are monitored as indicated:</p> <ul style="list-style-type: none"> <li>-retailers and wholesale purchaser-consumers: during the high ozone season (1 June to 15 September of any year).</li> <li>-importers, distributors, resellers, or carriers: during the regulatory control period (1 May to 15 September of any year).</li> </ul> <p>Verify that a standard of 9.0 psi is not exceeded for all designated volatility attainment areas.</p> <p>Verify that the standards outlined in Appendix 1-2 are met for any designated volatility nonattainment areas (see 40 CFR 81).</p> <p>(NOTE: Gasoline that contains denatured, anhydrous ethanol of at least 9 percent and no more than 10 percent, may exceed the Reid vapor pressure standards outlined in Appendix 1-2 by 1.0 psi.)</p> <p>(NOTE: This information may also be available from the Material Safety Data Sheet (MSDS).)</p> <p>Verify that the diesel fuel for motor vehicles meets the following parameters:</p> <ul style="list-style-type: none"> <li>-it has a sulfur percentage, by weight, no greater than 0.05 percent</li> <li>-it has a cetane index of at least 40 or a maximum aromatic content of 35 volume percent</li> <li>-it is free of visible evidence of the following: <ul style="list-style-type: none"> <li>- the blue green dye 1,4-dialkylamino-anthraquinone</li> <li>- the dye solvent red 164.</li> </ul> </li> </ul> <p>Determine if the facility handles over 10,000 gal/mo of fuel.</p> <p>Verify that each pump from which gasoline or methanol is introduced into motor vehicles is equipped with a nozzle that dispenses fuel at a flow rate not exceeding 10 gal/min.</p> <p>(NOTE: After 1 January 1998 this requirements applies to every retailer and wholesale purchaser-consumer regardless of size.)</p> <p>(NOTE: This requirement does not apply to pumps that are shown to be dedicated to heavy-duty vehicles, boats, or airplanes.)</p>

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**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
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**CFCs AND HALONS**

**A.85**

**Purchasing/ Procurement**

**A.85.1.** Facilities which sell Class I or Class II substances suitable for use as a refrigerant in containers of less than 20 lb are required to display a specific sign (40 CFR 82.42(c)).

Verify that a sign is displayed stating the following:

IT IS A VIOLATION OF FEDERAL LAWS TO SELL CONTAINERS OF CLASS I AND CLASS II REFRIGERANT OF LESS THAN 20 LB OF SUCH REFRIGERANT TO ANYONE WHO IS NOT PROPERLY TRAINED AND CERTIFIED TO OPERATE APPROVED REFRIGERANT RECYCLING EQUIPMENT.

(NOTE: See Appendix 1-3 for a list of Class I and Class II substances.)

**A.85.2.** Facilities are required to comply with restrictions concerning the use of CFC and halon substitutes (40 CFR 82.174(b) through 82.174(d)).

Verify that no personnel at the facility uses a substitute which they know, or have reason to know, was manufactured, processed, or imported in violation of Federal regulations.

Verify that, when a substitute is used, it is an acceptable substitute and is used according to the use restrictions.

(NOTE: 40 CFR 82.170 through 82.194 contains lists of acceptable and unacceptable substitutes.)

**A.85.3.** As of January 1, 2015 the use of Class II substances (see Appendix 1-3) is forbidden except in certain situations (42 USC 7671d(a)).

Verify that a program is underway to eliminate the use of Class II substances unless:

- the substance has been reused or recycled
- it is used and entirely consumed (except for trace quantities) in the production of other chemicals
- it is used as a refrigerant in appliances manufactured prior to 1 January 2020.

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.85.4.</b> No Class I or Class II substances suitable for use in motor vehicles as a refrigerant (see Appendix 1-3) can be sold or distributed in any container that is less than 20 lb to any person unless that person is trained and certified (40 CFR 82.34(b) and 82.42(b)(3)) [May 1997].</p>	<p>Determine if the facility carries any of the Class I or Class II substances listed in Appendix 1-3.</p> <p>Verify these substances are only sold or distributed to certified individual by reviewing records of sales and distribution.</p> <p>Verify that distribution and sales records for these substances are kept for 3 yr.</p> <p>(NOTE: Sales of these substances can be made to an uncertified individual if the purchaser is purchasing small containers for resale only and the purchaser certifies it as such.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>CFCs AND HALONS</b></p> <p><b>A.90 Repair/Recycling</b></p> <p><b>A.90.1.</b> Personnel repairing or servicing MVACs for consideration and personnel repairing or servicing MVAC-like appliances are required to be trained and certified and use approved equipment (40 CFR 82.34(a), 82.42(a), 82.42(b)(1), 82.42(b)(2), and 82.42(b)(4)) [December 1997].</p> <p><b>A.90.2.</b> Certain recycling and recovery equipment is required to be certified by an approved equipment testing organization (40 CFR 82.158(a), 82.158(h), 82.158(j)).</p>	<p>Determine if the facility services/repairs MVAC or MVAC-like appliances for consideration.</p> <p>Verify that the individual who does the repair and/or servicing is certified and that the equipment being used is approved by the USEPA.</p> <p>Verify that the USEPA Administration has been notified that there is an individual onsite who has been trained and certified and is performing MVAC repair.</p> <p>Verify that the facility keeps records for 3 yr of where the refrigerant is sent and personnel certification.</p> <p>(NOTE: Certifications are not transferable.)</p> <p>(NOTE: The term for payment is not clearly defined. For FWS facilities, the interpretation will be that if the personnel repairing or servicing MVACs are paid employees of the facility, they must be trained and certified.)</p> <p>Verify that the equipment that is used is certified.</p> <p>Verify that recycling or recovery equipment intended for use in the maintenance, service, or repair of appliances, except MVACs and MVAC-like appliances, or during the disposal of appliances except small appliances, MVACs, and MVAC-like appliances are certified by an approved testing organization.</p> <p>(NOTE: Such certification will be evidenced by a label affixed by the manufacturer which states: THIS EQUIPMENT HAS BEEN CERTIFIED BY (APPROVED EQUIPMENT TESTING ORGANIZATION) TO MEET EPA'S MINIMUM REQUIREMENTS FOR RECYCLING OR RECOVERY EQUIPMENT INTENDED FOR USE WITH (APPROPRIATE CATEGORY OR APPLIANCE).)</p> <p>(NOTE: The facility is not required to retest the equipment.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.90.3.</b> Persons who maintain, service, or repair appliance, except MVACs, and persons who dispose of appliances, except for small appliances, room air conditioners, MVACs and MVAC-like appliances are required to be certified through an approved technician certification program (40 CFR 82.161).</p> <p><b>A.90.4.</b> No person maintaining, servicing, repairing, or disposing of appliances can knowingly vent or release to the environment any Class I or Class II substance used as a refrigerant (40 CFR 82.150 and 82.154(a)).</p>	<p>Verify that recycling and recovery equipment intended for use during the maintenance, service, or repair of MVAC-like appliances are certified by the USEPA or an independent standards testing organization.</p> <p>Verify that personnel have received technician certification.</p> <p>(NOTE: Apprentices are exempt from this requirement if the apprentice is closely and continually supervised by a certified technician while performing any maintenance, service, repair, or disposal that could reasonably be expected to release refrigerant from appliances into the environment.)</p> <p>Determine if the facility is maintaining, servicing, repairing, or disposing of appliances containing refrigerants.</p> <p>Verify that Class I or II substances are not being vented to the atmosphere.</p> <p>(NOTE: <i>De minimis</i> releases that are associated with good faith attempts to recycle or recover refrigerants are not considered a violation.)</p> <p>(NOTE: These requirements apply to the following:</p> <ul style="list-style-type: none"> <li>- any person servicing, maintaining, or repairing appliances except for MVACs</li> <li>- persons disposing of appliances, including MVAC</li> <li>- refrigerant reclaimers, appliance owners, recycling and recovery equipment.)</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.90.5.</b> No person can open appliances, except MVACs, for maintenance, service, or repair, and no person can dispose of appliances, except for small appliances, MVAC, and MVAC-like appliances unless specific requirements are met (40 CFR 82.154(b), 82.156(a)(5)).</p>	<p>Verify that the required practices outline in 40 CFR 82.156 (see checklist items A.90.9 through A.90.19) are met.</p> <p>Verify that equipment is used that is certified for the appliance in question.</p>
<p><b>A.90.6.</b> Facilities maintaining, servicing, or repairing appliances, except for MVACs, and facilities disposing of appliances, except for small appliances and MVACs, are required to submit certification to the USEPA (40 CFR 82.162(a)).</p>	<p>Verify that the facility has submitted certification to the USEPA that it has acquired certified recovery or recycling equipment and is in compliance with applicable requirements.</p> <p>(NOTE: Submission of certification is required no later than 12 August 1993 or 20 days after starting the business.)</p>
<p><b>A.90.7.</b> Facilities recovering refrigerant from small appliances, MVACs, and MVAC-like appliances for the purpose of disposal of these appliances, are required to certify to the USEPA that appropriate recovery equipment has been acquired (40 CFR 82.162(c)).</p>	<p>Verify that the facility has submitted certification to the USEPA that it has acquired appropriate recovery equipment.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.90.8.</b> Facilities opening appliances, except for small appliances and MVACs for maintenance, service, or repair and all persons disposing of appliances other than small appliances, MVACs, and MVAC-like appliances must have at least one piece of certified, self-contained recovery equipment available (40 CFR 82.156(b) and 82.156 (e)).</p>	<p>Verify that the facility has at least one available piece of equipment.</p> <p>(NOTE: Refrigerant may be returned to the appliance from which it is recovered or to another appliance without being recycled or reclaimed, unless the appliance is an MVAC or MVAC-like appliance.)</p> <p>(NOTE: Facilities that maintain, service, repair, or dispose of only appliances that they own and contain pump out units are exempt from this requirement, but not from other requirements of 40 CFR 82.156.)</p>
<p><b>A.90.9.</b> System dependent equipment must not be used with appliances normally containing more than 15 lb of refrigerant (40 CFR 82.156(c)).</p>	<p>Verify that system-dependent equipment is not used with appliances normally containing more than 15 lb of refrigerant unless the system dependent equipment is permanently attached to the appliance as a pump out unit.</p>
<p><b>A.90.10.</b> When appliances are opened for service, maintenance or repair, except for MVACs, the refrigerant must be evacuated in either the entire unit or the part to be serviced, if the part can be isolated, to a system receiver or a certified recovery or recycling machine (40 CFR 82.150 and 82.156(a)).</p>	<p>Verify that refrigerant is evacuated to either a system receiver or certified recovery or recycling machine.</p> <p>Verify that technicians ensure that the applicable level of evacuation has been reached in the appliance or the part before it is opened.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.90.11.</b> When appliances, except for small appliances, MVAC, and MVAC-like appliance, are disposed of, the refrigerant must be evacuated from the entire unit to a certified recovery or recycling machine (40 CFR 82.150 and 82.156(a)).</p>	<p>Verify that, if disposal is occurring, the refrigerant is being evacuated to a certified recovery or recycling machine.</p> <p>Verify that a certified technician ensures that the applicable level of evacuation has been reached in the appliance before it is opened.</p>
<p><b>A.90.12.</b> When appliances, except for small appliance, MVAC, and MVAC-like appliances, are opened for maintenance, service, or repair, they must be evacuated to specific levels before the appliance is opened (40 CFR 82.150 and 82.156(a)(1) and 82.156(a)(2)).</p>	<p>Verify that evacuation is done to the levels in Appendix 1-4 prior to opening the appliance unless one of the following is met:</p> <ul style="list-style-type: none"> <li>-evacuation of the appliance is not to be done after completion of the maintenance service or repair, and the maintenance service or repair is not major</li> <li>-the evacuation limits in Appendix 1-4 are not possible because of leaks in the equipment, or the refrigerant being recovered would be substantially contaminated</li> <li>-the recycling or recovery equipment is certified.</li> </ul> <p>Verify that, if evacuation is not to be done after completion of the maintenance, service, or repair and the maintenance, service, or the repair is not major, the appliance is:</p> <ul style="list-style-type: none"> <li>-evacuated to a pressure no higher than 0 psig before it is opened if it is a high or very high-pressure appliance</li> <li>-pressurized to 0 psig before it is opened if it is a low pressure appliance.</li> </ul> <p>(NOTE: Persons pressurizing low pressure appliances that use refrigerants with boiling points at or below 85 °F at 29.9 in. of Hg (e.g., CFC-11 or HCFC-123) must not use methods, such as nitrogen, that require subsequent purging. Persons pressurizing low-pressure appliances that use refrigerants with boiling points above 85 °F at 29.9 in. of Hg (e.g., CFC 113) must use heat to raise the internal pressure, but may use nitrogen to raise the internal pressure of the appliance from the level attainable through use of heat to atmospheric pressure.)</p> <p>Verify that, if the evacuation limits in Appendix 1-4 are not possible because of leaks in the equipment or the refrigerant being recovered would be substantially contaminated, the person opening the appliance:</p>



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<p><b>A.90.13.</b> Appliances, except for small appliances, MVACs, and MVAC-like appliances, that are being disposed of, must be evacuated to the levels in Appendix 1-4 (40 CFR 82.150 and 82.156(a)(3)).</p> <p><b>A.90.14.</b> Specific evacuation limits must be met when opening small appliances for maintenance, service, or repair (40 CFR 82.150 and 82.156 (a)(4)).</p> <p><b>A.90.15.</b> Facilities which take the final step in the disposal process of a small appliance, room air conditioning, MVACs, or MVAC-like appliances must meet specific standards (40 CFR 82.156(f), 82.166(i), and 82.166(m)).</p>	<ul style="list-style-type: none"> <li>- isolates leaking from nonleaking components whenever possible</li> <li>- evacuate nonleaking components to be opened to the levels specified in Appendix 1-4</li> <li>- evacuates leaking components to be opened to the lowest level that can be attained without substantially contaminating the refrigerant, in no case exceeding 0 psig.</li> </ul> <p>Verify that, if the recycling or recovery equipment is certified, the technicians follow the manufacturer's directions for achieving required recovery efficiency.</p> <p>Verify that appliances are evacuated to the levels listed in Appendix 1-4 prior to disposal unless leaks in the appliance do not allow for the attainment of Appendix 1-4 or would substantially contaminate the refrigerant being recovered.</p> <p>Verify that, if Appendix 1-4 levels are not attainable, persons disposing of appliances:</p> <ul style="list-style-type: none"> <li>- isolate leaking from nonleaking components whenever possible</li> <li>- evacuate leaking components to the lowest level that can be attained without substantially contaminating the refrigerant (not to exceed 0 psig).</li> </ul> <p>Verify that, when recycling and recovery equipment manufactured prior to 15 November 1993 is used, 80 percent of the refrigerant is recovered or the small appliance is evacuated to 4 in. of Hg vacuum.</p> <p>Verify that, when recycling and recovery equipment manufactured on or after 15 November 1993 is used, 90 percent of the refrigerant in the appliance is recovered when the compressor in the appliance is operating, or 80 percent of the refrigerant when the compressor is not operating or the small appliance is evacuated to 4 in. of Hg vacuum.</p> <p>(NOTE: This includes, but is not limited to, scrap recyclers and landfill operators.)</p> <p>Verify that facilities:</p> <ul style="list-style-type: none"> <li>- recover any remaining refrigerant from the appliance</li> <li>- check that the refrigerant has been evacuated from the appliance or shipment of appliances by reviewing a signed statement from the person from whom the appliance or shipment of appliances is obtained that all refrigerant has been recovered.</li> </ul>

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<p><b>A.90.16.</b> Facilities recovering refrigerant for the purpose of disposal must meet specific standards (40 CFR 82.156(g) and 82.156(h)).</p> <p><b>A.90.17.</b> Leaking commercial refrigeration equipment must be repaired when specific limits are exceeded (40 CFR 82.156(i)(1), 82.156(i)(3), 82.156(i)(6), 82.156(i)(8) through 82.156(i)(10)).</p>	<p>Verify that copies of signed statements are retained for 3 years.</p> <p>Verify that, if the facility recovers refrigerant from MVACs and MVAC-like appliances for the purpose of disposal of the appliance, the system pressure is reduced to or below 102 mm of Hg vacuum.</p> <p>Verify that the facility recovering refrigerant from small appliances for the purpose of disposal of the appliance does one of the following:</p> <ul style="list-style-type: none"> <li>- recovers 90 percent of the refrigerant when the compressor in the appliance is operating</li> <li>- recovers 80 percent of the refrigerant in the appliance when the compressor in the appliance is not operating</li> <li>- evacuate the small appliance to 4 in. of Hg vacuum.</li> </ul> <p>Verify that, if the facility owns commercial refrigeration equipment normally containing more than 50 lb of refrigerant, all leaks are repaired if the equipment is leaking at a rate such that the loss of refrigerant will exceed 35 percent of the total charge during a 12-mo period.</p> <p>Verify that leaks have been repaired within 30 days of discovery or within 30 days of when the leak should have been discovered, if the installation/CW facility intentionally shielded themselves from information which would have revealed a leak.</p> <p>(NOTE: The following are exemptions to the leak repair requirements:</p> <ul style="list-style-type: none"> <li>- within 30 days, the installation/CW facility has developed a 1-yr retrofit or retirement plan for the leaking equipment no later than 30 days after the decision to retire or retrofit the appliance and the plan is kept at the site of the equipment</li> <li>- a Federally owned commercial or comfort cooling appliance can have up to 1 yr to complete repairs if the following criteria are met: <ul style="list-style-type: none"> <li>- there is an appropriations/procurements problem</li> <li>- the USEPA is notified and explanation provided of the reason for delay</li> <li>- records are kept to document that these criteria are met</li> </ul> </li> <li>- the appliance is mothballed.)</li> </ul> <p>Verify that if the owners or operators of a federally owned commercial refrigerant appliance determines the leaks cannot be repaired within the required time limit and an extension is needed, the following actions have been done:</p> <ul style="list-style-type: none"> <li>- all repair efforts and notification efforts are documented</li> </ul>

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<p><b>A.90.18.</b> Leaking industrial process refrigeration equipment must be repaired when specific limits are exceeded (40 CFR 82.156(i)(2), 82.156(i)(6), through 82.156(i)(10)).</p>	<p>- the reason for inability to comply is submitted to the USEPA within 30 days of discovering the leaks.</p> <p>(NOTE: Owner or operators of federally owned commercial refrigeration equipment may have more than 30 days to repair leaks of the appliance is located in an area subject to radiological contamination or where the shutting down of the appliance would directly lead to radiological contamination.)</p> <p>Verify that if the facility has received a time extension for the repairs ensure the repair efforts performed are those that sound professional judgment indicate will be sufficient to the bring the leak rates below applicable allow able annual rate.</p> <p>Verify that if an industrial process shutdown has occurred or repairs have been made while an appliance is mothballed, an initial verification was performed within 30 days of completing repairs or within 30 days of bringing the appliance back online, if taken off line, but no sooner than with the system has achieved normal operating characteristics and conditions.</p> <p>Verify that an initial verification test is done at the conclusion of the repair effort without an industrial process shutdown or system mothballing and a follow-up verification test win 30 days after the initial test.</p> <p>(NOTE: See also 40 CFR 82.156(i)(8) (checklist item A.90.18) for additional requirements if an extension has been granted.)</p> <p>Verify that, if the facility has any industrial process refrigeration equipment onsite normally containing more than 50 lb of refrigerant, all leaks are repaired if the equipment is leaking at a rate such that the loss of refrigerant will exceed 35 percent of the total charge during a 12-mo period.</p> <p>Verify that leaks have been repaired within 30 days of discovery or within 30 days of when the leak should have been discovered, if the installation/CW facility intentionally shielded themselves from information which would have revealed a leak.</p> <p>(NOTE: The following are exemptions to the leak repair requirements: - within 30 days, the installation/CW facility has developed a 1-yr retrofit or retirement plan for the leaking equipment that is kept at the site of the equipment - delays caused by meeting the requirements of other Federal, state, or local laws</p>

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**A.90.19.** Owners of Federally owned commercial or comfort cooling appliances are allowed an additional year to complete a retrofit or retirement of an appliance if specific requirements are met (40 CFR 82.156(l)(8)).

- unavailability of a suitable replacement
- the equipment is custom built
- the supplier of the appliance has quoted a delivery time of more than 30 weeks from when the order is placed
- an industrial process shutdown is needed to repair the leak
- the appliance is mothballed.

Verify that the USEPA is notified when compliance is not possible.

Verify that records are kept documenting the reasons for missing deadlines.

Verify that, if an industrial process shutdown has occurred or repairs have been made while an appliance is mothballed, an initial verification was performed within 30 days of completing repairs or within 30 days of bringing the appliance back online, if taken off line, but no sooner than when the system has achieved normal operating characteristics and conditions.

Verify that an initial verification test is done at the conclusion of the repair effort without an industrial process shutdown or system mothballing and a follow-up verification test within 30 days after the initial test.

(NOTE: See also 40 CFR 82.156(i)(8) (see checklist item A.90.18) for additional requirements if an extension has been granted.)

Verify that, if the activity has been allowed a 1-yr extension beyond the initial 1-yr retrofit period, the following criteria are met:

- a delivery time of more than 30 wk from the beginning of the official procurement process is quoted due to an appropriations/ procurements problem
- the USEPA is notified within 6 mo of the expiration of the 30-day period with an explanation why more than 1 yr is needed
- records are kept to document that these criteria are met.

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.90.20.</b> Personnel testing, maintaining, servicing, repairing, or disposing of halon-containing equipment or using such equipment for technician training may not knowingly vent or otherwise release into the environment any halons used in such equipment (40 CFR 82.270(b) and 82.270(f)) <b>[Added March 1998].</b></p>	<p>Verify that personnel testing, maintaining, servicing, repairing, or disposing of halon-containing equipment or using such equipment for technician training do not knowingly vent or otherwise release into the environment any halons used in such equipment.</p> <p>(NOTE: De minimis releases associated with good faith attempts to recycle or recover halon are not subject to this prohibition. Release of residual halon contained in fully discharged total flooding fire extinguishing systems would be considered a de minimis release associated with good faith attempts to recycle or recover halon. Release of halons during testing of fire extinguishing systems is not subject to this prohibition if the following conditions are met:</p> <ul style="list-style-type: none"> <li>-systems or equipment employing suitable alternative fire extinguishing agents are not available</li> <li>-system or equipment testing requiring release of extinguishing agent is essential to demonstrate system or equipment functionality</li> <li>-failure of the system or equipment would pose great risk to human safety or the environment</li> <li>-a simulant agent cannot be used in place of the halon during system or equipment testing for technical reasons.)</li> </ul> <p>(NOTE: This requirement also does not apply to:</p> <ul style="list-style-type: none"> <li>-releases of halons associated with research and development of halon alternatives, and releases of halons necessary during analytical determination of halon purity using established laboratory practices</li> <li>-qualification and development testing during the design and development process of halon-containing systems or equipment when such tests are essential to demonstrate system or equipment functionality and when a suitable simulant agent cannot be used in place of the halon for technical reasons.</li> <li>-emergency release of halons for the legitimate purpose of fire extinguishing, explosion inertion, or other emergency applications for which the equipment or systems were designed.)</li> </ul> <p>Verify that a halon release is not allowed to occur as a result of failure to maintain halon-containing equipment.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.90.21.</b> Technicians who test, maintain, service, repair or dispose of halon-containing equipment are required to meet specific training requirements (40 CFR 82.270(c)) <b>[Added March 1998]</b>.</p> <p><b>A.90.22.</b> The disposal of halon and/or halon-containing equipment is required to be done according to specific parameters (40 CFR 82.270(d) and 82.270(e)) <b>[Added March 1998]</b>.</p>	<p>Verify that technicians who test, maintain, service, repair, or dispose of halon-containing equipment are trained regarding halon emissions reduction.</p> <p>(NOTE: Organizations that employ technicians who test, maintain, service, repair or dispose of halon-containing equipment shall take appropriate steps to ensure that technicians hired on or before 6 April 1998 are trained regarding halon emissions reduction by 1 September 1998. Technicians hired after 6 April 1998 shall be trained regarding halon emissions reduction within 30 days of hiring, or by 1 September 1998, whichever is later.)</p> <p>Verify that halon-containing equipment is only disposed of by sending it for halon recovery to one of the following:</p> <ul style="list-style-type: none"> <li>- a manufacturer operating in accordance with NFPA 10 and NFPA 12A standards</li> <li>- a fire equipment dealer operating in accordance with NFPA 10 and NFPA 12A standards</li> <li>- a recycler operating in accordance with NFPA 10 and NFPA 12A standards.</li> </ul> <p>(NOTE: This requirement does not apply to ancillary system devices such as electrical detection control components which are not necessary to the safe and secure containment of the halon within the equipment, to fully discharged total flooding systems, or to equipment containing only de minimis quantities of halons.)</p> <p>Verify that halon is only disposed of by sending it for recycling to a recycler operating in accordance with NFPA 10 and NFPA 12A standards, or by arranging for its destruction using one of the following controlled processes:</p> <ul style="list-style-type: none"> <li>- liquid injection incineration</li> <li>- reactor cracking</li> <li>- gaseous/fume oxidation</li> <li>- rotary kiln incineration</li> <li>- cement kiln</li> <li>- radiofrequency plasma destruction</li> <li>- an EPA-approved destruction technology that achieves a</li> <li>- destruction efficiency of 98 percent or greater.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>CFCs AND HALONS</b></p> <p><b>A.95 Recordkeeping</b></p> <p><b>A.95.1.</b> Facilities that sell or distribute any Class I or Class II substance for use as a refrigerant are required to retain invoices (40 CFR 82.166(a) and 82.166(m)).</p> <p><b>A.95.2.</b> Facilities servicing appliances normally containing 50 lb or more of refrigerant are required to supply the owner of the appliance with documentation as to how much refrigerant was added and the owner of the appliance must retain the servicing records (40 CFR 82.166(j), 82.166(k), and 82.166(m)).</p> <p><b>A.95.3.</b> Facilities with commercial refrigeration or industrial process appliances are required to keep specific records in relation to leaks (40 CFR 82.166(n) through 82.166(q)).</p>	<p>Verify that facilities which sell or distribute any Class I or Class II substance for use as a refrigerant retain invoices indicating the name of the purchaser, the date of sale, and the quantity of refrigerant purchased.</p> <p>Verify that records are retained for 3 yr.</p> <p>Verify that documentation of servicing and amounts of refrigerant added is provided to the appliance owner and retained for 3 yr.</p> <p>Verify that, when leaking appliances are not repaired on time, the following types of documentation is submitted to the USEPA and a copy maintained onsite:</p> <ul style="list-style-type: none"> <li>- reasons why more than 30 days are needed to complete repair work and an estimate of when the work will be completed</li> <li>- changes to work completion dates and the reasons why</li> <li>- a plan to fix other outstanding leaks for which repairs are planned but not yet completed if the intent is to establish that the appliance's annual leak rate does not exceed the allowable leak rate</li> <li>- dates and types of all initial and follow-up verification tests performed within 30 days after conducting the test</li> <li>- a plan to complete the retrofit or replacement of the system when more than one year is needed</li> <li>- reason why more than 1 yr is needed to retrofit the system when applicable.</li> </ul>



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	<p>Verify that all documentation includes the following:</p> <ul style="list-style-type: none"> <li>- identification of the facility</li> <li>- the leak rate</li> <li>- method used to determine the leak rate and full charge</li> <li>- the date a leak rate of greater than the allowable annual leak rate was discovered</li> <li>- the location of the leak to the extent determined to date</li> <li>- any repair work that has been completed and the date the work was completed.</li> </ul> <p>Verify that activities which wish to exclude purged refrigerants that are destroyed from annual leak rate calculations maintain records onsite to support the amount of refrigerant claimed as sent for destruction and the records include:</p> <ul style="list-style-type: none"> <li>- flow rate</li> <li>- quantity or concentration of the refrigerant in the vent stream</li> <li>- periods of purge flow</li> <li>- the following for the first time the exclusion is utilized: <ul style="list-style-type: none"> <li>- identification of the facility and contact person, including address and phone number</li> <li>- a general description of the refrigerant appliance</li> <li>- a description of the methods used to determine the quantity of refrigerant sent for destruction and type of records that are being kept</li> <li>- the frequency of monitoring and data recording</li> <li>- a description of the control device, and its destruction efficiency.</li> </ul> </li> </ul> <p>Verify that, if the activity chooses to determine the full charge of an affected appliance by using an established range or using that methodology in combination with other methodologies, the following information is maintained:</p> <ul style="list-style-type: none"> <li>- identification of the owner/operator</li> <li>- the location of the appliance</li> <li>- the original range for the full charge of the appliance, its midpoint, and how the range was determined</li> <li>- the date revisions occur.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DEGREASING OPERATIONS</b></p> <p><b>A.116 Cold Cleaning</b></p> <p><b>A.116.1.</b> Facilities with immersion batch cold solvent cleaning machines are required to comply with specific parameters (40 CFR 63.462(a)).</p> <p><b>A.116.2.</b> Immersion batch cold solvent-cleaning machines with tightly fitting covers and a freeboard ratio of 0.75 or greater are required to be operated according to specific parameters (40 CFR 63.462(c)(1) through 63.462(c)(9)). <b>[Revised April 2000]</b></p>	<p>(NOTE: The requirements in 40 CFR 63.460 through 63.469 apply to each individual batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machine that uses any solvent containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform, or any combination of these halogenated HAP solvents, in total concentration greater than 5 percent by weight, as a cleaning and/or drying agent. Wipe cleaning activities, such as using a rag containing halogenated solvent or a spray cleaner containing halogenated solvent are not included.)</p> <p>Verify that one of the following is met:</p> <ul style="list-style-type: none"> <li>- a tightly fitting cover is used that is closed at all times except during parts entry and removal, and a water layer at a minimum thickness of 2.5 cm (1 in.) on the surface of the solvent within the cleaning machine</li> <li>- a tightly fitting cover is used that is closed at all times except during part entry and removal and there is a freeboard ratio of 0.75 or greater.</li> </ul> <p>Verify that all waste solvent is collected and stored in closed containers.</p> <p>(NOTE: The closed container may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.)</p> <p>Verify that, if a flexible hose or flushing device is used, flushing is performed only within the freeboard area of the solvent-cleaning machine.</p> <p>Verify that solvent cleaned parts are drained for 15 s or until dripping has stopped, whichever is longer.</p> <p>(NOTE: Parts having cavities or blind holes shall be tipped or rotated while draining.)</p> <p>Verify that the solvent level does not exceed the fill line.</p> <p>Verify that spills during solvent transfer are wiped up immediately and the rags stored in a covered container.</p>

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<p><b>A.116.3.</b> Remote-reservoir batch cold solvent-cleaning machines are required to have a tightly fitting cover over the sump that is closed at all times except during the cleaning of parts and be operated according to specific parameters (40 CFR 63.462(b) and 63.462(c)(1) through 63.462(c)(9)). <b>[Revised April 2000]</b></p>	<p>Verify that, when an air- or pump-agitated solvent bath is used, the agitator is operated to produce a rolling motion of the solvent but not observable splashing.</p> <p>Verify that, when the cover is open, the cold cleaning machine is not exposed to drafts greater than 40 m/min (132 ft/min) as measured between 1 and 2 m (3.3 and 6.6 ft) upwind and at the same elevation as the tank lip.</p> <p>Verify that sponges, fabric, wood, and paper products are not cleaned except for the cleaning of porous materials that are part of PCB -aden transformers, if those transformers are handled throughout the cleaning process, and disposed of in compliance with an approved PCB disposal permit issued in accordance with TSCA.</p> <p>Verify that remote-reservoir batch cold solvent-cleaning machines have a tightly fitting cover over the sump that is closed at all times except during the cleaning of parts.</p> <p>Verify that all waste solvent is collected and stored in closed containers.</p> <p>(NOTE: The closed container may contain a device that allows pressure relief, but does not allow liquid solvent to drain from the container.)</p> <p>Verify that, if a flexible hose or flushing device is used, flushing is performed only within the freeboard area of the solvent-cleaning machine.</p> <p>Verify that solvent cleaned parts are drained for 15 s or until dripping has stopped, whichever is longer.</p> <p>(NOTE: Parts having cavities or blind holes shall be tipped or rotated while draining.)</p> <p>Verify that the solvent level does not exceed the fill line.</p> <p>Verify that spills during solvent transfer are wiped up immediately and the rags stored in a covered container.</p> <p>Verify that, when an air- or pump-agitated solvent bath is used, the agitator is operated to produce a rolling motion of the solvent but not observable splashing.</p>

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Verify that, when the cover is open, the cold cleaning machine is not exposed to drafts greater than 40 m/min (132 ft/min) as measured between 1 and 2 m (3.3 and 6.6 ft) upwind and at the same elevation as the tank lip.

Verify that sponges, fabric, wood, and paper products are not cleaned except for the cleaning of porous materials that are part of PCB-laden transformers, if those transformers are handled throughout the cleaning process, and disposed of in compliance with an approved PCB disposal permit issued in accordance with TSCA.



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<p><b>DEGREASING OPERATIONS</b></p> <p><b>A.117 Vapor Cleaning</b></p> <p><b>A.117.1.</b> Existing or new batch vapor or in-line solvent-cleaning machines are required to be designed to meet specific standards (40 CFR 63.463(a) [Revised April 2000].</p>	<p>(NOTE: The requirements in 40 CFR 63.400 through 63.409 apply to each individual batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machine that uses any solvent containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform, or any combination of these halogenated HAP solvents, in total concentration greater than 5 percent by weight, as a cleaning and/or drying agent. Wipe cleaning activities, such as using a rag containing halogenated solvent or a spray cleaner containing halogenated solvent are not included.)</p> <p>Verify that each cleaning machine is designed and operated to meet the following equipment or technique requirements:</p> <ul style="list-style-type: none"> <li>- there is an idling and downtime mode cover that can be readily opened or closed that completely covers the cleaning machine opening when in place, and is free of cracks, holes, or other defects</li> <li>- there is a reduced room draft so that when the cover is open, the machine is not exposed to drafts greater than 40 m/min (132 ft/min) as measured between 1 and 2 m (3.3 and 6.6 ft) upwind and at the same elevation as the tank lip.</li> </ul> <p>Verify that the freeboard ratio is 0.75 or greater.</p> <p>Verify that each cleaning machine has an automated parts handling system capable of moving parts or parts baskets at a speed of 3.4 m/min (11 ft/min) or less from the initial leading of parts through removal of cleaned parts.</p> <p>Verify that each vapor-cleaning machine is equipped with a:</p> <ul style="list-style-type: none"> <li>- device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils</li> <li>- vapor level control device that shuts off sump heat if the vapor level in the vapor-cleaning machine rises above the height of the primary condenser</li> <li>- primary condenser.</li> </ul> <p>Verify that each cleaning machine that uses a lip exhaust is designed and operated to route all collected solvent vapors through a properly operated and maintained carbon adsorber.</p>

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<p><b>A.117.2.</b> Existing or new batch vapor or in-line solvent-cleaning machines are required to be operated according to specific standards (40 CFR 63.463(d)) [Revised April 2000].</p>	<p>(NOTE: Instead of complying with these standards, the owner or operator of a continuous web cleaning machine may comply with the requirements of 40 CFR 63.463(g) or 63.463(h) (see checklist items A.117.11 and A.117.12).)</p> <p>(NOTE: These requirements do not apply when alternative standards as detailed in 40 CFR 63.464 (see checklist item A.117.7) are applied.)</p> <p>(NOTE: See the text of 40 CFR 63.465 for details on test methods.)</p> <p>Verify that air distribution across the cleaning machine opening is controlled by using one of the following:</p> <ul style="list-style-type: none"> <li>- covers are in place during idling mode and during the downtime mode unless either the solvent has been removed from the machine or maintenance or monitoring is being performed that requires the cover to not be in place</li> <li>- there is a reduced room draft so that when the cover is open, the machine is not exposed to drafts greater than 40 m/min (132 ft/min) as measured between 1 and 2 m (3.3 and 6.6 ft) upwind and at the same elevation as the tank lip.</li> </ul> <p>Verify that the parts basket or the parts being cleaned in an open-top batch vapor-cleaning machine do not occupy more than 50 percent of the solvent/air interface area unless that parts basket or the parts are introduced at a speed of 0.9 m/min (3 ft/min) or less.</p> <p>Verify that any spraying operations are done within the vapor zone or within a section of the solvent-cleaning machine that is not directly exposed to the ambient air.</p> <p>Verify that parts are oriented so that solvent drains from them freely.</p> <p>Verify that parts baskets or parts are not removed from any solvent-cleaning machine until dripping has stopped.</p> <p>Verify that, during startup of each vapor-cleaning machine, the primary condenser is turned on before the sump heater.</p> <p>Verify that, during shutdown of a vapor-cleaning machine, the sump heater is turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.117.3.</b> Batch vapor-cleaning machines are required to be designed and operated to meet specific emission control standards (40 CFR 63.463(b)) [Revised April 2000].</p>	<p>Verify that, when solvent is added or drained, the solvent is transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump is located beneath the liquid solvent surface.</p> <p>Verify that solvent-cleaning machines and controls are maintained as recommended by the manufacturer.</p> <p>(NOTE: The USEPA Administrator may request operators of solvent-cleaning machines to take a test on solvent-cleaning machine procedures. This test is only required at the request of the Administrator.)</p> <p>Verify that waste solvent, still bottoms, and sump bottoms are collected and stored in closed containers.</p> <p>(NOTE: The closed container may contain a device that allows pressure relief but does not allow liquid solvent to drain from the container.)</p> <p>Verify that sponges, fabric, wood, and paper products are not cleaned.</p> <p>(NOTE: Instead of complying with these standards, the owner or operator of a continuous web cleaning machine may comply with the requirements of 40 CFR 63.463(g) or 63.463(h) (see checklist items A.117.11 and A.117.12).)</p> <p>(NOTE: These requirements do not apply when alternative standards as detailed in 40 CFR 63.464 (see checklist item A.117.7) are applied.)</p> <p>(NOTE: See the text of 40 CFR 63.465 for details on test methods.)</p> <p>Verify that batch vapor-cleaning machines with a solvent/air interface area of 1.21 m<sup>2</sup> (13 ft<sup>2</sup>) or less meets one of the following:</p> <ul style="list-style-type: none"> <li>- one of the following control methods is used or equivalent other methods: <ul style="list-style-type: none"> <li>- working mode cover, freeboard ration of 1.0, superheated vapor</li> <li>- freeboard refrigeration device, superheated vapor</li> <li>- working mode cover, freeboard refrigeration device</li> <li>- reduced room draft, freeboard ratio of 1.0, superheated vapor</li> <li>- freeboard refrigeration device, reduced room draft</li> <li>- freeboard refrigeration device, freeboard ratio of 1.0</li> <li>- freeboard refrigeration device, dwell</li> <li>- reduced room draft, dwell, freeboard ratio of 1.0</li> </ul> </li> </ul>



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<p><b>A.117.4.</b> Existing or new in-line cleaning machines are required to be designed and operated to meet specific emission control standards (40 CFR 63.463(c)) [Revised April 2000].</p>	<ul style="list-style-type: none"> <li>- freeboard refrigeration device, carbon adsorber</li> <li>- freeboard ratio of 1.0, superheated vapor, carbon adsorber</li> <li>- the solvent-cleaning machine can achieve and maintain an idling emission limit of 0.22 kg/h/m<sup>2</sup> (0.045 lb/h/ft<sup>2</sup>) of solvent/air interface area.</li> </ul> <p>Verify that batch vapor-cleaning machines with a solvent/air interface area greater than 1.21 m<sup>2</sup> (13 ft<sup>2</sup>) meets one of the following:</p> <ul style="list-style-type: none"> <li>- one of the following control combinations is used or other equivalent methods:               <ul style="list-style-type: none"> <li>- freeboard refrigeration device, freeboard ratio of 1.0, superheated vapor</li> <li>- dwell, freeboard refrigeration device, reduced room draft</li> <li>- working-mode cover, freeboard refrigeration device, superheated vapor</li> <li>- freeboard ratio of 1.0, reduced room draft, superheated vapor</li> <li>- freeboard refrigeration device, reduced room draft, superheated vapor</li> <li>- freeboard refrigeration device, reduced room draft, freeboard ratio of 1.0</li> <li>- freeboard refrigeration device, superheated vapor, carbon adsorber</li> </ul> </li> <li>- the solvent-cleaning machine can achieve and maintain an idling emission limit of 0.22 kg/h/m<sup>2</sup> (0.045 lb/h/ft<sup>2</sup>) of solvent/air interface area.</li> </ul> <p>(NOTE: See the text of 40 CFR 63.465 for details on test methods.)</p> <p>Verify that existing in-line cleaning machines meet one of the following:</p> <ul style="list-style-type: none"> <li>- one of the following control combinations is used:               <ul style="list-style-type: none"> <li>- superheated vapor, freeboard ratio of 1.0</li> <li>- freeboard refrigeration device, freeboard ratio of 1.0</li> <li>- dwell, freeboard refrigeration device</li> <li>- dwell, carbon adsorber</li> </ul> </li> <li>- the in-line cleaning machine can achieve and maintain an idling emission limit of 0.10 kg/h/m<sup>2</sup> (0.021 lb/h/ft<sup>2</sup>) of solvent/air interface area.</li> </ul> <p>Verify that new in-line cleaning machines meet one of the following:</p> <ul style="list-style-type: none"> <li>- one of the following control combinations is used:               <ul style="list-style-type: none"> <li>- superheated vapor, freeboard refrigeration device</li> </ul> </li> </ul>

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<p><b>A.117.5.</b> Depending on the control techniques used to achieve compliance, specific actions are required to be done (40 CFR 63.463(e)(2)) [Revised April 2000].</p>	<ul style="list-style-type: none"> <li>- freeboard refrigeration device, carbon adsorber</li> <li>- superheated vapor, carbon adsorber</li> <li>- the in-line cleaning machine can achieve and maintain an idling emission limit of 0.10 kg/h/m<sup>2</sup> (0.021 lb/h/ft<sup>2</sup>) of solvent/air interface area.</li> </ul> <p>(NOTE: Instead of complying with these standards, the owner or operator of a continuous web cleaning machine may comply with the requirements of 40 CFR 63.463(g) or 63.463(h) (see checklist items A.117.11 and A.117.12).)</p> <p>(NOTE: These requirements do not apply when alternative standards as detailed in 40 CFR 63.464 (see checklist item A.117.7) are applied.)</p> <p>(NOTE: See the text of 40 CFR 63.465 for details on test methods.)</p> <p>(NOTE: These requirements only apply to solvent-cleaning machines as identified in 40 CFR 63.463(b), 63.463(c), or 63.463(g) see checklist items A.117.3, A.117.4, and A.117.11.)</p> <p>Verify that, if freeboard refrigeration devices are used, the chilled air blanket temperature (in °F) measured at the center of the air blanket is no greater than 30 percent of the solvent's boiling point.</p> <p>Verify that, if a reduced room draft is used to achieve compliance, the following are done:</p> <ul style="list-style-type: none"> <li>- it is ensured that the flow or movement of air across the top of the freeboard area of the solvent-cleaning machine enclosure does not exceed 15.2 m/min (50 ft/min) at any time</li> <li>- operating conditions under which the wind speed was demonstrated to be 15.2 m/min (50 ft/min) or less are established and maintained.</li> </ul> <p>Verify that, if a working mode cover is used to achieve compliance, the following are done:</p> <ul style="list-style-type: none"> <li>- the cover open only for part entrance and removal and completely covers the cleaning machine openings when closed</li> <li>- the working mode cover is maintained free of cracks, holes, and other defects.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that, if an idling mode cover is used to achieve compliance, the following are done:</p> <ul style="list-style-type: none"> <li>- the cover is in place whenever parts are not in the solvent-cleaning machine and completely covers the cleaning machine openings when in place</li> <li>- the idling mode cover is maintained free of cracks, holes, and other defects.</li> </ul> <p>Verify that, if dwell is used to achieve compliance, the following are done:</p> <ul style="list-style-type: none"> <li>- the appropriate dwell time is determined for each part or parts basket or the maximum dwell time</li> <li>- after cleaning, each part is held in the freeboard area above the vapor zone for the dwell time necessary.</li> </ul> <p>Verify that, if a superheated vapor system is used to achieve compliance, the following are done:</p> <ul style="list-style-type: none"> <li>- the temperature of the vapor at the center of the superheated vapor is at least 10 °F above the solvents boiling point</li> <li>- the manufacturers specifications for determining the minimum proper dwell time are followed</li> <li>- the parts remain within the superheated vapor for at least the minimum proper dwell time.</li> </ul> <p>Verify that, if a carbon adsorber in conjunction with a lip exhaust is used to achieve compliance, the following are done:</p> <ul style="list-style-type: none"> <li>- the concentration of the organic solvent in the exhaust does not exceed 100 ppm of any halogenated HAP compound</li> <li>- the carbon adsorber bed is not bypassed during desorption</li> <li>- the lip exhaust is located above the solvent-cleaning machine cover so that the cover closes below the lip exhaust level.</li> </ul> <p>Verify that, if a superheated part system is used to comply with the standards for continuous web cleaning machines, the owner or operator ensures that the temperature of the continuous web part is at least 10 °F above the solvent boiling point while the part is traveling through the cleaning machine.</p> <p>Verify that, if a squeegee system is used to comply with the continuous web cleaning requirements, the owner or operator complies with the following requirements:</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- determines the appropriate maximum product throughput for the squeegees used in the squeegee system</li> <li>- conducts weekly monitoring</li> <li>- records both the results of the visual inspection and the length of continuous web product cleaned during the previous week</li> <li>- calculates the total amount of continuous web product processed since the squeegees were replaced and compare to the maximum product throughput for the squeegees</li> <li>- ensures squeegees are replaced at or before the maximum product throughput is attained</li> <li>- redetermines the maximum product throughput for the squeegees if any solvent film is visible on the continuous web part immediately after it exits the cleaning machine.</li> </ul> <p>Verify that, if an air knife system is used to comply with the continuous web cleaning requirements, the owner or operator complies with the following requirements:</p> <ul style="list-style-type: none"> <li>- determines the air knife parameter and parameter value that demonstrates to the Administrator's satisfaction that the air knife is properly operating</li> <li>- maintains the selected air knife parameter value at the required level</li> <li>- conducts the weekly monitoring</li> <li>- redetermines the proper (air knife parameter) value if any solvent film is visible on the continuous web part immediately after it exits the cleaning machine.</li> </ul> <p>(NOTE: An air knife is properly operating if no visible solvent film remains on the continuous web part after it exits the cleaning machine.)</p> <p>Verify that, if a combination squeegee and air knife system is used to comply with the continuous web cleaning requirements, the owner or operator complies with the following requirements:</p> <ul style="list-style-type: none"> <li>- determines the system parameters and value that demonstrate to the Administrator's satisfaction that the system is properly operating</li> <li>- maintains the selected parameter value at the determined level</li> <li>- conducts weekly monitoring</li> <li>- redetermines the proper parameter value if any solvent film is visible on the continuous web part immediately after it exits the cleaning machine.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.117.6.</b> Batch vapor or in-line cleaning machines that are meeting the requirements for idling emission limit standards are required to perform specific actions (40 CFR 63.463(f)) [Revised April 2000].</p> <p><b>A.117.7.</b> Instead of complying with the standards in 40 CFR 63.463, an operator may elect to comply with the standards outlined in 40 CFR 63.464 (40 CFR 463.464) [Revised April 2000].</p>	<p>(NOTE: See the text of 40 CFR 63.465 for details on test methods.)</p> <p>(NOTE: This applies to the idling emission limit standards outlined in 40 CFR 63.463(b) and (c), see checklist items A.117.3 and A.117.4.)</p> <p>Verify that an initial performance test was conducted to demonstrate compliance and establish parameters for monitoring.</p> <p>Verify that periodic monitoring is done.</p> <p>Verify that the solvent-cleaning machine is being operated within the parameters identified in the initial performance test.</p> <p>(NOTE: See the text of 40 CFR 63.465 for details on test methods.)</p> <p>(NOTE: The requirements outlined in this checklist item can, at the designation of the operator, replace the requirements in 40 CFR 63.463, see checklist items A.117.1 through A.117.6 and A.118.7.)</p> <p>Verify that, if the cleaning machine has a solvent/air interface:</p> <ul style="list-style-type: none"> <li>- a log is maintained of solvent additions and deletions for each solvent-cleaning machine</li> <li>- emissions are equal to or less than the following applicable emissions limit: <ul style="list-style-type: none"> <li>- batch vapor solvent-cleaning machine - 150 kg/m<sup>2</sup>/mo</li> <li>- existing in-line solvent-cleaning machines - 153 kg/m<sup>2</sup>/mo</li> <li>- new in-line solvent-cleaning machines - 99 kg/m<sup>2</sup>/mo.</li> </ul> </li> </ul> <p>(NOTE: Measurements are 3-mo rolling average monthly emission limits.)</p> <p>Verify that, if the cleaning machine is a batch vapor-cleaning machine and does not have a solvent/air interface:</p> <ul style="list-style-type: none"> <li>- a log is maintained of solvent additions and deletions for each solvent-cleaning machine</li> <li>- emissions are equal to or less than the following applicable emissions limit: <ul style="list-style-type: none"> <li>- for cleaning machines with a cleaning capacity that is less than or equal to 2.96 m<sup>3</sup>, the emissions limit is determined by either using the equation or the Table in Appendix 1-17</li> <li>- for cleaning machines with a cleaning capacity that is greater than 2.95 m<sup>3</sup>, the emissions limit is determined by using the equation in Appendix 1-17.</li> </ul> </li> </ul>

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<p><b>A.117.8.</b> Depending on the control techniques used to achieve compliance, specific monitoring is required to be done (40 CFR 63.466) [Revised April 2000].</p>	<p>Verify that compliance with the 3-mo rolling average is demonstrated monthly.</p> <p>(NOTE: As an alternative to meeting the requirements in 40 CFR 63.463, each owner or operator of a continuous web cleaning machine can demonstrate an overall cleaning system control efficiency of 70 percent.)</p> <p>(NOTE: See the text of 40 CFR 63.465 for details on test methods.)</p> <p>(NOTE: These requirements only apply to solvent-cleaning machines as identified in 40 CFR 63.463(b), 63.463(c), and new web cleaning machines, see checklist items A.117.3, A.117.4, and A.117.11.)</p> <p>Verify that monitoring is conducted as follows and the results recorded on a weekly basis:</p> <ul style="list-style-type: none"> <li>-if a freeboard refrigeration device is used to comply with the above standards, the operator uses a thermometer or thermocouple to measure the temperature of the center of the air blanket during the idling mode</li> <li>-if a superheated vapor system is used to comply, the operator uses a thermometer or thermocouple to measure the temperature in the center of the superheated vapor zone while the solvent-cleaning machine is in the idling mode</li> <li>-if a squeegee system or air knife system is used to comply with the requirements for web cleaning machines outlined in 40 CFR 63.463(g) or 63.463(h) (see checklist item A.117.11 and A.117.12), the owner or operator visually inspects the continuous web part exiting the solvent-cleaning machine to ensure that no solvent film is visible on the part</li> <li>-if a superheated part system is used to comply with the requirements for web cleaning machines outlined in 40 CFR 63.463(g) or 63.463(h) (see checklist item A.117.11 and A.117.12), the owner or operator use a thermometer, thermocouple, or other temperature measurement device to measure the temperature of the continuous web part while it is in the solvent-cleaning machine.</li> </ul> <p>(NOTE: The temperature measurement for web cleaning machines can also be taken at the exit of the solvent-cleaning machine. As an alternative to complying with the temperature measurement requirements for web cleaning machines, the owner or operator can provide data, sufficient to satisfy the Administrator, that demonstrate that the part temperature remains above the boiling point of the solvent</p>

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	<p>at all times that the part is within the continuous web solvent-cleaning machine. These data could include design and operating conditions such as information supporting any exothermic reaction inherent in the processing.)</p> <p>Verify that monitoring is conducted as follows and the results recorded on a monthly basis:</p> <ul style="list-style-type: none"> <li>-if a cover (working mode, downtime mode, and/or idling mode) is used to comply, there is a visual inspection to identify any cracks, holes, or other defects and that the cover completely covers the machine when closed</li> <li>-if a dwell is used, the actual dwell time is determined by measuring the period of time that parts are held within the freeboard area of the solvent-cleaning machine after cleaning.</li> </ul> <p>Verify that monitoring is conducted as follows when using reduced room draft:</p> <ul style="list-style-type: none"> <li>-if the reduced room draft is maintained by controlling room parameters, there is initial monitoring of the wind speed and of room parameters (quarterly monitoring of wind speed, and weekly monitoring of room parameters)</li> <li>-if an enclosure (full or partial) is used to achieve a reduced room draft, there is an initial monitoring and thereafter monthly monitoring of the wind speed within the enclosure and a monthly visual inspection of the enclosure to determine if it is free of cracks, holes, and other defects.</li> </ul> <p>(NOTE: These requirements for weekly and monthly monitoring and reduced room draft monitoring apply when the operator is complying with the following equipment standards:</p> <ul style="list-style-type: none"> <li>-using one of the approved control combinations for batch vapor solvent-cleaning machines with a solvent/air interface of 1.21 m<sup>2</sup> (13 ft<sup>2</sup>) or less</li> <li>-using one of the approved control combinations for batch vapor solvent-cleaning machines with a solvent/air interface of greater than 1.21 m<sup>2</sup> (13 ft<sup>2</sup>)</li> <li>-using one of the approved control combinations for existing in-line solvent-cleaning machines</li> <li>-using one of the approved control combinations for new in-line solvent-cleaning machines.)</li> </ul>

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	<p>Verify that the operators of batch vapor or in-line solvent-cleaning machines that are complying with the requirements in 40 CFR 63.463 (see checklist items A.117.1 through A.117.6 and A.118.7) are monitoring the hoist speed as follows:</p> <ul style="list-style-type: none"> <li>- speed is determined by measuring the time it takes to travel a measured distance and dividing the measuring distance by the time</li> <li>- monitoring is done monthly, but, if there are no exceedances the first year, monitoring can be done quarterly</li> <li>- if there is an exceedance, monitoring is done monthly again</li> <li>- if it can be demonstrated to the Administrator in the initial compliance report that the hoist cannot exceed a speed of 3.4 m/min (11 ft/min) the required monitoring frequency is quarterly.</li> </ul> <p>Verify that operators, using a carbon adsorber in order to achieve compliance, measure and record the concentration of halogenated HAP solvent in the exhaust of the carbon adsorber weekly with a colorimetric detector tube and the test is conducted while the machine is in the working mode and venting to the adsorber.</p> <p>Verify that operators, using idling emission limit standards for compliance and controls other than those already addressed in this checklist item, establish a monitoring frequency for each control submit and it to the Administrator for approval in the initial test report.</p> <p>(NOTE: These requirements for idling emissions monitoring apply when the operator is complying with the following equipment standards:</p> <ul style="list-style-type: none"> <li>- using a batch vapor-cleaning machine with a solvent/air interface area of 1.21 m<sup>2</sup> (13 ft<sup>2</sup>) or less that can achieve and maintain an idling emission limit of 0.22 kg/h/m<sup>2</sup> (0.045 lb/h/ft<sup>2</sup>) of solvent/air interface area</li> <li>- using a batch vapor-cleaning machines with a solvent/air interface area greater than 1.21 m<sup>2</sup> (13 ft<sup>2</sup>) that can achieve and maintain an idling emission limit of 0.22 kg/h/m<sup>2</sup> (0.045 lb/h/ft<sup>2</sup>) of solvent/air interface area</li> <li>- using an existing in-line cleaning machine that can achieve and maintain an idling emission limit of 0.10 kg/h/m<sup>2</sup> (0.021 lb/h/ft<sup>2</sup>) of solvent/air interface area</li> <li>- using a new in-line cleaning machine that can achieve and maintain an idling emission limit of 0.10 kg/h/m<sup>2</sup> (0.021 lb/h/ft<sup>2</sup>) of solvent/air interface area.)</li> </ul>



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<p><b>A.117.9.</b> Operators of batch vapor or in-line solvent-cleaning machines are required to keep specific records (40 CFR 63.467(a) and 63.467(b)). [Revised April 2000].</p>	<p>Verify that operators of batch vapor or in-line solvent-cleaning machines maintain the following records in written or electronic form for the life of the machine:</p> <ul style="list-style-type: none"> <li>- owners manuals or, if not available, written maintenance and operating procedures for the machine and the control equipment</li> <li>- the date of installation for the machine and all of its control devices</li> <li>- records of required tests if a dwell is used</li> <li>- records of the initial performance test for machines complying with the idling emissions limit standards</li> <li>- records of the halogenated HAP solvent content for each solvent used in a solvent-cleaning machine</li> <li>- records of the test required by 40 CFR 63.466(f) (see checklist item A.117.8) to determine the maximum product throughput for the squeegees if a squeegee system is used to comply</li> <li>- records of the determination of the proper operating parameter and parameter value for the air knife system if an air knife system is used to comply.</li> </ul> <p>(NOTE: If the exact date of installation is not known, a letter certifying that the cleaning machine and control devices were installed prior to, on, or after 29 November 1993 can be substituted.)</p> <p>Verify that operators of batch vapor or in-line solvent-cleaning machines maintain the following records in written or electronic form for 5 yr:</p> <ul style="list-style-type: none"> <li>- the results of control device monitoring</li> <li>- information on action taken to comply with monitoring and performance test requirements</li> <li>- estimates of annual solvent consumption for each solvent-cleaning machine</li> <li>- records of the date and result of weekly measurement if a carbon adsorber is used.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.117.10.</b> Operators of batch vapor cleaning machines, in-line solvent-cleaning machines, or continuous web cleaning machines, who choose to comply with the alternate standard of 40 CFR 63.464, are required to keep specific records (40 CFR 63.467(c) through 63.467(e)) [Revised April 2000].</p>	<p>Verify that operators of batch vapor or in-line solvent-cleaning machines, who choose to comply with the alternate standard of 40 CFR 63.464, maintain the following records in written or electronic form for 5 yr:</p> <ul style="list-style-type: none"> <li>- the dates and amounts of solvent that are added to the solvent-cleaning machine</li> <li>- the solvent composition of the wastes removed from cleaning machines</li> <li>- calculation sheets showing how monthly emissions and the rolling 3-mo average emissions were determined and the results of all calculations.</li> </ul> <p>Verify that operators of batch vapor or in-line solvent-cleaning machines without a solvent/air interface, who choose to comply with the alternate standard of 40 CFR 63.464, maintain records on the method used to determine cleaning capacity of the cleaning machine.</p> <p>Verify that owners or operators of a continuous web cleaning machine complying with the alternate standards of 40 CFR 63.464(d) maintain the following records in either electronic or written form for 5 yr:</p> <ul style="list-style-type: none"> <li>- the dates and amounts of solvent that are added to the solvent-cleaning machine</li> <li>- the dates and amounts of solvent that are recovered from the desorption of the carbon adsorber system</li> <li>- the solvent composition of wastes removed from each cleaning machine</li> <li>- calculation sheets showing the calculation and results of determining the overall cleaning system control efficiency.</li> </ul>
<p><b>A.117.11.</b> Existing or new web cleaning machines are required to be designed and operated to meet specific emission control standards (40 CFR 63.463(g)) [Added April 2000].</p>	<p>(NOTE: These requirements do not apply when alternative standards as detailed in 40 CFR 63.464 (see checklist item A.117.7) or 63.463(h) (see checklist item A.117.12) are applied.)</p> <p>Verify that, for each existing continuous web cleaning machine, one of the following control combinations is used:</p> <ul style="list-style-type: none"> <li>- superheated vapor or superheated part technology and a freeboard ratio of 1.0 or greater</li> <li>- freeboard refrigeration device and a freeboard ratio of 1.0 or greater</li> <li>- carbon adsorption system.</li> </ul>

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Verify that, for each new continuous web cleaning machine, one of the following control combinations is used:

- superheated vapor or superheated part technology and a freeboard refrigeration device
- a freeboard refrigeration device and a carbon adsorber
- superheated vapor or superheated part technology and a carbon adsorber.

(NOTE: If a carbon adsorber system can be demonstrated to the Administrator's satisfaction to have an overall solvent control efficiency (i.e., capture efficiency times removal efficiency) of 70 percent or greater, this system is equivalent to the listed options.)

Verify that, if the owner/operator of a continuous web cleaning machine does not comply with 40 CFR 63.463(a) (see checklist item A.117.1), they comply with the following:

- each continuous web cleaning machine meets one of the following control equipment or technique requirements:
  - an idling and downtime mode cover that may be readily opened or closed, that completely covers the cleaning machine openings when in place, and is free of cracks, holes, and other defects (NOTE: a continuous web part that completely occupies an entry or exit port when the machine is idle is considered to meet this requirement.)
  - a reduced room draft
  - gasketed or leakproof doors that separate both the continuous web part feed reel and take-up reel from the room atmosphere if the doors are checked
  - a cleaning machine that is demonstrated to the Administrator's satisfaction to be under negative pressure during idling and downtime and is vented to a carbon adsorption system
- each continuous web cleaning machine has a freeboard ratio of 0.75 or greater unless that cleaning machine is a remote reservoir continuous web cleaning machine
- each cleaning machine has an automated parts handling system capable of moving parts or parts baskets at a speed of 3.4 m/min (11 ft/min) or less from the initial loading of parts through removal of cleaned parts unless the cleaning machine is a continuous web cleaning machine that has a squeegee system or air knife system installed, maintained, and operated on the continuous web cleaning machine

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- each vapor-cleaning machine is equipped with a device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils
- each vapor-cleaning machine is equipped with a vapor level control device that shuts off sump heat if the vapor level in the vapor-cleaning machine rises above the height of the primary condenser
- each vapor-cleaning machine has a primary condenser
- each cleaning machine that uses an exhaust is designed and operated to route all collected solvent vapors through a properly operated and maintained carbon adsorber.)

Verify that, if the owner/operator of a continuous web cleaning machine does not comply with 40 CFR 63.463(d) (see checklist item A.117.2), they comply with the following:

- control air disturbances across the cleaning machine opening by incorporating one of the following pieces of control equipment or techniques:
  - cover to each solvent-cleaning machine is in place during the idling mode and during the downtime mode unless either the solvent has been removed from the machine or maintenance or monitoring is being performed that requires the cover to be off (NOTE: A continuous web part that completely occupies an entry or exit port when the machine is idle is considered to meet this requirement.)
  - a reduced room draft
  - gasketed or leakproof doors or covers that separate both the continuous web part feed reel and take-up reel from the room atmosphere if the doors are checked
  - a cleaning machine that is demonstrated to the Administrator's satisfaction to be under negative pressure during idling and downtime and is vented to a carbon adsorption system
- any spraying operations are conducted in a section of the solvent-cleaning machine that is not directly exposed to the ambient air (i.e., a baffled or enclosed area of the solvent-cleaning machine) or within a machine having an appropriate door or cover
- during startup of each vapor-cleaning machine, the primary condenser is turned on before the sump heater
- during shutdown of each vapor-cleaning machine, the sump heater is turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.117.12.</b> Remote reservoir continuous web cleaning machines are required to be designed and operated to meet specific emission control standards (40 CFR 63.463(h)). [Added April 2000].</p>	<ul style="list-style-type: none"> <li>- when solvent is added or drained from any solvent-cleaning machine, the solvent is transferred using threaded or other leakproof couplings and the end of the pipe in the solvent sump is located beneath the liquid solvent surface</li> <li>- each solvent-cleaning machine and its associated controls is maintained as recommended by the manufacturers of the equipment or using alternative maintenance practices that have been demonstrated to the Administrator's satisfaction to achieve the same or better results as those recommended by the manufacturer</li> <li>- waste solvent, still bottoms, sump bottoms, and waste absorbent materials used in the cleaning process for continuous web cleaning machines are collected and stored in waste containers</li> <li>- sponges, fabric, wood, and paper products are not cleaned except for absorbent materials that are used as part of the cleaning process of continuous web cleaning machines, including rollers and roller covers.</li> </ul> <p>(NOTE: These requirements do not apply when alternative standards as detailed in 40 CFR 63.464 (see checklist item A.117.7) are applied.)</p> <p>Verify that each owner or operator of a remote reservoir continuous web cleaning machine installs, maintains, and operates one of the following controls on each new remote reservoir continuous web cleaning machine.</p> <ul style="list-style-type: none"> <li>- superheated vapor or superheated part technology</li> <li>- a carbon adsorber.</li> </ul> <p>(NOTE: If a carbon adsorber system can be demonstrated to the Administrator's satisfaction to have an overall solvent control efficiency (i.e., capture efficiency removal efficiency) of 70 percent or greater, this system is equivalent to the options listed above.)</p> <p>(NOTE: In lieu of complying with the above provisions, the owner or operator of a remote reservoir continuous web cleaning machine shall comply with the following provisions:</p> <ul style="list-style-type: none"> <li>- each cleaning machine has an automated parts handling system capable of moving parts or parts baskets at a speed of 3.4 m/min (11 ft/min) or less from the initial loading of parts through removal of cleaned parts, unless the cleaning machine is a continuous web cleaning machine that has a squeegee system or air knife system</li> </ul>

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- installed, maintained, and operated on the continuous web cleaning machine meeting the requirements of 40 CFR 63.463(e) (see checklist items A.117.5 and A.118.7)
- each vapor cleaning machine is equipped with a device that shuts off the sump heat if the sump liquid solvent level drops to the sump heater coils
  - each vapor cleaning machine shall be equipped with a vapor level control device that shuts off sump heat if the vapor level in the vapor cleaning machine rises above the height of the primary condenser
  - each vapor cleaning machine has a primary condenser
  - each cleaning machine that uses an exhaust is designed and operated to route all collected solvent vapors through a properly operated and maintained carbon adsorber.)

Verify that, if the owner/operator of a remote reservoir continuous web cleaning machine does not comply with 40 CFR 63.463(d) (see checklist item A.117.2), they comply with the following:

- any spraying operation is conducted in a section of the solvent-cleaning machine that is not directly exposed to the ambient air (i.e., a baffled or enclosed area of the solvent-cleaning machine) or within a machine having a compliant door or cover
- during startup of each vapor cleaning machine, the primary condenser are turned on before the sump heater
- during shutdown of each vapor cleaning machine, the sump heater is turned off and the solvent vapor layer allowed to collapse before the primary condenser is turned off
- when solvent is added or drained from any solvent-cleaning machine, the solvent is transferred using threaded or other leakproof couplings, and the end of the pipe in the solvent sump is located beneath the liquid solvent surface
- each solvent-cleaning machine and associated controls is maintained as recommended by the manufacturers of the equipment or using alternative maintenance practices that have been demonstrated to the Administrator's satisfaction to achieve the same or better results as those recommended by the manufacturer
- waste solvent, still bottoms, sump bottoms, and waste absorbent materials used in the cleaning process for continuous web cleaning machines is collected and stored in waste containers.
- sponges, fabric, wood, and paper products are not cleaned except for absorbent materials that are used as part of the cleaning process of continuous web cleaning machines, including rollers and roller covers.

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(NOTE: The closed containers may contain a device that would allow pressure relief, but would not allow liquid solvent to drain from the container.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DEGREASING OPERATIONS</b></p> <p><b>A.118 Reporting</b></p> <p><b>A.118.1.</b> Operators of an existing solvent cleaning machine are required to submit an initial notification to the Administrator no later than 29 August 1995 (40 CFR 63.468(a)).</p> <p><b>A.118.2.</b> Operators of a new solvent cleaning machine are required to submit an initial notification to the Administrator (40 CFR 63.468 (b)).</p>	<p>(NOTE: The requirements in 40 CFR 63.460 through 63.469 apply to each individual batch vapor, in-line vapor, in-line cold, and batch cold solvent cleaning machine that uses any solvent containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform, or any combination of these halogenated HAP solvents, in total concentration greater than 5 percent by weight, as a cleaning and/or drying agent. Wipe cleaning activities, such as using a rag containing halogenated solvent or a spray cleaner containing halogenated solvent are not included.)</p> <p>Verify that the report is submitted and contains the following information:</p> <ul style="list-style-type: none"> <li>- the name and address of the owner or operator</li> <li>- the address (i.e., physical location) of the solvent cleaning machine</li> <li>- a brief description of each solvent cleaning machine including machine type, solvent/air interface area, and existing controls</li> <li>- the date of the installation for each machine or a letter certifying that the machine was installed prior to, or after 29 November 1993</li> <li>- the anticipated compliance approach for each machine</li> <li>- an estimate of annual halogenated HAP solvent consumption for each solvent cleaning machine.</li> </ul> <p>Verify that new sources, for which construction or reconstruction had commenced and initial startup had not occurred before 2 December 1994, submit the report as soon as practicable but no later than 31 January 1995.</p> <p>Verify that new sources, for which construction or reconstruction commenced after 2 December 1994, submit the report as soon as practicable before the construction or reconstruction is planned to commence.</p> <p>Verify that the report is submitted and contains the following information:</p> <ul style="list-style-type: none"> <li>- a brief description of each solvent cleaning machine including machine type, solvent/air interface area, and existing controls</li> <li>- the anticipated compliance approach for each machine</li> <li>- an estimate of annual halogenated HAP solvent consumption for each solvent cleaning machine.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.118.3.</b> Operators of batch cold solvent cleaning machine are required to submit a compliance report to the Administrator (40 CFR 63.468(c)).</p>	<p>Verify that, for existing sources, this report is submitted no later than 150 days after 2 December 1997.</p> <p>Verify that for new sources the report is submitted no later than 150 days after startup or 1 May 1995, whichever is later.</p> <p>Verify that the report includes:</p> <ul style="list-style-type: none"> <li>- the name and address of the owner or operator</li> <li>- the address (i.e., physical location) of the solvent cleaning machine</li> <li>- a statement signed by the owner or operator stating that the solvent cleaning machine for which the report is being submitted is in compliance</li> <li>- the compliance approach for each machine.</li> </ul>
<p><b>A.118.4.</b> Operators of batch vapor or in-line solvent cleaning machines are required to submit an initial statement of compliance to the Administrator (40 CFR 63.468(d)).</p>	<p>Verify that, for existing sources, this report is submitted no later than 150 days after 2 December 1997.</p> <p>Verify that, for new sources, the report is submitted no later than 150 days after startup or 1 May 1995, whichever is later.</p> <p>Verify that the report includes:</p> <ul style="list-style-type: none"> <li>- the name and address of the owner or operator</li> <li>- the address (i.e., physical location) of the solvent cleaning machine</li> <li>- a list of control equipment required to be monitored, a list of the parameters that are monitored and the values of these parameters measured on or during the first month after the compliance date</li> <li>- conditions to maintain the wind speed requirements</li> <li>- a test report for machines complying with the idling emission limit standards for tests of idling emissions.</li> </ul> <p>Verify that, if a carbon adsorber is used, the date and results of the weekly measurements of the halogenated HAP solvent concentration is included in the report.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.118.5.</b> Operators of batch vapor or in-line solvent cleaning machines complying with the alternate standards in 40 CFR 63.464 are required to submit an initial statement of compliance to the Administrator (40 CFR 63.468(e)).</p> <p><b>A.118.6.</b> Operators of batch vapor or in-line solvent cleaning machines are required to submit an annual report by 1 February of the year following the one for which the report is being made and a solvent emissions report (40 CFR 63.468 (f) and 63.468(g)).</p>	<p>Verify that, for existing sources, this report is submitted no later than 150 days after 2 December 1997.</p> <p>Verify that, for new sources, the report is submitted no later than 150 days after startup or 1 May 1995, whichever is later.</p> <p>Verify that the report includes:</p> <ul style="list-style-type: none"> <li>- the name and address of the owner or operator</li> <li>- the address (i.e., physical location) of the solvent cleaning machine</li> <li>- the solvent/air interface area for cleaning machines without a solvent/air interface, a description of the method used to determine the cleaning capability and the results</li> <li>- the results of the first 3 mo average emissions calculation.</li> </ul> <p>Verify that operators of batch vapor or in-line solvent cleaning machines are required to submit an annual report by 1 February of the year following the one for which the report is being made.</p> <p>Verify that the annual report includes the following:</p> <ul style="list-style-type: none"> <li>- a signed statement from the owner or his designee stating that "All operators of solvent cleaning machines have received training on the proper operation of solvent cleaning machines and their control devices sufficient to pass the test in 40 CFR 63.463(d)(10)"</li> <li>- an estimate of solvent consumption for each solvent cleaning machine during the reporting period.</li> </ul> <p>Verify that the solvent emission report is submitted yearly and includes the following information:</p> <ul style="list-style-type: none"> <li>- the size and type of each unit (solvent/air interface area or cleaning capacity)</li> <li>- the average monthly solvent consumption for the solvent cleaning machine in kg/mo</li> <li>- the 3 mo rolling average solvent emission estimates calculated each month.</li> </ul> <p>(NOTE: The annual report and the solvent emissions report can be combined into a single report.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>A.118.7.</b> Exceedances from batch vapor or in-line solvent cleaning machines are required to be reported (40 CFR 63.463(e)(3), 63.468(h), and 63.468 (i)).</p>	<p>(NOTE: This applies to the control techniques outlined in 40 CFR 63.463(e)(2), see checklist item A.117.5.)</p> <p>Verify that all exceedances are reported to the Administrator semiannually except when required more frequently as determined by the administrator.</p> <p>Verify that, once an exceedance has occurred, quarterly reporting is done until a request to reduce reporting is approved.</p> <p>Verify that reports are delivered or postmarked by the 30th day following the end of each calendar half or quarter as appropriate.</p> <p>Verify that exceedance reports include the following information:</p> <ul style="list-style-type: none"> <li>-actions taken to comply with monitoring and performance test requirements, including records of written or verbal orders for replacement parts, a description of repairs made, and additional monitoring conducted to demonstrate compliance</li> <li>-if an exceedance has occurred, the reason for the exceedance and a description of the actions taken</li> <li>-if no exceedance has occurred and no equipment has been inoperative or out of control, repaired, or adjusted, such information is stated in the report.</li> </ul> <p>(NOTE: Quarterly reporting may be reduced if there has not been an exceedance for a year, all recordkeeping and monitoring requirements are being met, and the Administrator does not object.)</p> <p>(NOTE: An exceedance has occurred if:</p> <ul style="list-style-type: none"> <li>-a reduced room draft is used to achieve compliance and operating conditions under which the wind speed was demonstrated to be 15.2 m/min (50 ft/min) or less have not been established and maintained</li> <li>-a working mode cover is used to achieve compliance and the cover is open for more than just part entrance and removal or it does not completely cover the cleaning machine openings when closed</li> <li>-an idling mode cover is used to achieve compliance and the cover is not in place whenever parts are not in the solvent cleaning machine and it does not completely covers the cleaning machine openings when in place</li> <li>-dwell is used to achieve compliance and neither of the following are done: <ul style="list-style-type: none"> <li>-the appropriate dwell time is determined for each part or parts basket or the maximum dwell time</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- after cleaning, each part is held in the freeboard area above the vapor zone for the dwell time necessary</li> <li>- a superheated vapor system is used to achieve compliance and:               <ul style="list-style-type: none"> <li>- the manufacturers specifications for determining the minimum proper dwell time are not followed</li> <li>- the parts do not remain within the superheated vapor for at least the minimum proper dwell time</li> </ul> </li> <li>- a carbon adsorber in conjunction with a lip exhaust is used to achieve compliance and:               <ul style="list-style-type: none"> <li>- the carbon adsorber bed is bypassed during desorption</li> <li>- the lip exhaust is not located above the solvent cleaning machine cover so that the cover closes below the lip exhaust level.)</li> </ul> </li> </ul> <p>(NOTE: An exceedance has also occurred if the following conditions exist and they have not been corrected within 15 days of detection:</p> <ul style="list-style-type: none"> <li>- freeboard refrigeration devices are used and the chilled air blanket temperature measured at the center of the air blanket is greater than 30 percent of the solvents boiling point</li> <li>- a reduced room draft is used to achieve compliance and the flow or movement of air across the top of the freeboard area of the solvent cleaning machine closure does exceeds 15.2 m/min (50 ft/min) at any time</li> <li>- a working mode cover is used to achieve compliance and it has cracks, holes, or other defects</li> <li>- an idling mode cover is used to achieve compliance and it has cracks, holes, or other defects</li> <li>- a superheated vapor system is used to achieve compliance and the temperature of the vapor at the center of the superheated vapor is at less than 10 °F above the solvents boiling point</li> <li>- a carbon adsorber in conjunction with a lip exhaust is used to achieve compliance, and the concentration of the organic solvent in the exhaust exceeds 100 ppm of any halogenated HAP compound.)</li> </ul>



**Appendix 1-1**

**Mandatory Class I Air Quality Areas Under Service Jurisdiction  
(563 FW 2, Exhibit 1)**

<b>Wilderness Area</b>	<b>National Wildlife Refuge</b>
Bering Sea	Alaska Maritime
Simeonof	Alaska Maritime
Tuxedni	Alaska Maritime
Chassahowitzka	Chassahowitzka
St. Marks	St. Marks
Okefenokee	Okefenokee
Wolf Island	Savannah Coastal
Breton	Bogue Chitto
Moosehorn	Moosehorn
Seney	Seney
Mingo	Mingo
Medicine Lake	Medicine Lake
Red Rock Lakes	Red Rock Lakes
UL Bend	Charles M. Russell
Brigantine	Edwin B. Forsythe
Bosque Del Apache	Bosque Del Apache
Salt Creek	Salt Creek
Swanquarter	Mattamuskeet
Lostwood	Lostwood
Wichita Mountains	Wichita Mountains
Cape Romain	Cape Romain



Appendix 1-1a

RMP Substances Threshold List  
(40 CFR 68.130, Table 1 through 3)  
[Revised July 2000]

Table 1: List of Regulated Toxic Substances and Threshold Quantities for  
Accidental Release Prevention in Alphabetical Order

Chemical name	CAS No.	Threshold quantity (lbs)
Acrolein [2-Propenal]	107-02-8	5,000
Acrylonitrile [2-Propenenitrile]	107-13-1	20,000
Acrylyl chloride [2-Propenoyl chloride]	814-68-6	5,000
Allyl alcohol [2-Propen-1-ol]	107-18-61	15,000
Allylamine [2-Propen-1-amine]	107-11-9	10,000
Ammonia (anhydrous)	7664-41-7	10,000
Ammonia (conc 20% or greater)	7664-41-7	20,000
Arsenous trichloride	7784-34-1	15,000
Arsine	7784-42-1	1,000
Boron trichloride [Borane, trichloro-]	10294-34-5	5,000
Boron trifluoride [Borane, trifluoro-]	7637-07-2	5,000
Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro [oxybis [metane]]-, T-4-	353-42-4	15,000
Bromine	7726-95-6	10,000
Carbon disulfide	75-15-0	20,000
Chlorine	7782-50-5	2,500
Chlorine dioxide [Chlorine oxide (ClO <sub>2</sub> )]	10049-04-4	1,000
Chloroform [Methane, trichloro-]	67-66-3	20,000
Chloromethyl ether [Methane oxybis[chloro-]	542-88-1	1,000
Chloromethyl methyl ether [Methane, chloromethoxy-]	107-30-2	5,000
Crotonaldehyde [2-Butenal]	4170-30-3	20,000
Crotonaldehyde, (E)- [2-Butenal, (E)-]	123-73-9	20,000
Cyanogen chloride	506-77-4	10,000
Cyclohexylamine [Cyclohexanamine]	108-91-8	15,000
Diborane	19287-45-7	2,500
Dimethyldichlorosilane [Silane, dichlorodimethyl-]	75-78-5	5,000
1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-]	57-14-7	15,000
Epichlorohydrin [Oxirane,	106-89-8	20,000



(chloromethyl)-		
Ethylenediamine [1,2-Ethanediamine]	107-15-3	20,000
Ethyleneimine [Aziridine]	151-56-4	10,000
Ethylene oxide [Oxirane]	75-21-8	10,000
Fluorine	7782-41-4	1,000
Formaldehyde (solution)	50-00-0	15,000
Furan	110-00-9	5,000
Hydrazine	302-01-2	15,000
Hydrochloric acid (conc 37% or greater).	7647-01-0	15,000
Hydrocyanic acid	74-90-8	2,500
Hydrogen chloride (anhydrous) [Hydrochloric acid]	7647-01-0	5,000
Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid]	7664-39-3	1,000
Hydrogen selenide	7783-07-5	500
Hydrogen sulfide	7783-06-4	10,000
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO) <sub>5</sub> ), (TB-5-11)-]	13463-40-6	2,500
Isobutyronitrile [Propanenitrile, 2-methyl-]	78-82-0	20,000
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethyl ester]	108-23-6	15,000
Methacrylonitrile [2-Propenenitrile, 2-methyl-]	126-98-7	10,000
Methyl chloride [Methane, chloro-]	74-87-3	10,000
Methyl chloroformate [Carbonochloridic acid, methylester]	79-22-1	5,000
Methyl hydrazine [Hydrazine, methyl-]	60-34-4	15,000
Methyl isocyanate [Methane, isocyanato-]	624-83-9	10,000
Methyl mercaptan [Methanethiol]	74-93-1	10,000
Methyl thiocyanate [Thiocyanic acid, methyl ester]	556-64-9	20,000
Methyltrichlorosilane [Silane, trichloromethyl-]	75-79-6	5,000
Nickel carbonyl	13463-39-3	1,000
Nitric acid (conc 80% or greater).	7697-37-2	15,000
Nitric oxide [Nitrogen oxide (NO)]	10102-43-9	10,000
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide] <sup>1</sup>	8014-95-7	10,000
Peracetic acid [Ethaneperoxoic acid]	79-21-0	10,000
Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-]	594-42-3	10,000

Phosgene	75-44-5	500
[Carbonic dichloride]		
Phosphine	7803-51-2	5,000
Phosphorus oxychloride	10025-87-3	5,000
[Phosphoryl chloride]		
Phosphorus trichloride	7719-12-2	15,000
[Phosphorous trichloride]		
Piperidine	110-89-4	15,000
Propionitrile [Propanenitrile]	107-12-0	10,000
Propyl chloroformate	109-61-5	15,000
[Carbonochloridic acid, propylester]		
Propyleneimine [Aziridine, 2- methyl-]	75-55-8	10,000
Propylene oxide [Oxirane, methyl-]	75-56-9	10,000
Sulfur dioxide (anhydrous)	7446-09-5	5,000
Sulfur tetrafluoride [Sulfur fluoride (SF <sub>4</sub> ), (T-4)-]	7783-60-0	2,500
Sulfur trioxide	7446-11-9	10,000
Tetramethyllead [Plumbane, tetramethyl-]	75-74-1	10,000
Tetranitromethane [Methane, tetranitro-]	509-14-8	10,000
Titanium tetrachloride	7550-45-0	2,500
[Titanium chloride (TiCl <sub>4</sub> ) (T-4)-]		
Toluene 2,4-diisocyanate	584-84-9	10,000
[Benzene, 2,4-diisocyanato-1- methyl-] <sup>1</sup>		
Toluene 2,6-diisocyanate	91-08-7	10,000
[Benzene, 1,3-diisocyanato-2- methyl-] <sup>1</sup>		
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-] <sup>1</sup>	26471-62-5	10,000
Trimethylchlorosilane [Silane, chlorotrimethyl-]	75-77-4	10,000
Vinyl acetate monomer [Acetic acid ethenyl ester]	108-05-4	15,000

<sup>1</sup> The mixture exemption in 40 CFR 68.115(b)(1) does not apply to the substance.

**Table 2: List of Regulated Toxic Substances and Threshold Quantities for  
Accidental Release Prevention CAS Number Order**

CAS No.	Chemical name	Threshold quantity (lbs)
50-00-0	Formaldehyde (solution)	15,000
57-14-7	1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-]	15,000
60-34-4	Methyl hydrazine [Hydrazine, methyl-]	15,000
67-66-3	Chloroform [Methane, trichloro-]	20,000
74-87-3	Methyl chloride [Methane, chloro-]	10,000
74-90-8	Hydrocyanic acid	2,500
74-93-1	Methyl mercaptan [Methanethiol]	10,000
75-15-0	Carbon disulfide	20,000
75-21-8	Ethylene oxide [Oxirane]	10,000
75-44-5	Phosgene [Carbonic dichloride]	500
75-55-8	Propyleneimine [Aziridine, 2-methyl- ]	10,000
75-56-9	Propylene oxide [Oxirane, methyl-]	10,000
75-74-1	Tetramethyllead [Plumbane, tetramethyl-]	10,000
75-77-4	Trimethylchlorosilane [Silane, chlorotrimethyl-]	10,000
75-78-5	Dimethyldichlorosilane [Silane, dichlorodimethyl-]	5,000
75-79-6	Methyltrichlorosilane [Silane, trichloromethyl-]	5,000
78-82-0	Isobutyronitrile [Propanenitrile, 2-methyl-]	20,000
79-21-0	Peracetic acid [Ethaneperoxy acid]	10,000
79-22-1	Methyl chloroformate [Carbonochloridic acid, methylester]	5,000
91-08-7	Toluene 2,6- diisocyanate [Benzene, 1,3-diisocyanato-2-methyl-] <sup>1</sup>	10,000
106-89-8	Epichlorohydrin [Oxirane, (chloromethyl)-]	20,000
107-02-8	Acrolein [2-Propenal]	5,000
107-11-9	Allylamine [2-Propen-1-amine]	10,000
107-12-0	Propionitrile [Propanenitrile]	10,000
107-13-1	Acrylonitrile [2- Propenenitrile]	20,000
107-15-3	Ethylenediamine [1,2- Ethanediamine]	20,000
107-18-6	Allyl alcohol [2- Propen-1-ol]	15,000
107-30-2	Chloromethyl methyl ether [Methane, chloromethoxy-]	5,000
108-05-4	Vinyl acetate monomer [Acetic acid ethenyl ester]	15,000
108-23-6	Isopropyl chloroformate [Carbonochloridic acid, 1-methylethyl ester]	15,000
108-91-8	Cyclohexylamine [Cyclohexanamine]	15,000
109-61-5	Propyl chloroformate [Carbonochloridic acid, propylester]	15,000

110-00-9	Furan	5,000
110-89-4	Piperidine	15,000
123-73-9	Crotonaldehyde, (E)- [2-Butenal, (E)-]	20,000
126-98-7	Methacrylonitrile [2-Propenenitrile, 2-methyl-]	10,000
151-56-4	Ethyleneimine [Aziridine]	10,000
302-01-2	Hydrazine	15,000
353-42-4	Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro[oxybis[methane]]-, T-4-	15,000
506-77-4	Cyanogen chloride	10,000
509-14-8	Tetranitromethane [Methane, tetranitro-]	10,000
542-88-1	Chloromethyl ether [Methane, oxybis[chloro-]	1,000
556-64-9	Methyl thiocyanate [Thiocyanic acid, methyl ester]	20,000
584-84-9	Toluene 2,4- diisocyanate [Benzene, 2,4-diisocyanato-1-methyl-] <sup>1</sup>	10,000
594-42-3	Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-]	10,000
624-83-9	Methyl isocyanate [Methane, isocyanato-]	10,000
814-68-6	Acrylyl chloride [2- Propenoyl chloride]	5,000
4170-30-3	Crotonaldehyde [2- Butenal]	20,000
7446-09-5	Sulfur dioxide (anhydrous)	5,000
7446-11-9	Sulfur trioxide	10,000
7550-45-0	Titanium tetrachloride [Titanium chloride (TiCl <sub>4</sub> ) (T-4)-]	2,500
7637-07-2	Boron trifluoride [Borane, trifluoro-]	5,000
7647-01-0	Hydrochloric acid (conc 37% or greater)	15,000
7647-01-0	Hydrogen chloride (anhydrous) [Hydrochloric acid]	5,000
7664-39-3	Hydrogen fluoride/Hydrofluoric acid (conc 50% or greater) [Hydrofluoric acid]	1,000
7664-41-7	Ammonia (anhydrous)	10,000
7664-41-7	Ammonia (conc 20% or greater)	20,000
7697-37-2	Nitric acid (conc 80% or greater)	15,000
7719-12-2	Phosphorus trichloride [Phosphorous trichloride]	15,000
7726-95-6	Bromine	10,000
7782-41-4	Fluorine	1,000
7782-50-5	Chlorine	2,500
7783-06-4	Hydrogen sulfide	10,000
7783-07-5	Hydrogen selenide	500
7783-60-0	Sulfur tetrafluoride [Sulfur fluoride (SF <sub>4</sub> ), (T-4)-]	2,500
7784-34-1	Arsenous trichloride	15,000
7784-42-1	Arsine	1,000
7803-51-2	Phosphine	5,000
8014-95-7	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide] <sup>1</sup>	10,000
10025-87-3	Phosphorus oxychloride	5,000

10049-04-4	[Phosphoryl chloride] Chlorine dioxide	1,000
10102-43-9	[Chlorine oxide (ClO <sub>2</sub> )] Nitric oxide	10,000
10294-34-5	[Nitrogen oxide (NO)] Boron trichloride	5,000
13463-39-3	[Borane, trichloro-] Nickel carbonyl	1,000
13463-40-6	Iron, pentacarbonyl- [Iron carbonyl (Fe(CO) <sub>5</sub> ), (TB-5-11)-]	2,500
19287-45-7	Diborane	2,500
26471-62-5	Toluene diisocyanate (unspecified isomer) [Benzene, 1,3- diisocyanatomethyl-1] <sup>1</sup>	10,000

<sup>1</sup> The mixture exemption in 40 CFR 68.115(b)(1) does not apply to the substance.

**Table 3: List of Regulated Flammable Substances<sup>1</sup> and Threshold Quantities for Accidental Release Prevention in Alphabetical Order**

Chemical name	CAS No.	Threshold quantity (lbs)
Acetaldehyde	75-07-0	10,000
Acetylene [Ethyne]	74-86-2	10,000
Bromotrifluoroethylene [Ethene, bromotrifluoro-]	598-73-2	10,000
1,3-Butadiene	106-99-0	10,000
Butane	106-97-8	10,000
1-Butene	106-98-9	10,000
2-Butene	107-01-7	10,000
Butene	25167-67-3	10,000
2-Butene-cis	590-18-1	10,000
2-Butene-trans [2-Butene, (E)]	624-64-6	10,000
Carbon oxysulfide [Carbon oxide sulfide (COS)]	463-58-1	10,000
Chlorine monoxide [Chlorine oxide]	7791-21-1	10,000
2-Chloropropylene 1-Propene, 2-chloro-]	557-98-2	10,000
1-Chloropropylene [1-Propene, 1- chloro-]	590-21-6	10,000
Cyanogen [Ethanedinitrile]	460-19-5	10,000
Cyclopropane	75-19-4	10,000
Dichlorosilane [Silane, dichloro-]	4109-96-0	10,000
Diffluoroethane [Ethane, 1,1- difluoro-]	75-37-6	10,000
Dimethylamine [Methanamine, N-methyl-]	124-40-3	10,000
2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	463-82-1	10,000

Ethane	74-84-0	10,000
Ethyl acetylene [1-Butyne]	107-00-6	10,000
Ethylamine [Ethanamine]	75-04-7	10,000
Ethyl chloride [Ethane, chloro-]	75-00-3	10,000
Ethylene [Ethene]	74-85-1	10,000
Ethyl ether [Ethane, 1,1'-oxybis-]	60-29-7	10,000
Ethyl mercaptan [Ethanethiol]	75-08-1	10,000
Ethyl nitrite [Nitrous acid, ethyl ester]	109-95-5	10,000
Hydrogen	1333-74-0	10,000
Isobutane [Propane, 2-methyl]	75-28-5	10,000
Isopentane [Butane, 2-methyl-]	78-78-4	10,000
Isoprene [1,3-Butadiene, 2-methyl-]	78-79-5	10,000
Isopropylamine [2-Propanamine]	75-31-0	10,000
Isopropyl chloride [Propane, 2-chloro-]	75-29-6	10,000
Methane	74-82-8	10,000
Methylamine [Methanamine]	74-89-5	10,000
3-Methyl-1-butene	563-45-1	10,000
2-Methyl-1-butene	563-46-2	10,000
Methyl ether [Methane, oxybis-]	115-10-6	10,000
Methyl formate [Formic acid, methyl ester]	107-31-3	10,000
2-Methylpropene [1-Propene, 2-methyl-]	115-11-7	10,000
1,3-Pentadiene	504-60-9	10,000
Pentane	109-66-0	10,000
1-Pentene	109-67-1	10,000
2-Pentene, (E)-	646-04-8	10,000
2-Pentene, (Z)-	627-20-3	10,000
Propadiene [1,2-Propadiene]	463-49-0	10,000
Propane	74-98-6	10,000
Propylene [1-Propene]	115-07-1	10,000
Propyne [1-Propyne]	74-99-7	10,000
Silane	7803-62-5	10,000
Tetrafluoroethylene [Ethene, tetrafluoro-]	116-14-3	10,000
Tetramethylsilane [Silane, tetramethyl-]	75-76-3	10,000
Trichlorosilane [Silane, trichloro-]	10025-78-2	10,000
Trifluorochloroethylene [Ethene, chlorotrifluoro-]	79-38-9	10,000
Trimethylamine [Methanamine, N,N-dimethyl-]	75-50-3	10,000
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000
Vinyl chloride [Ethene, chloro-]	75-01-4	10,000
Vinyl ethyl ether [Ethene, ethoxy-]	109-92-2	10,000
Vinyl fluoride [Ethene, fluoro-]	75-02-5	10,000
Vinylidene chloride [Ethene, 1,1-dichloro-]	75-35-4	10,000
Vinylidene fluoride, [Ethene 1,1-difluoro-]	75-38-7	10,000
Vinyl methyl ether [Ethene, methoxy-]	107-25-5	10,000

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<sup>1</sup> A flammable substance when used as a fuel or held for sale as a fuel at a retail facility is excluded from all provisions of 40 CFR 68.



Appendix 1-1b

Emission Limits for Small, Medium, and Large HMIWI  
(40 CFR Subpart Ec, Table 1)  
[December 1997]

Pollutant	Units (7 percent oxygen, dry basis)	Emission Limits		
		HMIWI size		
		Small	Medium	Large
Particulate matter	Milligrams per dry standard cubic meter (grains per dry standard cubic foot)	69 (0.03)	34 (0.015)	34 (0.015)
Carbon monoxide	Parts per million by volume	40	40	40
Dioxins/furans	Nanograms per dry standard cubic meter total dioxins/furans (grains per billion dry standard cubic feet) or nanograms per dry standard cubic meter total dioxins/furans TEQ (grains per billion dry standard cubic feet).	125 (55) or 2.3 (1.0)	25 (11) or 0.6 (0.26)	25 (11) or 0.6 (0.26)
Hydrogen chloride	Parts per million or percent reduction	15 or 99%	15 or 99%	15 or 99%
Sulfur dioxide	Parts per million by volume	55	55	55
Nitrogen oxides	Parts per million by volume	250	250	250
Lead	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction	1.2 (0.52) or 70%	0.07 (0.03) or 98%	0.07 (0.03) or 98%
Cadmium	Milligrams per dry standard cubic meter (grains per thousand per dry standard cubic feet) or percent reduction	0.16 (0.07) or 65%	0.04 (0.02) or 90%	0.04 (0.02) or 90%
Mercury	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction.	0.55 (0.24) or 85%	0.55 (0.24) or 85%	0.55 (0.24) or 85%





Appendix 1-1c

Operating Parameters for HMIWIs To Be Monitored and  
 Minimum Measurement and Recording Frequencies  
 (40 CFR Subpart Ec, Table 3)  
 [December 1997]

Operating parameters to be monitored	Minimum frequency		Control System		
	Data measurement	Data recording	Dry scrubber followed by fabric filter	Wet scrubber	Dry scrubber followed by fabric filter and wet scrubber
Maximum operating parameters:					
Maximum charge rate	Continuous	1xhour	x	x	x
Maximum fabric filter inlet temperature	Continuous	1xminute	x		x
Maximum flue gas temperature	Continuous	1xminute	x	x	
Minimum operating parameter:					
Minimum secondary chamber temp.	Continuous	1xminute	x	x	x
Minimum dioxin/furan sorbent flow rate	Hourly	1xhour	x		x
Minimum HCl sorbent flow rate	Hourly	1xhour	x		x
Minimum mercury (Hg) sorbent flow rate	Hourly	1xhour	x		x
Minimum pressure drop across the Wet scrubber or minimum horsepower or amperage to wet scrubber	Continuous	1xminute		x	x
Minimum scrubber liquor flow rate	Continuous	1xminute		x	x
Minimum scrubber liquor pH	Continuous	1xminute		x	x



## Appendix 1-1d

### Contents of the RMP (40 CFR 68.155 through 68.185) [Added July 1999]

**Executive Summary** - This includes a brief description of the following elements:

- a) the accidental release prevention and emergency response policies at the stationary source;
- b) the stationary source and regulated substances handled;
- c) the worst-case release scenario(s) and the alternative release scenario(s), including administrative controls and mitigation measures to limit the distances for each reported scenario;
- d) the general accidental release prevention program and chemical-specific prevention steps;
- e) the 5-yr accident history;
- f) the emergency response program; and
- g) planned changes to improve safety.

**Registration Form** - This covers all regulated substances handled in covered processes and includes the following data:

- a) stationary source name, street, city, county, state, zip code, latitude, and longitude;
- b) the stationary source Dun and Bradstreet number;
- c) name and Dun and Bradstreet number of the corporate parent company;
- d) the name, telephone number, and mailing address of the owner or operator;
- e) the name and title of the person or position with overall responsibility for RMP elements and implementation;
- f) the name, title, telephone number, and 24-h telephone number of the emergency contact;
- g) for each covered process, the name and CAS number of each regulated substance held above the threshold quantity in the process, the maximum quantity of each regulated substance or mixture in the process (in pounds) to two significant digits, the SIC code, and the Program level of the process;
- h) the stationary source EPA identifier;
- i) the number of full-time employees at the stationary source;
- j) whether the stationary source is subject to 29 CFR 1910.119;
- k) whether the stationary source is subject to 40 CFR part 355;
- l) whether the stationary source has a CAA Title V operating permit; and
- m) the date of the last safety inspection of the stationary source by a Federal, state, or local government agency and the identity of the inspecting entity.

**Offsite consequence analysis** - This is required in the following situations:

- a) one worst-case release scenario for each Program 1 process; and
- b) for Program 2 and 3 processes, one worst-case release scenario to represent all regulated toxic substances held above the threshold quantity and one worst-case release scenario to represent all regulated flammable substances held above the threshold quantity. If additional worst-case scenarios for toxics or flammables are required by 40 CFR 68.25(a)(2)(iii), the owner or operator submits the same information on the additional scenario(s). The owner or operator of Program 2 and 3 processes also submits information on one alternative release scenario for each regulated toxic substance held above the threshold quantity and one alternative release scenario to represent all regulated flammable substances held above the threshold quantity.

When submitting an offsite consequence analysis, it is required to contain the following information  
chemical name;

- a) physical state (toxics only)

- b) basis of results (give model name if used)
- c) scenario (explosion, fire, toxic gas release, or liquid spill and vaporization)
- d) quantity released in pounds
- e) release rate
- f) release duration
- g) wind speed and atmospheric stability class (toxics only)
- h) topography (toxics only)
- i) distance to endpoint
- j) public and environmental receptors within the distance
- k) passive mitigation considered; and
- l) active mitigation considered (alternative releases only).

**Five-year Accident History.**

**Prevention Program/Program 2** - For each Program 2 process, the owner or operator shall provide in the RMP the following information. If the same information applies to more than one covered process, the owner or operator may provide the information only once, but shall indicate to which processes the information applies.

- a) the SIC code for the process
- b) the name(s) of the chemical(s) covered
- c) the date of the most recent review or revision of the safety information and a list of Federal or state regulations or industry-specific design codes and standards used to demonstrate compliance with the safety information requirement
- d) the date of completion of the most recent hazard review or update
  - the expected date of completion of any changes resulting from the hazard review
  - major hazards identified
  - process controls in use
  - mitigation systems in use
  - monitoring and detection systems in use; and
  - changes since the last hazard review
- e) the date of the most recent review or revision of operating procedures
- f) the date of the most recent review or revision of training programs
  - the type of training provided--classroom, classroom plus on the job, on the job; and
  - the type of competency testing used
- g) the date of the most recent review or revision of maintenance procedures and the date of the most recent equipment inspection or test and the equipment inspected or tested
- h) the date of the most recent compliance audit and the expected date of completion of any changes resulting from the compliance audit
- i) the date of the most recent incident investigation and the expected date of completion of any changes resulting from the investigation
- j) the date of the most recent change that triggered a review or revision of safety information, the hazard review, operating or maintenance procedures, or training.

**Prevention Program/Program 3** - For each Program 3 process, the owner or operator shall provide the following information. If the same information applies to more than one covered process, the owner or operator may provide the information only once, but shall indicate to which processes the information applies.

- a) the SIC code for the process
- b) the name(s) of the substance(s) covered
- c) the date on which the safety information was last reviewed or revised
- d) the date of completion of the most recent PHA or update and the technique used
  - the expected date of completion of any changes resulting from the PHA

- major hazards identified
  - process controls in use
  - mitigation systems in use
  - monitoring and detection systems in use; and
  - changes since the last PHA
- e) the date of the most recent review or revision of operating procedures
  - f) the date of the most recent review or revision of training programs
    - the type of training provided--classroom, classroom plus on the
    - job, on the job; and
    - the type of competency testing used.
  - g) the date of the most recent review or revision of maintenance procedures and the date of the most recent equipment inspection or test and the equipment inspected or tested
  - h) the date of the most recent change that triggered management of change procedures and the date of the most recent review or revision of management of change procedures
  - i) the date of the most recent pre-startup review
  - j) the date of the most recent compliance audit and the expected date of completion of any changes resulting from the compliance audit
  - k) the date of the most recent incident investigation and the expected date of completion of any changes resulting from the investigation
  - l) the date of the most recent review or revision of employee participation plans
  - m) the date of the most recent review or revision of hot work permit procedures
  - n) the date of the most recent review or revision of contractor safety procedures; and
  - o) the date of the most recent evaluation of contractor safety performance.

**Emergency Response Program** - The owner or operator shall provide in the RMP the following information:

- a) whether there is a written emergency response plan with the following information:
  - specific actions to be taken in response to an accidental releases of a regulated substance?
  - procedures for informing the public and local agencies responsible for responding to accidental releases
  - information on emergency health care
- b) the date of the most recent review or update of the emergency response plan;
- c) the date of the most recent emergency response training for employees.
- d) the name and telephone number of the local agency with which the plan is coordinated.
- e) other Federal or state emergency plan requirements to which the stationary source is subject.

**Certification** - For Program 1 processes, the owner or operator shall submit in the RMP the certification statement provided in 40 CFR 68.12(b)(4). For all other covered processes, the owner or operator shall submit in the RMP a single certification that, to the best of the signer's knowledge, information, and belief formed after reasonable inquiry, the information submitted is true, accurate, and complete.



Appendix 1-2

Reid Vapor Pressure for Installation Geographic Area  
(40 CFR 80.27)

State	May	June	July	August	September
Alabama	9.0	7.8	7.8	7.8	7.8
Arizona	9.0	7.8	7.8	7.8	7.8
Arkansas	9.0	7.8	7.8	7.8	7.8
California	9.0	7.8	7.8	7.8	7.8
Colorado*	9.0	7.8	7.8	7.8	7.8
Connecticut	9.0	9.0	9.0	9.0	9.0
Delaware	9.0	9.0	9.0	9.0	9.0
District of Columbia	9.0	7.8	7.8	7.8	7.8
Florida	9.0	7.8	7.8	7.8	7.8
Georgia	9.0	7.8	7.8	7.8	7.8
Idaho	9.0	9.0	9.0	9.0	9.0
Illinois	9.0	9.0	9.0	9.0	9.0
Indiana	9.0	9.0	9.0	9.0	9.0
Iowa	9.0	9.0	9.0	9.0	9.0
Kansas	9.0	7.8	7.8	7.8	7.8
Kentucky	9.0	9.0	9.0	9.0	9.0
Louisiana	9.0	7.8	7.8	7.8	7.8
Maine	9.0	9.0	9.0	9.0	9.0
Maryland	9.0	7.8	7.8	7.8	7.8
Massachusetts	9.0	9.0	9.0	9.0	9.0
Michigan	9.0	9.0	9.0	9.0	9.0
Minnesota	9.0	9.0	9.0	9.0	9.0
Mississippi	9.0	7.8	7.8	7.8	7.8
Missouri	9.0	7.8	7.8	7.8	7.8
Montana	9.0	9.0	9.0	9.0	9.0
Nebraska	9.0	9.0	9.0	9.0	9.0
Nevada	9.0	7.8	7.8	7.8	7.8
New Hampshire	9.0	9.0	9.0	9.0	9.0
New Jersey	9.0	9.0	9.0	9.0	9.0
New Mexico	9.0	7.8	7.8	7.8	7.8
New York	9.0	9.0	9.0	9.0	9.0
North Carolina	9.0	7.8	7.8	7.8	7.8
North Dakota	9.0	9.0	9.0	9.0	9.0
Ohio	9.0	9.0	9.0	9.0	9.0
Oklahoma	9.0	7.8	7.8	7.8	7.8
Oregon	9.0	7.8	7.8	7.8	7.8
Pennsylvania	9.0	9.0	9.0	9.0	9.0
Rhode Island	9.0	9.0	9.0	9.0	9.0
South Carolina	9.0	7.8	7.8	7.8	7.8
South Dakota	9.0	9.0	9.0	9.0	9.0
Tennessee					
Knox County	9.0	9.0	9.0	9.0	9.0
All other volatility nonattainment areas	9.0	7.8	7.8	7.8	7.8
Texas	9.0	7.8	7.8	7.8	7.8
Utah	9.0	7.8	7.8	7.8	7.8



State	May	June	July	August	September
Vermont	9.0	9.0	9.0	9.0	9.0
Virginia	9.0	7.8	7.8	7.8	7.8
Washington	9.0	9.0	9.0	9.0	9.0
West Virginia	9.0	9.0	9.0	9.0	9.0
Wisconsin	9.0	9.0	9.0	9.0	9.0
Wyoming	9.0	9.0	9.0	9.0	9.0

\* The standard for 1992 through 1997 in the Denver-Boulder nonattainment area will be 9.0 for 1 June through 15 September.

<sup>1</sup> Standards are expressed in psi.

Appendix 1-3

Controlled Substances and Ozone Depletion Weights  
(40 CFR 82, Appendix A and Appendix B)

Controlled Substance	Ozone Depletion Potential (ODP) Weight
<i>Class I</i>	
<b>Group I</b>	
CFC <sub>13</sub> - Trichlorofluoromethane (CFC-11)	1.0
CF <sub>2</sub> C <sub>12</sub> - Dichlorodifluoromethane (CFC-12)	1.0
C <sub>2</sub> F <sub>3</sub> C <sub>13</sub> - Trichlorotrifluoroethane (CFC-113)	0.8
C <sub>2</sub> F <sub>4</sub> C <sub>12</sub> - Dichlorotetrafluoroethane (CFC-114)	1.0
C <sub>2</sub> F <sub>5</sub> C <sub>1</sub> - (Mono)chloropentafluoroethane (CFC-115)	0.6
All isomers of the above chemicals	
<b>Group II</b>	
CF <sub>2</sub> C <sub>1</sub> Br - Bromochlorodifluoromethane (Halon 1211)	3.0
CF <sub>3</sub> Br - Bromotrifluoromethane (Halon 1301)	10.0
C <sub>2</sub> F <sub>4</sub> Br <sub>2</sub> - Dibromotetrafluoroethane (Halon 2402)	6.0
All isomers of the above chemicals	
<b>Group III</b>	
CF <sub>3</sub> C <sub>1</sub> - Chlorotrifluoromethane (CFC-13)	1.0
C <sub>2</sub> FC <sub>15</sub> - (CFC-111)	1.0
C <sub>2</sub> F <sub>2</sub> C <sub>14</sub> - (CFC-112)	1.0
C <sub>3</sub> FC <sub>17</sub> - (CFC-211)	1.0
C <sub>3</sub> F <sub>2</sub> C <sub>16</sub> - (CFC-212)	1.0
C <sub>3</sub> F <sub>3</sub> Cl <sub>5</sub> - (CFC-213)	1.0
C <sub>3</sub> F <sub>4</sub> C <sub>14</sub> - (CFC-214)	1.0
C <sub>3</sub> F <sub>5</sub> C <sub>13</sub> - (CFC-215)	1.0
C <sub>3</sub> F <sub>6</sub> C <sub>12</sub> - (CFC-216)	1.0

Controlled Substance	Ozone Depletion Potential (ODP) Weight
C <sub>3</sub> F <sub>7</sub> Cl - (CFC-217)	1.0
All isomers of the above chemicals	
<b>Group IV</b>	
CCl <sub>4</sub> - Carbon Tetrachloride	1.1
<b>Group V</b>	
C <sub>2</sub> H <sub>3</sub> Cl <sub>3</sub> -1,1,1-Trichloroethane (Methyl Chloroform)	0.1
All isomers of the above chemicals, except 1,1,2-trichloroethane	
<b>Group VI</b>	
CH <sub>3</sub> Br - Bromomethane (Methyl Bromide)	0.7
<b>Group VII</b>	
CHFBr <sub>2</sub>	1.00
CHF <sub>2</sub> Br (HBFC-2201)	0.74
CH <sub>2</sub> FBr	0.73
C <sub>2</sub> HFBr <sub>4</sub>	0.3 - 0.8
C <sub>2</sub> HF <sub>2</sub> Br <sub>3</sub>	0.5 - 1.8
C <sub>2</sub> HF <sub>3</sub> Br <sub>2</sub>	0.4 - 1.6
C <sub>2</sub> HF <sub>4</sub> Br	0.7 - 1.2
C <sub>2</sub> H <sub>2</sub> FBr <sub>3</sub>	0.1 - 1.1
C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> Br <sub>2</sub>	0.2 - 1.5
C <sub>2</sub> H <sub>2</sub> F <sub>3</sub> Br	0.7 - 1.6
C <sub>2</sub> H <sub>3</sub> FBr <sub>2</sub>	0.1 - 1.7
C <sub>2</sub> H <sub>3</sub> F <sub>2</sub> Br	0.2 - 1.1
C <sub>2</sub> H <sub>4</sub> FBr	0.07 - 0.1
C <sub>3</sub> HFBr <sub>6</sub>	0.3 - 1.5

Controlled Substance	Ozone Depletion Potential (ODP) Weight
C <sub>3</sub> HF <sub>2</sub> Br <sub>5</sub>	0.2 - 1.9
C <sub>3</sub> HF <sub>3</sub> Br <sub>4</sub>	0.3 - 1.8
C <sub>3</sub> HF <sub>4</sub> Br <sub>3</sub>	0.5 - 2.2
C <sub>3</sub> HF <sub>5</sub> Br <sub>2</sub>	0.9 - 2.0
C <sub>2</sub> HF <sub>6</sub> Br	0.7 - 3.3
C <sub>3</sub> H <sub>2</sub> FBr <sub>5</sub>	0.1 - 1.9
C <sub>3</sub> H <sub>2</sub> F <sub>2</sub> Br <sub>4</sub>	0.2 - 2.1
C <sub>3</sub> H <sub>2</sub> F <sub>3</sub> Br <sub>3</sub>	0.2 - 5.6
C <sub>3</sub> H <sub>2</sub> F <sub>4</sub> Br <sub>2</sub>	0.3 - 7.5
C <sub>3</sub> H <sub>2</sub> F <sub>5</sub> Br	0.9 - 1.4
C <sub>3</sub> H <sub>3</sub> FBr <sub>4</sub>	0.08 - 1.9
C <sub>3</sub> H <sub>3</sub> F <sub>2</sub> Br <sub>3</sub>	0.1 - 3.1
C <sub>3</sub> H <sub>3</sub> F <sub>3</sub> Br <sub>2</sub>	0.1 - 2.5
C <sub>3</sub> H <sub>3</sub> F <sub>4</sub> Br	0.3 - 4.4
C <sub>3</sub> H <sub>4</sub> FBr <sub>3</sub>	0.03 - 0.3
C <sub>3</sub> H <sub>4</sub> F <sub>2</sub> Br <sub>2</sub>	0.1 - 1.0
C <sub>3</sub> H <sub>4</sub> F <sub>3</sub> Br	0.07 - 0.8
C <sub>3</sub> H <sub>5</sub> FBr <sub>2</sub>	0.04 - 0.4
C <sub>3</sub> H <sub>5</sub> F <sub>2</sub> Br	0.07 - 0.8
C <sub>3</sub> H <sub>6</sub> FBr	0.02 - 0.7
<b>Class II</b>	
CHFC <sub>2</sub> - Dichlorofluoromethane (HCFC-21)	*[res.]
CHF <sub>2</sub> Cl - Chlorodifluoromethane (HCFC-22)	0.05
CH <sub>2</sub> FC <sub>2</sub> - Chlorofluoromethane (HCFC-31)	[res.]
C <sub>2</sub> HFCl <sub>4</sub> - (HCFC-121)	[res.]
C <sub>2</sub> HFCl <sub>2</sub> Cl <sub>3</sub> - (HCFC-122)	[res.]

Controlled Substance	Ozone Depletion Potential (ODP) Weight
C <sub>2</sub> HF <sub>3</sub> Cl <sub>2</sub> - (HCFC-123)	0.02
C <sub>2</sub> HF <sub>4</sub> Cl - (HCFC-124)	0.02
C <sub>2</sub> H <sub>2</sub> FCl <sub>3</sub> - (HCFC-131)	[res.]
C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> Cl <sub>2</sub> - (HCFC-132b)	[res.]
C <sub>2</sub> H <sub>2</sub> F <sub>2</sub> Cl - (HCFC-133a)	[res.]
C <sub>2</sub> H <sub>3</sub> FCl <sub>2</sub> - (HCFC-141b)	0.12
C <sub>2</sub> H <sub>3</sub> F <sub>2</sub> Cl - (HCFC-142b)	0.06
C <sub>3</sub> HFCl <sub>6</sub> - (HCFC-221)	[res.]
C <sub>3</sub> HF <sub>2</sub> Cl <sub>5</sub> - (HCFC-222)	[res.]
C <sub>3</sub> HF <sub>3</sub> Cl <sub>4</sub> - (HCFC-223)	[res.]
C <sub>3</sub> HF <sub>4</sub> Cl <sub>3</sub> - (HCFC-224)	[res.]
C <sub>3</sub> HF <sub>5</sub> Cl <sub>2</sub> - (HCFC-225ca)	[res.]
C <sub>3</sub> HF <sub>5</sub> C <sub>1</sub> <sub>2</sub> (HCFC-225cb)	[res.]
C <sub>3</sub> HF <sub>6</sub> Cl - (HCFC-226)	[res.]
C <sub>3</sub> H <sub>2</sub> FCl <sub>5</sub> - (HCFC-231)	[res.]
C <sub>3</sub> H <sub>2</sub> F <sub>2</sub> Cl <sub>4</sub> - (HCFC-232)	[res.]
C <sub>3</sub> H <sub>2</sub> F <sub>3</sub> Cl <sub>3</sub> - (HCFC-233)	[res.]
C <sub>3</sub> H <sub>2</sub> F <sub>4</sub> Cl <sub>2</sub> - (HCFC-234)	[res.]
C <sub>3</sub> H <sub>2</sub> F <sub>5</sub> Cl - (HCFC-235)	[res.]
C <sub>3</sub> H <sub>3</sub> FCl <sub>4</sub> - (HCFC-241)	[res.]
C <sub>3</sub> H <sub>3</sub> F <sub>2</sub> Cl <sub>3</sub> - (HCFC-242)	[res.]
C <sub>3</sub> H <sub>3</sub> F <sub>3</sub> Cl <sub>2</sub> - (HCFC-243)	[res.]
C <sub>3</sub> H <sub>3</sub> F <sub>4</sub> Cl - (HCFC-244)	[res.]
C <sub>3</sub> H <sub>4</sub> FCl <sub>3</sub> - (HCFC-251)	[res.]
C <sub>3</sub> H <sub>4</sub> F <sub>2</sub> Cl <sub>2</sub> - (HCFC-252)	[res.]
C <sub>3</sub> H <sub>4</sub> F <sub>3</sub> Cl - (HCFC-253)	[res.]

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<b>Controlled Substance</b>	<b>Ozone Depletion Potential (ODP) Weight</b>
C <sub>3</sub> H <sub>5</sub> FCl <sub>2</sub> - (HCFC-261)	[res.]
C <sub>3</sub> H <sub>5</sub> F <sub>2</sub> Cl - (HCFC-262)	[res.]
C <sub>3</sub> H <sub>6</sub> FCI - (HCFC-271)	[res.]
All isomers of the above chemicals	[res.]

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**\*[res.] means reserve. It designates that the ozone depletion weight number has been reserved for a future rating.**

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Appendix 1-4

Required Levels of Evacuation for Appliances  
 (Except for Small Appliances, MVACS, and MVAC-like appliances)  
 (40 CFR 82.156, Table 1)

Type of Appliance	Using recovery or recycling equipment manufactured or imported before 15 November 1993	Using recovery or recycling equipment manufactured or imported on or after 15 November 1993
HCFC-22 appliance, or isolated component of such appliance, normally containing less than 200 lb of refrigerant	0	0
HCFC-22 appliance, or isolated component of such appliance, normally containing less than 200 lb of refrigerant	0	0
HCFC-22 appliance, or isolated component of such appliance, normally containing 200 lb or more of refrigerant	4	10
Other high-pressure appliance, or isolated component of such appliance, normally containing less than 200 lb of refrigerant	4	10
Other high-pressure appliance, or isolated component of such appliance, normally containing 200 lb or more of refrigerant	4	15
Very high-pressure appliance	0	0
Low-pressure appliance	25	25 mm Hg absolute





Appendix 1-5

Emission Limits for Cleaning Machines Without a Solvent/Air Interface  
(40 CFR 63.464(a)(2)(ii)(A))

Equation 1

$$EL = 330 * (Vol)^{0.6} (1)$$

EL = the 3 mo rolling average  
monthly emissions limit (kg/mo)

Vol = the cleaning capacity of the  
solvent cleaning machine (m<sup>3</sup>)

Table 1

Cleaning Capacity (m <sup>3</sup> )	3-mo rolling average monthly emission limit (kg/mo)
0.00	0
0.05	55
0.10	83
0.15	106
0.20	126
0.25	144
0.30	160
0.35	176
0.40	190
0.45	204
0.50	218
0.55	231
0.60	243
0.65	255
0.70	266

Cleaning Capacity (m <sup>3</sup> )	3-mo rolling average monthly emission limit (kg/mo)
0.75	278
0.80	289
0.85	299
0.90	310
0.95	320
1.00	330
1.05	340
1.10	349
1.15	359
1.20	368
1.25	377
1.30	386
1.35	395
1.40	404
1.45	412
1.50	421
1.55	429
1.60	438
1.65	446
1.70	454
1.75	462
1.80	470
1.85	477
1.90	485

<b>Cleaning Capacity (m<sup>3</sup>)</b>	<b>3-mo rolling average monthly emission limit (kg/mo)</b>
1.95	493
2.00	500
2.05	508
2.10	515
2.15	522
2.20	530
2.25	537
2.30	544
2.35	551
2.40	558
2.45	565
2.50	572
2.55	579
2.60	585
2.65	592
2.70	599
2.75	605
2.80	612
2.85	619
2.90	625
2.95	632



## SECTION 2

### DRINKING WATER MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section identifies rules, regulations, and requirements for any FWS facility that has jurisdiction over any public water supply system. A public water system is defined as a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. This term includes:

1. Any collection, treatment, storage, and distribution facilities under control of the operator of such system.
2. Any collection or pretreatment storage facility not under such control that is used primarily in connection with such system.

A public water system is either a community water system or a noncommunity water system (40 CFR 141.2).

FWS facilities that meet all the criteria listed below are not required to comply with the requirements of the *Safe Drinking Water Act* (SDWA) since, by definition, they are not public water systems (40 CFR 141.3):

1. System consists only of distribution and storage facilities and does not have any collection and treatment facilities.
2. Facility gets all of its water from a public water system that is owned or operated by another party (non-FWS).
3. Facility does not sell water to any party.

Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in July 2000, for example [Added July 2000].

#### B. Federal Legislation

- *The Safe Drinking Water Act* (SDWA). This act, Public Law (PL) 99-339, 42 U.S. Code (USC) 201, 300f-300j-25, 6939b, 6979a, 6979b, 7401--742, etc., is the Federal legislation which regulates the safety of drinking water in the country. Each department, agency, and instrument of the executive, legislative, and judicial branches of the Federal Government having jurisdiction over any potential source of contaminants identified by a state program must be subject to and observe all requirements of the state program applicable to such potential source of contaminants, both substantive and procedural, in the same manner, and to the same extent, as any other person, including payment of reasonable charges and fees (42 USC 300h-7(h)).

If a Federal agency has jurisdiction over any Federally owned or maintained public water system, or is engaged in any activity resulting, or which may result in, underground water injection which endangers drinking water, it is subject to, and must observe, any Federal, state, and local regulations, administrative authorities, and process and sanctions respecting the provision of safe drinking water and respecting any underground injection program in the same manner, and to the same extent, as any nongovernmental entity. This requirement applies (42 USC 300j-6(a)):

1. To any rules substantive or procedural (including any recordkeeping or reporting, permits, and other requirements).
2. To the exercise of any Federal, state, or local authorities.
3. To any process or sanction, whether enforced in Federal, state, or local courts or in any other manner.

National primary drinking water regulations apply to each public water system in each state. However, such regulations do not apply to a public water system (42 USC 300g):

1. Which consists only of distribution and storage facilities (and does not have any collection and treatment facilities).
2. Which obtains all its water from, but is not owned or operated by, a public water system to which such regulations apply.
3. Which does not sell water to any person.
4. Which is not a carrier which conveys passengers in interstate commerce.

Each department, agency, or instrument of the executive, legislative, and judicial branches of the Federal Government, and each officer, agent, or employee of such organization, must comply with all Federal, state, interstate, and local requirements, administrative authority, and process and sanctions regarding the control and abatement of water pollution in the same manner and to the same extent as any nongovernmental entity including the payment of reasonable service charges (33 USC 1323(a)).

As a provision of the *Safe Drinking Water Act Amendments of 1996*, states are allowed to grant small systems (serving a population of no more than 10,000) a variance if they cannot afford to comply. The amendments expressly waive sovereign immunity for Federal agencies, including immunity from punitive and coercive fines and penalties relating to the provision of safe drinking water or underground injection. The amendments do not subject any Federal department or agency to criminal sanctions but does subject Federal agents and employees to criminal sanctions.

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*. This EO of 13 October 1978 requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.
- Federal regulations used to develop the checklist include:
  - EO 12088, *Federal Compliance with Pollution Control Standards*.
  - 40 CFR 141, *National Primary Drinking Water Regulations*.
  - 40 CFR 142, *National Primary Drinking Water Regulations Implementation*.
  - 40 CFR 149, *Sole Source Aquifers*.

### **C. State/Local Regulations [Revised July 2000]**

The SDWA intends U.S. EPA, states and federally-recognized Indian tribes to work as partners to ensure delivery of safe drinking water to the public. Any state or tribe can request responsibility for operation and oversight of the drinking water program within its borders. In order to receive this responsibility (also called primary enforcement authority or primacy), a state or tribe must adopt regulations that are at least as stringent as federal regulations, demonstrate its capacity to enforce those regulations, and implement other activities necessary to ensure compliance. In the absence of state or tribal primacy, U.S. EPA assumes responsibility for administering the drinking water program including enforcement responsibilities for that area. Of the 56 eligible states (defined to include Commonwealths, Territories, and the District of Columbia), all but Wyoming and the District of Columbia have primacy. U.S. EPA Regional Offices administer the drinking water program within these two jurisdictions and on all tribal lands.

States that have primacy may establish drinking water regulations, monitoring schedules and reporting requirements at least as stringent, or in addition to, those in the federal regulations. Public water systems in these states are required to comply with these additional requirements. Generally speaking, most states who have primacy adopt drinking water regulations which closely reflect the federal requirements. Some states also require the certification of operators of public water systems. Furthermore, some states require operators to receive approval of plans and specifications prior to constructing or modifying a public water system. In addition, all states will need to adopt/implement a certification program by February 2001 to avoid withholding of federal "state revolving fund" (SRF) monies.

### **D. FWS/DOI Manuals**

- 561 FW 4, *Compliance Requirements, Safe Drinking Water Act*. This chapter, dated 13 January 1997, provides policy and instructions for complying with the SDWA at Service facilities.

### **E. Key Compliance Requirements**

- Service Drinking Water Systems - Service controlled water supply systems with water available for human consumption, regardless of the size of the system or the frequency or duration of use are required to monitor for coliforms, nitrates, nitrites, lead, and copper. Additionally, they will monitor for all other contaminants every 6 yr. Every Service controlled water supply system will monitor for nitrate, nitrite, lead, copper, and coliforms. But, for a water supply system supplied from groundwater sources, the Service monitoring requirements can be satisfied if monitoring results from another water supply system can be obtained, provided the system is located within 15-mi downgradient, the water comes from the same aquifer, the analysis was performed by a certified lab, and copies of the analysis are maintained at the Service facility.
- Plans and Records - The drinking water facility manager must keep records of actions taken to correct or repair any part of the treatment and distribution system for at least 3 yr. Records of chemical analyses are required to be kept for not less than 10 yr. Facilities are required to survey public water systems and maintain records of those reviews. Bacteriological records are required to be kept for 5 yr (MP, 40 CFR 141.21(d), 141.33(a), and 141.33(b)).



- Physical Requirements for Drinking Water Systems - All water systems shall install and operate optimal corrosion control treatment and/or comply with corrosion control requirements specified by the state (40 CFR 141.80(d)).
- Maximum Contaminant Level (MCL) Standards - Drinking water is to be supplied from sources approved by Federal, state, or local health authorities, or treated to specific standards. Community water systems, noncommunity water systems, except as defined under exempted water systems, and nontransient, noncommunity water systems are required to meet specific MCLs and action levels for organic, inorganic, turbidity, and microbiological contaminants. These are outlined in Appendices 2-1 and 2-2 (40 CFR 141.11(a), 141.11(b), 141.11(d), 141.12, 141.15, 141.16(a), and 141.60 through 141.63).
- Monitoring - The monitoring schedule and what constituents are to be monitored are based on what type of drinking water facility is being operated. Facilities with community water systems and/or nontransient, noncommunity water systems are required to monitor for inorganic contaminants. All public water systems are required to conduct monitoring to determine compliance for nitrate and nitrite levels. Monitoring for Endrin is required to be done according to specific schedules. Community and noncommunity water systems are required to monitor for total coliforms and facilities are required to monitor for radioactivity in community water systems. Facilities with community water systems that add a disinfectant to the water are required to analyze for total trihalomethanes (TTHMs) (40 CFR 141.21(a), 141.23, 141.24, and 141.26).
- Total Coliform and Turbidity Sampling - Total coliform samples are required to be collected at regular intervals throughout the month except at systems that use only groundwater and serve 4900 people or fewer. These systems are exempt from sampling at regular intervals but are required to still sample. Public water systems that use surface water or groundwater under the direct influence of surface water and do not practice filtration are required to collect at least one total coliform sample near the first service connection each day the turbidity level of the source water exceeds 1 NTU. When a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within 24 h of being notified of the positive result. Sampling for turbidity is required to be done at public water systems that use water obtained in whole or part from surface water sources according to a specific schedule and any excesses reported (40 CFR 141.21 and 141.22).
- Water Analysis - Suppliers of water for community public water systems are required to analyze for sodium and collect samples from representative entry points to the water distribution system and analyze for corrosivity. All analysis of samples used to determine compliance with MCLs must be performed in a state-approved lab or by a state-approved individual (40 CFR 141.28, 141.30, 141.41, and 141.42).
- Filtration and Disinfection - Public water system that use surface water sources or groundwater sources under direct influence of a surface water source, must provide filtration as a treatment technique for microbiological contaminants which meets specific standards, provide disinfection treatment by 29 June 1993, and report specific information monthly to the state. Subpart H systems serving at least 10,000 people must provide filtration starting 17 December 2001. Subpart H systems serving at least 10,000 people which are providing disinfection must perform disinfection profiling and benchmarking by 17 December 2001. Community water systems that perform disinfection are required to meet specific MCLs and MRDLs, analyze for TTHM, and monitor for disinfection byproducts, disinfection byproduct precursors, and disinfection residuals. Noncommunity water systems that perform disinfection are required to meet specific MCLs and MRDLs, and monitor for disinfection byproducts, disinfection byproduct precursors, and

disinfection residuals. (40 CFR 141.30, 141.64 and 141.65, 141.70 and 141.72, 141.130 through 141.132, 141.171 and 141.173) [Revised January 1999].

- Notification and Reporting Requirements - When primary drinking water standards are exceeded, public notifications must be made. Facilities that operate public water systems must send reports to the state on any failure to comply with the applicable biological, turbidity, radioactivity, and chemical standards, and on any failure to comply with monitoring requirements that apply (40 CFR 141.31, and 141.32).
- Lead and Copper in Drinking Water Systems - Facilities with community or nontransient, noncommunity water systems must notify their users about lead in drinking water systems and must meet specific standards for lead and copper action levels and reporting requirements when these levels are exceeded. Facilities with water systems exceeding the lead action level after the implementation of corrosion control and source water treatment requirements are required to replace lead service lines. Monitoring for lead and copper is required to start on a specified date, and be performed at a specified number of sites. The facility is required to fulfill specific reporting requirements and retain onsite all the original records of sampling data, analysis, reports, surveys, letters, evaluations, state determinations, and any other pertinent documents for at least 12 yr (40 CFR 141.80 through 141.91).

#### F. Key Compliance Definitions

- *Action Level* - the concentration of lead or copper in the water specified in 40 CFR 141.80(c) which determines, in some cases, the treatment requirements that a water system is required to complete (40 CFR 141.2) [Reviewed July 2000].
- *Best Available Technology (BAT)* - the best technology treatment techniques, or other means which the administrator finds, examined for efficacy under field conditions and not solely under lab conditions that are available (taking cost into consideration). For the purposes of setting MCLs for synthetic organic chemicals, any BAT must be at least as effective as granular activated carbon (40 CFR 141.2) [Reviewed July 2000].
- *Coagulation* - a process using coagulant chemicals and mixing by which colloidal and suspended materials are destabilized and agglomerated into flocs (40 CFR 141.2) [Reviewed July 2000].
- *Community Water System* - a public water system that serves at least 15 service connections used by year round residents or regularly serves at least 25 year-round residents (40 CFR 141.2).
- *Compliance Cycle* - the 9-yr calendar year cycle during which public water systems must monitor. Each compliance cycle consists of three three-year compliance periods. The first calendar year cycle begins 1 January 1993 and ends 31 December 2001; the second begins 1 January 2002 and ends 31 December 2010; the third begins 1 January 2011 and ends December 31, 2019 (40 CFR 141.2) [Added July 2000].
- *Compliance Period* - a 3-yr calendar year period within a compliance cycle. Each compliance cycle has three 3-yr compliance periods. Within the first compliance cycle, the first compliance period runs from 1 January 1993 to 31 December 1995; the second from 1 January 1996 to 31 December 1998; the third from 1 January 1999 to 31 December 2001 (40 CFR 141.2) [Added July 2000].
- *Comprehensive Performance Evaluation (CPE)* - a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation, and maintenance

practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. For purposes of compliance with subpart P of this part, the comprehensive performance evaluation must consist of at least the following components: Assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report (40 CFR 141.2) [Added January 1999/Reviewed July 2000].

- *Confluent Growth* - a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete (40 CFR 141.2) [Added July 2000].
- *Contaminant* - any physical, chemical, biological, or radiological substance or matter in water (40 CFR 141.2) [Reviewed July 2000].
- *Conventional Filtration Treatment* - a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal (40 CFR 141.2) [Reviewed July 2000].
- *Corrosion Inhibitor* - a substance capable of reducing the corrosivity of water toward metal plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials (40 CFR 141.2) [Added July 2000].
- *Diatomaceous Earth Filtration* - a process resulting in substantial particulate removal in which (40 CFR 141.2) [Reviewed July 2000].:
  1. A precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum).
  2. While the water is filtered by passing through the cake on the septum, additional filter media known as body feed is continuously added to the feed water to maintain the permeability of the filter cake.
- *Direct Filtration* - a series of processes including coagulation and filtration but excluding sedimentation resulting in substantial particulate removal (40 CFR 141.2) [Reviewed July 2000].
- *Disinfectant* - any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic micro-organisms (40 CFR 141.2) [Reviewed July 2000].
- *Disinfection* - a process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents (40 CFR 141.2) [Reviewed July 2000].
- *Disinfection Profile* - a summary of daily *Giardia lamblia* inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in 40 CFR 141.172 (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *Domestic or Other Nondistribution System Plumbing Problem* - a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken (40 CFR 141.2) [Reviewed July 2000].

- *Dose Equivalent* - the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU) (40 CFR 141.2) [Added July 2000].
- *Effective Corrosion Inhibitor Residual* - for the purpose of Subpart I of 40 CFR 141, means a concentration sufficient to form a passivating film on the interior walls of a pipe (40 CFR 141.2) [Added July 2000].
- *Enhanced Coagulation* - the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *Enhanced Softening* - the improved removal of disinfection byproduct precursors by precipitative softening (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *Exempted Public Water Systems* - public water systems which meet all of the following are not required to meet the standards outlined in 40 CFR 141 (40 CFR 141.3):
  1. Systems which consist only of distribution and storage facilities and do not have any collection and treatment facilities.
  2. Systems that obtain all of their water from, but are not owned by or operated by, a public water system to which 40 CFR 141 applies.
  3. Systems that do not sell water to any person.
  4. Systems that are not a carrier that conveys passengers in interstate commerce.
- *Filter Profile* - a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes an assessment of filter performance while another filter is being backwashed (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *Filtration* - a process for removing particulate matter from water by passage through porous media (40 CFR 141.2) [Reviewed July 2000].
- *First Draw Sample* - a one-liter sample of tap water, collected in accordance with 40 CFR 141.86(b)(2), that has been standing in plumbing pipes at least 6 h and is collected without flushing the tap (40 CFR 141.2) [Added July 2000].
- *Flocculation* - a process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable particles through gentle stirring by hydraulic or mechanical means (40 CFR 141.2) [Reviewed July 2000].
- *GAC10* - granular activated carbon filter beds with an empty-bed contact time of 10 min based on average daily flow and a carbon reactivation frequency of every 180 days (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *Gross Alpha Particle Activity* - the total radioactivity due to alpha particle emissions as inferred from measurements on a dry sample (40 CFR 141.2) [Reviewed July 2000].
- *Gross Beta Particle Activity* - the total radioactivity due to beta particle emission as inferred from measurements on a dry sample (40 CFR 141.2) [Added July 2000].

- *Groundwater Under the Direct Influence of Surface Water* - any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or (for subpart H systems serving at least 10,000 people only) *Cryptosporidium*, or significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions. Direct influence must be determined for individual sources in accordance with criteria established by the state. The state determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation (40 CFR 141.2) [Revised January 1999/Reviewed July 2000].
- *Haloacetic Acids (Five) (HAA5)* - the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *Halogen* - one of the chemical elements chlorine, bromine, or iodine (40 CFR 141.2) [Reviewed July 2000].
- *Initial Compliance Period* - the first full 3 yr compliance period which begins at least 18 mo after promulgation, except for Dichloromethane, 1,2,4-Trichlorobenzene, 1,1,2-Trichloroethane, Benzo(a)pyrene, Dalapon, Di(2-ethylhexyl) adipate, Di(2-ethylhexyl) phthalate, Dinoseb, Diquat, Endrin, Endothall, Glyphosate, Hexachlorobenzene, Hexachlorocyclopentadiene, Oxamyl (Vydate), Picloram, Simazine, 2,3,7,8-TCDD (Dioxin), Antimony, Beryllium, Cyanide (as free Cyanide), Nickel, and Thallium, initial compliance period means the first full 3 yr compliance period after promulgation for systems with 150 or more service connections (January 1993 - December 1995, and first full 3 yr compliance period after the effective date of the regulation (January 1996 - December 1998) for systems having fewer than 150 service connections (40 CFR 141.2) [Reviewed July 2000].
- *Large Water System* - in reference to lead and copper in systems, this refers to a water system that serves more than 50,000 persons (40 CFR 141.2) [Reviewed July 2000].
- *Lead Service Line* - a service line made of lead which connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting which is connected to such a lead line (40 CFR 141.2) [Reviewed July 2000].
- *Legionella* - means a genus of bacteria, some species of which have caused a type of pneumonia called Legionnaires Disease (40 CFR 141.2) [Reviewed July 2000].
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *Man-made Beta Particle and Photon Emitters* - all radionuclides emitting beta particles and/or photons listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, NBS Handbook 69, except the daughter products of thorium-232, uranium-235 and uranium-238 (40 CFR 141.2) [Added July 2000].
- *Maximum Contaminant Level (MCL)* - the maximum permissible level of a contaminant in water that is delivered to any user of a public water system (40 CFR 141.2) [Reviewed July 2000].

- *Maximum Contaminant Level Goal (MCLG)* - refers to the maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MCLGs are nonenforceable health goals (40 CFR 141.2) **[Reviewed July 2000]**.
- *Maximum Residual Disinfectant Level (MRDL)* - a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. For chlorine and chloramines, a PWS is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL. For chlorine dioxide, a PWS is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as maximum contaminant levels under Section 1412 of the Safe Drinking Water Act. There is convincing evidence that addition of a disinfectant is necessary for control of waterborne microbial contaminants. Notwithstanding the MRDLs listed in 40 CFR 141.65, operators may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections (40 CFR 141.2) **[Added January 1999/Reviewed July 2000]**.
- *Maximum Residual Disinfectant Level Goal (MRDLG)* - the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants (40 CFR 141.2) **[Added January 1999/Reviewed July 2000]**.
- *Maximum Total Trihalomethane (TTHM) Potential* - means the maximum concentration of TTHM produced in a given water containing a disinfectant residual after 7 days at a temperature of 25 °C or above (40 CFR 141.2) **[Reviewed July 2000]**.
- *Medium Size Water System* - in reference to lead and copper in systems, this refers to a water system that serves greater than 3300 and less than or equal to 50,000 persons (40 CFR 141.2) **[Reviewed July 2000]**.
- *Near the First Service Connection* - means at one of the 20 percent of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system (40 CFR 141.2) **[Reviewed July 2000]**.
- *Noncommunity Water System* - a public water system that is not a community water system (40 CFR 141.2) **[Reviewed July 2000]**.
- *Nontransient, Noncommunity Water System (NTNCWS)* - a public water system that is not a community water system and that regularly serves at least 25 of the same persons over 6 mo/yr (40 CFR 141.2) **[Reviewed July 2000]**.
- *Optimal Corrosion Control Treatment* - for the purpose of Subpart I of 40 CFR 141, means the corrosion control treatment that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any national primary drinking water regulations (40 CFR 141.2) **[Added July 2000]**.

- *Performance Evaluation Sample* - a reference sample provided to a laboratory for the purpose of demonstrating that the laboratory can successfully analyze the sample within limits of performance specified by the U.S. EPA. The true value of the concentration of the reference material is unknown to the laboratory at the time of the analysis (40 CFR 141.2) [Added July 2000].
- *Person* - an individual, corporation, company, association, partnership, municipality, or state, Federal, or tribal agency (40 CFR 141.2) [Reviewed July 2000].
- *PicoCurie (pCi)* - quantity of radioactive material producing 2.22 nuclear transformations/min (40 CFR 141.2) [Reviewed July 2000].
- *Point of Disinfectant Application* - the point where the disinfectant is applied and water downstream of that point is not subject to recontamination by surface water runoff (40 CFR 141.2) [Reviewed July 2000].
- *Point-of-Entry Treatment Device* - a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water distributed throughout the house or building (40 CFR 141.2) [Reviewed July 2000].
- *Point-of-Use Treatment Device* - a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap (40 CFR 141.2) [Reviewed July 2000].
- *Public Water System* - a system for providing piped water to the public for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. This term includes (40 CFR 141.2) [Reviewed July 2000]:
  1. Any collection, treatment, storage, and distribution facilities under control of the operator of such system
  2. Any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

A public water system is either a community water system or a noncommunity water system.
- *Rem* - the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is 1/1000 of a rem (40 CFR 141.2) [Reviewed July 2000].
- *Repeat Compliance Period* - any subsequent compliance period after the initial compliance period (40 CFR 141.2) [Added July 2000].
- *Residual Disinfectant Concentration* - ("C" in CT calculations) is the concentration of disinfectant measured in milligrams per liter in a representative sample of water (40 CFR 141.2) [Reviewed July 2000].
- *Sanitary Survey* - an onsite review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source facilities, equipment, operation and maintenance for producing and distributing safe drinking water (40 CFR 141.2) [Reviewed July 2000].
- *Sedimentation* - a process for removal of solids before filtration by gravity or separation (40 CFR 141.2) [Reviewed July 2000].

- *Service Connection* - as used in the definition of public water system, does not include a connection to a system that delivers water by a constructed conveyance other than a pipe if (40 CFR 141.2) **[Added July 2000]**:
  1. The water is used exclusively for purposes other than residential uses (consisting of drinking, bathing, and cooking, or other similar uses).
  2. The state determines that alternative water to achieve the equivalent level of public health protection provided by the applicable national primary drinking water regulation is provided for residential or similar uses for drinking and cooking.
  3. The state determines that the water provided for residential or similar uses for drinking, cooking, and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.
- *Service Line Sample* - a one liter sample of water collected in accordance with 40 CFR 141.86(b)(3), that has been standing for at least 6 h in a service line (40 CFR 141.2) **[Added July 2000]**.
- *Single Family Structure* - for the purpose of Subpart I of 40 CFR 141, means a building constructed as a single-family residence that is currently used as either a residence or a place of business (40 CFR 141.2) **[Added July 2000]**.
- *Slow Sand Filtration* - a process involving passage of raw water through a bed of sand at low velocity (generally less than 0.4 m/h [1.31 ft/h]) resulting in substantial particulate removal by physical and biological mechanisms (40 CFR 141.2) **[Reviewed July 2000]**.
- *Small Water System* - for the purpose of Subpart I of 40 CFR 141, means a water system that serves 3,300 persons or fewer (40 CFR 141.2) **[Added July 2000]**.
- *Special Irrigation District* - an irrigation district in existence prior to May 18, 1994 that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system comply with the exclusion provisions in section 1401(4)(B)(i)(II) or (III) (40 CFR 141.2) **[Added July 2000]**.
- *Standard Sample* - the aliquot of finished drinking water that is examined for the presence of coliform bacteria (40 CFR 141.2) **[Reviewed July 2000]**.
- *State* - the agency of the state or tribal government that has jurisdiction over public water systems. During any period when a state or tribal government does not have primary enforcement responsibility pursuant to Section 1413 of the SDWA (42 USC 300g-2), the term state means the Regional Administrator of the USEPA (40 CFR 141.2).
- *Subpart H Systems* - public water systems using surface water or groundwater under the direct influence of surface water as a source that are subject to the requirements of subpart H of this part (40 CFR 141.2) **[Added January 1999]**.
- *Supplier of Water* - any person who owns or operates a public water system (40 CFR 141.2) **[Reviewed July 2000]**.
- *Surface Water* - all water that is open to the atmosphere and subject to surface runoff (40 CFR 141.2) **[Reviewed July 2000]**.



- *SUVA* - Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm ( $UV_{254}$ ) (in  $m^{-1}$ ) by its concentration of dissolved organic carbon (DOC) (in mg/L) (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *System with a Single Service Connection* - a system which supplies drinking water to consumers via a single service line (40 CFR 141.2) [Reviewed July 2000].
- *Tier 1 Public Notice* - required for NPDWR violations and situations with significant potential to have serious adverse effects on human health as a result of short-term exposure (40 CFR 141.201(b), Table 2) [Added September 2000].
- *Tier 2 Public Notice* - required for all other NPDWR violations and situations with potential to have serious adverse effects on human health (40 CFR 141.201(b), Table 2) [Added September 2000].
- *Tier 3 Public Notice* - required for all other NPDWR violations and situations not included in Tier 1 and Tier 2 (40 CFR 141.201(b), Table 2) [Added September 2000].
- *Too Numerous to Count* - that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection (40 CFR 141.2) [Added July 2000].
- *Total Trihalomethane (TTHM)* - the sum of the concentration in milligrams per liter of the trihalomethane compounds rounded to two significant figures (40 CFR 141.2) [Reviewed July 2000].
- *Total Organic Carbon (TOC)* - total organic carbon in mg/L measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *Transient Noncommunity Water System (TWS)* - a noncommunity water system that does not regularly serve at least 25 of the same persons over 6 mo per year (40 CFR 141.2) [Reviewed July 2000].
- *Trihalomethane (THM)* - one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure (40 CFR 141.2) [Reviewed July 2000].
- *Uncovered Finished Water Storage Facility* - a tank, reservoir, or other facility used to store water that will undergo no further treatment except residual disinfection and is open to the atmosphere (40 CFR 141.2) [Added January 1999/Reviewed July 2000].
- *Virus* - means a virus of fecal origin which is infectious to humans by waterborne transmission (40 CFR 141.2) [Reviewed July 2000].
- *Waterborne Disease Outbreak* - the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the appropriate local or state agency (40 CFR 141.2) [Reviewed July 2000].

**DRINKING WATER MANAGEMENT**  
**GUIDANCE FOR CHECKLIST USERS**

	<b>REFER TO CHECKLIST ITEMS:</b>
All Facilities	DW.1.1 through DW.1.9
Public Water Systems	
General	DW.10.1 through DW.10.3
Monitoring/Sampling	DW.15.1 through DW.15.3
Disinfection and Filtration	DW.20.1 through DW.20.11
Lead and Copper	DW.25.1
Notification and Reporting Requirements	DW.30.1 through DW.30.10
Community Water Systems	
Standards	DW.35.1 through DW.35.3
Monitoring/Sampling	DW.40.1 through DW.40.17
Notifications	DW.45.1 and DW.45.4
Lead and Copper	DW.50.1 through DW.50.10
Noncommunity Water Systems	
Standards	DW.60.1
Monitoring/Sampling	DW.65.1 through DW.65.5
Notification and Reporting Requirements	DW.75.1
Nontransient/Noncommunity (NTNC) Water Systems	
Standards	DW.76.1 and DW.76.2
Monitoring/Sampling	DW.77.1 through DW.77.9
Lead and Copper	DW.78.1 through DW.78.10
Transient/Noncommunity Water Systems	DW.80.1 and DW.80.2
Sole Source Aquifer	DW.95.1

Please see the next page for additional guidance on drinking water systems.

Is the facility a Public Water System or a Nonpublic Water System

↓  
If yes, see categories  
DW.10 through DW.30

↓  
If yes, see state regulations  
for nonpublic water system

↓  
Is the system a Noncommunity Water System or a Community Water System

↓  
If yes, see categories  
DW.60 through DW.65

↓  
If yes, see categories  
DW.35 through DW.50

↓  
Is the system a NTNC Systems or a Transient Noncommunity System

↓  
If yes, see categories  
DW.76 through DW.78

↓  
If yes, see categories  
DW.80

NOTE: NTNC = Nontransient, noncommunity.

## DRINKING WATER MANAGEMENT

### Records To Review

- Bacterial and chemical analyses of drinking water, including sampling dates and locations, dates of analyses, analytical methods used, and results of analyses
- Monthly operating reports (flow, chlorine residual, etc.)
- State and public notification of noncompliance with primary drinking water regulations
- Action taken by the facility to correct violations of primary drinking water regulations
- Sanitary surveys of the water system conducted by the facility itself, a private consultant, or any local, state, or the FWS
- Variance or exemption granted to the facility for its water supply system
- Permit authorizing the operation of an underground injection well
- Records of planning and construction of injection wells
- Results of injection well monitoring

### Physical Features To Inspect

- Records of planning and construction of injection wells
- Laboratory analysis facilities
- Underground injection well
- Well sites



**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>DW.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>DW.1.2.</b> FWS facilities are required to comply with state and local water quality regulations (EO 12088, Section 1-1 and 42 USC 300h-7(h)).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local water quality requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> <li>- more stringent contaminant level requirements certification and training requirements</li> <li>- water system surveys</li> <li>- reporting requirements</li> <li>- monitoring frequency</li> <li>- use of groundwater</li> <li>- use and maintenance of wells</li> <li>- wellhead protection programs</li> <li>- cross connection control and backflow prevention</li> <li>- O&amp;M practices such as: maintenance of a disinfectant residual throughout the distribution system; proper maintenance of the distribution system; proper disinfection of replaced or repaired mains; main flushing</li> <li>- UIC programs.)</li> </ul>

**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.1.3.</b> Facilities are required to meet regulatory requirements issued since the finalization of the handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p>	<p>Determine if any new regulations concerning water quality have been issued since the finalization of the handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p>
<p><b>DW.1.4.</b> FWS facilities should report all NOV's to the Region and the Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p>	<p>Determine if the facility has received an NOV relating to drinking water.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p>
<p><b>DW.1.5.</b> Analysis of all samples, except turbidity, free chlorine residual, temperature, and pH, to determine compliance with MCLs must be performed in a state-certified laboratory or by a state-approved individual (40 CFR 141.23(k)(3), 141.24(f)(17), 141.24(h)(19), and 141.28) [Reviewed July 2000].</p>	<p>Verify that the laboratory is certified by reviewing documentation of state certification for laboratory analysis.</p>
<p><b>DW.1.6.</b> Service controlled water supply systems with water available for human consumption must meet specific monitoring requirements (RP, 561 FW 4.7(c)(2)(a) through 4.7(c)(2)(d) and 4.7(c)(3)) [Citation Revised June 1998].</p>	<p>Verify that Service-controlled water supply systems with water available for human consumption (e.g., visitor centers, hatchery buildings, shops, offices, residences, headquarters buildings, laboratories, hand pumps located in camp grounds and picnic areas etc.) monitor and analyze the water as follows:</p> <ul style="list-style-type: none"> <li>- weekly: total coliforms when using surface water that is unfiltered and not disinfected</li> <li>- quarterly: total coliforms when using groundwater or filtered and disinfected surface water</li> <li>- annually: total nitrate, total nitrite, lead, and copper</li> <li>- every 6 yr: all other regulated contaminants.</li> </ul>

**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.1.7.</b> Every Service controlled water supply system must monitor for coliforms, lead, copper, nitrite, and nitrates (RP, 561 FW 4.7(c)(2)(e) and 4.7(c)(3)) [Citation Revised June 1998].</p> <p><b>DW.1.8.</b> When MCLs are exceeded, the Regional Compliance Coordinator must be notified (RP, 561 FW 4.7(c)(4)) [Citation Revised June 1998].</p> <p><b>DW.1.9.</b> When standards for water quality cannot be met, Service waters must be made unavailable for human consumption (RP, 561 FW 4.7(c)(5)) [Citation Revised June 1998].</p>	<p>(NOTE: This requirement applies regardless of the size of the system or the frequency or duration of use.)</p> <p>Verify that the initial round of monitoring and analysis for those facilities not already meeting minimum requirements is done by 13 January 2000.</p> <p>Verify that every Service-controlled water supply systems monitors and analyzes the water as follows:</p> <ul style="list-style-type: none"> <li>- weekly: total coliforms when using surface water that is unfiltered and not disinfected</li> <li>- quarterly: total coliforms when using groundwater or filtered and disinfected surface water</li> <li>- annually: total nitrate, total nitrite, lead, and copper.</li> </ul> <p>(NOTE: This requirement applies regardless of the size of the system or the frequency or duration of use.)</p> <p>(NOTE: Water supply systems supplied from a groundwater source can satisfy monitoring requirements if monitoring results from another water supply system can be obtained, provided that the other system is located within 15 mi downgradient, the water comes from the same aquifer, the analysis was performed by a certified laboratory, and the copies of the analysis are maintained at the Service facility.)</p> <p>Verify that the initial round of monitoring and analysis for those facilities not already meeting minimum requirements is done by 13 January 2000.</p> <p>Verify that, when MCLs are exceeded, the RCC is notified.</p> <p>Verify that, when standards for water quality cannot be met, Service waters are made unavailable for human consumption.</p>





**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PUBLIC WATER SYSTEMS</b></p> <p><b>DW.10 General</b></p> <p><b>DW.10.1.</b> The facility must keep records of actions taken to correct violations of primary drinking water regulations for at least 3 yr (40 CFR 141.33(b)) [Revised July 2000]</p> <p><b>DW.10.2.</b> Public water systems which do not collect 5 or more routine total coliform samples per month are required to undergo an initial sanitary survey according to a specified schedule and maintain records of those reviews (40 CFR 141.21(d) and 141.33(c)) [Revised July 2000].</p>	<p>(NOTE: The checklist items below apply to public water systems (PWSs). A PWS is defined as a system that has at least 15 service connections or serves an average of at least 25 people for at least 60 days per year.) A PWS includes:</p> <ul style="list-style-type: none"> <li>- any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system</li> <li>- any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.</li> </ul> <p>The term "Public Water System(s)" does not include any "special irrigation district." A public water system is either a community water system or a noncommunity water system. See Checklist User Guidance to determine which checklist items are applicable to the facility being audited [Revised July 2000].)</p> <p>Verify that water system records are maintained for at least 3 yr.</p> <p>Determine if there are recurring work programs, spare parts and supplies list, and equipment calibration and maintenance history records.</p> <p>Verify that noncommunity water systems which do not collect five or more routine samples per month have undergone an initial sanitary survey by 29 June 1999 and then undergo a sanitary survey every 5 yr thereafter.</p> <p>(NOTE: Noncommunity water systems using only protected and disinfected groundwater are only required to undergo a sanitary survey every 10 yr after the initial survey.)</p> <p>Verify that community water systems that collect less than five routine biological samples per month undergo a sanitary survey every 5 yr since 29 June 1994.</p> <p>Verify that records of sanitary surveys are kept for at least 10 yr.</p> <p>Verify that the sanitary surveys have been performed by the state or an agent approved by the state.</p>

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<p><b>DW.10.3.</b> Public water systems that use point-of-use devices to comply with MCL are required to meet specific standards (40 CFR 141.100 and 141.101) [Revised June 1998/Reviewed July 2000].</p>	<p>Verify that, if the state has requested additional measures to improve drinking water quality, those measures have been implemented.</p> <p>Determine if the facility public water system uses a point-of-use device to comply with MCLs.</p> <p>Verify that the facility has developed and obtained state approval for a monitoring plan prior to the point-of-use devices being installed.</p> <p>Verify that the parameters of the plan are being followed.</p> <p>(NOTE: The design and application of the point-of-entry devices must consider the tendency for increase in heterotrophic bacteria concentrations in water treated with activated carbon.)</p> <p>Verify that all consumers are protected and every building connected to the system has a point-of-entry device installed, maintained, and adequately monitored.</p> <p>(NOTE: Public water systems may not use bottled water to achieve compliance with an MCL. But, bottled water may be used on a temporary basis to avoid unreasonable risk to health.)</p>

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<p><b>PUBLIC WATER SYSTEMS</b></p> <p><b>DW.15 Monitoring/Sampling</b></p> <p><b>DW.15.1.</b> Total coliform samples are required to be collected at regular time intervals throughout the month except at systems which use only groundwater and serve 4900 persons or fewer (40 CFR 141.21 (a)(4)) [Reviewed July 2000].</p> <p><b>DW.15.2.</b> Public water systems that use surface water or ground water, under the direct influence of surface water, that do not practice filtration, are required to collect at least one total coliform sample near the first service connection each day the turbidity level of the source water exceeds 1 NTU (40 CFR 141.21 (a)(5) and 141.74(b)(1)) [Reviewed July 2000].</p>	<p>(NOTE: The checklist items below apply to public water systems (PWSs). A PWS is defined as a system that has at least 15 service connections or serves an average of at least 25 people for at least 60 days per year.) A PWS includes:</p> <ul style="list-style-type: none"> <li>- any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system</li> <li>- any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.</li> </ul> <p>The term "Public Water System(s)" does not include any "special irrigation district." A public water system is either a community water system or a noncommunity water system. See Checklist User Guidance to determine which checklist items are applicable to the facility being audited [Added July 2000].)</p> <p>Verify that total coliform samples are collected at regular intervals.</p> <p>(NOTE: Systems that use groundwater (except groundwater under the influence of surface water) and serve 4900 persons or fewer may collect all required samples on a single day if they are being taken from different sites.)</p> <p>Verify that, when the turbidity exceeded 1 NTU, total coliform samples were taken within 24 h of the first exceedence by reviewing the records on turbidity levels.</p>

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<p><b>DW.15.3.</b> When a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within 24 h of being notified of the positive result (40 CFR 141.21(b)(1) through 141.21(b)(5), (b)(7), and 141.21(e)(1)).</p>	<p>Verify that if the system collects more than 1/mo routine sample is collected, at least three repeat samples are collected for each total coliform-positive sample found.</p> <p>Verify that if one or less routine sample per month is collected, no less than four repeat samples are collected for each total coliform-positive sample found.</p> <p>Verify that at least one of the repeat samples is collected from the sampling tap where the original total coliform positive sample was taken.</p> <p>Verify that at least one repeat sample was taken at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site.</p> <p>Verify that the sampling process is repeated until either total coliforms are not detected in one complete set of repeat samples or the system determines that the MCL for total coliforms is exceeded and the state is notified.</p> <p>Verify that all repeat samples are collected on the same day.</p> <p>Verify that if one or more of the repeat samples is total coliform-positive, an additional set of repeat samples is collected within 24 h of notification of the positive result.</p> <p>Verify that if a repeat sample is total coliform-positive it is also analyzed for fecal coliforms.</p> <p>(NOTE: The system may test for <i>E. coli</i> instead of fecal coliforms.)</p> <p>(NOTE: If a system collecting fewer than five routine samples per month has one or more total coliform-positive samples and the state does not invalidate the samples, it must collect at least five routine samples during the next month the system provides water to the public. The state may waive this requirement if certain conditions are met.)</p> <p>Verify that all routine and repeat samples which are not invalidated are included in determining compliance with the MCL for total coliform.</p>

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<p><b>PUBLIC WATER SYSTEMS</b></p> <p><b>DW.20 Disinfection and Filtration</b></p> <p><b>DW.20.1.</b> Public water systems that use surface water sources or groundwater sources under direct influence of a surface water source must provide filtration as a treatment technique for microbiological contaminants unless certain criteria are met (40 CFR 141.71(a) and 141.71 (b)) [Revised January 1999].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>NOTE: The checklist items below apply to public water systems (PWSs). A PWS is defined as a system that has at least 15 service connections or serves an average of at least 25 people for at least 60 days per year.) A PWS includes:</p> <ul style="list-style-type: none"> <li>- any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system</li> <li>- any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.</li> </ul> <p>The term "Public Water System(s)" does not include any "special irrigation district." A public water system is either a community water system or a noncommunity water system. See Checklist User Guidance to determine which checklist items are applicable to the facility being audited [Added July 2000].)</p> <p>(NOTE: Public water systems that use a groundwater source under the direct influence of a surface water source are not required to meet these conditions to avoid filtration until 18 mo after the state has determined that the system is under the direct influence of surface water.)</p> <p>Verify that filtration of drinking water is performed unless all of the following conditions for surface water are met:</p> <ul style="list-style-type: none"> <li>- the fecal coliform concentration is less than or equal to 20/100 mL or total coliform concentration is equal to or less than 100/100 mL in representative samples of the source water immediately prior to the first or only point of disinfectant application in at least 90 percent of the measurements made in the last 6 mo that the system served water to the public on an ongoing basis</li> <li>- the turbidity level does not exceed 5 NTU in representative samples of the source water immediately prior to the first or only point of disinfectant application, unless state determines otherwise and there has not been more than two events in the past 12 mo the system served water to the public or more than five events in the past 120 mo the system served water to the public.</li> </ul> <p>Verify that filtration of drinking water is done unless all the following site specific conditions are met:</p> <ul style="list-style-type: none"> <li>- meets the requirements of 40 CFR 141.72(a)(1) (see checklist item DW.20.3) for disinfection treatment of <i>Giardia lamblia</i> for at least 11 of the 12 previous mo</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.20.2.</b> Systems that do not meet the criteria necessary for exclusion from filtration for public water systems that use a surface water source or a groundwater source under the direct influence of surface water must provide filtration that meets specific standards by 29 June 1993, or within 18 mo after being required to provide filtration, which ever is later (40 CFR 141.73, 141.74(c)(1), through 141.74(c)(4)) <b>[Revised January 1999].</b></p>	<ul style="list-style-type: none"> <li>- meets 40 CFR 141.72(a)(2) through 141.72(a)(4) (see checklist item DW.20.3) at all times</li> <li>- maintains a watershed control program for <i>Giardia lamblia</i> in the source water, including:               <ul style="list-style-type: none"> <li>- identification of watershed characteristics</li> <li>- monitoring occurrence of activities that have adverse effects</li> <li>- demonstrates through ownership and/or written agreements that the control of adverse effects of human activities are regulated</li> <li>- submits annual reports to the state</li> <li>- subject to annual onsite inspection by the state or a party approved by the state, to assess watershed control program</li> </ul> </li> <li>- has not been identified as a source of waterborne disease or threat or has been modified sufficiently to prevent recurrence</li> <li>- complies with MCL for total coliforms as defined in 40 CFR 141.63 for at least 11 of the previous 12 mo (see Appendix 2-1)</li> <li>- complies with requirements for trihalomethanes as listed on 40 CFR 141.12 and 141.30 until 17 Dec 2001 (see Appendix 2-1) and thereafter complies with the requirements for total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramine, and chlorine dioxide (see Appendix 2-9).</li> </ul> <p>Verify that, if conventional or direct filtration is used, the following are met:</p> <ul style="list-style-type: none"> <li>- a turbidity level of 0.5 NTU or less in 95 percent of measurements taken each month</li> <li>- the turbidity level of representative samples of filtered water at no time exceeds 5 NTU</li> <li>- systems serving at least 10,000 people meet the turbidity requirements in 40 CFR 141.173(a) starting 17 December 2001.</li> </ul> <p>Verify that, if slow sand filtration is used, the following are met:</p> <ul style="list-style-type: none"> <li>- the turbidity level of representative samples of a systems filtered water is 1 NTU or less in 95 percent of the monthly measurements.</li> <li>- the turbidity level of representative samples of a systems filtered water at no time exceeds 5 NTU.</li> </ul>

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Verify that, if diatomaceous earth filtration is used, the following is met:

- the turbidity level of representative samples of a systems filtered water is less than or equal to 1 NTU in at least 95 percent of the measurements taken each month
- the turbidity level of representative samples of a systems filtered water at no time exceeds 5 NTU.

Verify that, if other filtration technologies are used, they have been approved by the state.

Verify that, starting 29 June 1993, or when filtration is installed, turbidity measurements are performed on representative samples of the systems filtered water every 4 h that the system serves water to the public.

Verify that, as of 29 June 1993, or whenever filtration is installed, the residual disinfectant concentration of water entering the distribution system is monitored continuously and the lowest value recorded each day.

Verify that, if there is a failure in the continuous monitoring equipment, grab sampling is done every 4 h.

(NOTE: Grab sampling can be done for no more than 5 working days following the failure of the continuous monitoring system.)

(NOTE: Systems serving 3300 or fewer person can use grab sampling instead of continuous monitoring if the following daily frequencies are met:

System size by population	Samples/day
< 500	1
501 - 1000	2
1001 - 2500	3
2501 - 3300	4.)

Verify that, any time the residual disinfectant concentration falls below 0.2 mg/L in a system using grab sampling, the system takes a grab sample every 4 h until the residual disinfectant concentration is equal to or greater than 0.2 mg/L.



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<p><b>DW.20.3.</b> Facilities with public water systems that use a surface water source or a groundwater source under direct influence of a surface water source, that is not required to provide filtration, are required to provide disinfection treatment by 30 December 1991 (40 CFR 141.72(a)).</p>	<p>Verify that the residual disinfectant concentration is measured at least at the same points in the distribution system and at the same time as total coliforms are sampled.</p> <p>Verify that the following requirements for disinfection are met:</p> <ul style="list-style-type: none"> <li>- it ensures 99.9 percent (3-log) inactivation of <i>Giardia lamblia</i> cysts every day except for once per month by meeting the required CT applicable to the systems particular water quality parameters as outlined in 40 CFR 141.74</li> <li>- it ensures 99.99 percent (4-log) inactivation of virus every day except for once per month by meeting the required CT applicable to the systems particular water quality parameters as outlined in 40 CFR 141.74</li> <li>- the CT values are calculated daily as specified in 40 CFR 141.74(b)(3)</li> <li>- throughout the disinfection system there is either:               <ul style="list-style-type: none"> <li>- automatic startup and alarm for insuring continuous disinfection application while water is delivered through the distribution system</li> <li>- automatic shutoff when there is less than 0.2 mg/L residual disinfectant</li> </ul> </li> <li>- the residual disinfectant concentration in water entering distribution system is not less than 0.2 mg/L for more than 4 h</li> <li>- the residual disinfectant concentration, measured as total chlorine, combined chlorine, or chlorine dioxide is not undetectable in more than 5 percent of samples each month for more than 2 consecutive months.</li> </ul> <p>(NOTE: Water in a distribution system with a heterotrophic bacteria concentration less than or equal to 500 mL, measured as heterotrophic plate count (HPC) is deemed to have a detectable disinfectant residual.)</p>

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<p><b>DW.20.4.</b> Facilities with public water systems that use a surface water source or a groundwater source, under direct influence of a surface water source, that provide filtration or that are required by the state to install filtration, must meet specific disinfection requirements by 29 June 1993 or within 18 mo of being required to install filtration (40 CFR 141.72(b) and 141.73).</p>	<p>Determine if the facility provides filtration for drinking water.</p> <p>Verify that the following requirements for disinfection are provided:</p> <ul style="list-style-type: none"> <li>- it ensures 99.9 percent (3-log) inactivation of Giardia lamblia cysts</li> <li>- it ensures 99.99 percent (4-log) inactivation of viruses</li> <li>- the residual disinfectant concentration in water entering distribution system is not less than 0.2 mg/L for more than 4 h</li> <li>- the residual disinfectant concentration throughout the distribution system is not undetectable in more than 5 percent of samples each month for any 2 consecutive months the system serves water to the public</li> <li>- analytical methods as specified in 40 CFR 141.74 are used to demonstrate compliance with the requirements for filtration and disinfection.</li> </ul> <p>(NOTE: Systems that filter are given an inactivation credit dependent on the type of filtration used.)</p>
<p><b>DW.20.5.</b> Facilities with public water systems that use a surface water source and do not provide filtration are required to report specific information monthly to the state beginning 31 December 1990 (unless the state has determined that filtration is not required) until filtration is in place (40 CFR 141.75(a)) [Revised September 2000].</p>	<p>Verify that the following listed information is reported to the state at the indicated times:</p> <ul style="list-style-type: none"> <li>- source water quality information within 10 days after the end of each month the system serves water to the public</li> <li>- disinfection information within 10 days after the end of each month the system serves water to the public</li> <li>- a report summarizing compliance with all watershed control programs no later than 10 days after the end of each Federal FY</li> <li>- a report on the onsite inspection conducted during that year, unless it was conducted by the state, no later than 10 days after the end of the Federal FY</li> <li>- the occurrence of a waterborne disease outbreak potentially attributable to that water system as soon as possible, but no later than by the end of the next business day</li> <li>- when turbidity exceeds 5 NTU, consult with the primary agency as soon as possible, but no later than 24 h after the exceedance is known</li> <li>- any time the residual falls below 0.2 mg/L in the water entering the distribution system as soon as possible, but no later than by the end of the next business day.</li> </ul> <p>(NOTE: See the complete text of 40 CFR 141.75(a) for more details on how this information is to be reported.)</p>

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<p><b>DW.20.6.</b> Facilities with public water systems that use a groundwater source under the direct influence of surface water and do not provide filtration treatment must report specific information to the state monthly starting 31 December 1990, or 6 mo after the state determines that the groundwater source is under the direct influence of surface water, whichever is later (40 CFR 141.75(a)) [Revised September 2000].</p>	<p>Verify that the following listed information is reported to the state at the indicated times:</p> <ul style="list-style-type: none"> <li>- source water quality information within 10 days after the end of each month the system serves water to the public</li> <li>- disinfection information within 10 days after the end of each month the system serves water to the public</li> <li>- a report summarizing compliance with all watershed control programs no later than 10 days after the end of each Federal FY</li> <li>- a report on the onsite inspection conducted during that year, unless it was conducted by the state, no later than 10 days after the end of the Federal FY</li> <li>- the occurrence of a waterborne disease outbreak potentially attributable to that water system as soon as possible, but no later than by the end of the next business day</li> <li>- when turbidity exceeds 5 NTU, consult with the primary agency as soon as practical, but not later than 24 h after the exceedance is known</li> <li>- any time the residual falls below 0.2 mg/L in the water entering the distribution system as soon as possible, but no later than by the end of the next business day.</li> </ul> <p>(NOTE: See the complete text of 141.75(a) for more details on how this information is to be reported.)</p>
<p><b>DW.20.7.</b> Facilities with public water systems that use a surface water source or a groundwater source under the direct influence of surface water that provide filtration must report specific information monthly to the state starting 29 June 1993 or when filtration is installed, whichever is later (40 CFR 141.75(b)) [Revised September 2000].</p>	<p>Verify that by 29 June 1993, or whenever filtration is installed, the following information is provided to the state in the indicated time frame:</p> <ul style="list-style-type: none"> <li>- turbidity measurements within 10 days after the end of each month the system serves water to the public</li> <li>- disinfection information within 10 days after the end of each month the system serves water to the public</li> <li>- notice of an occurrence of a waterborne disease outbreak, as soon as possible but no later than by the end of the next business day</li> <li>- when the turbidity exceeds 5 NTU, consult with the primary agency as soon as practical, but not later than 24 h after the exceedance is known</li> <li>- any time the residual falls below 0.2 mg/L in the water entering the distribution system, as soon as possible, but no later than by the end of the next business day.</li> </ul> <p>(NOTE: See the complete text of 40 CFR 141.75(b) for more details on how this information is to be reported.)</p>

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<p><b>DW.20.8.</b> USEPA has set certain standards for analytic procedures that must be used and followed to demonstrate compliance with disinfection and filtration requirements (40 CFR 141.74).</p> <p><b>DW.20.9.</b> As of 1 January 2002, Subpart H systems which provide filtration serving at least 10,000 people must provide treatment that complies with certain treatment technique requirements (40 CFR 141.170(a), 141.171, 141.173, and 141.174) [Added January 1999, Revised July 2000].</p>	<p>Verify that analytic methods as specified in 40 CFR 141.74 are used to demonstrate compliance with the requirements for filtration and disinfection.</p> <p>(NOTE: These requirements for filtration and disinfection are in addition to criteria under which filtration and disinfection are required under 40 CFR 141.70 through 141.75.)</p> <p>Verify that each Subpart H system serving at least 10,000 people provides treatment of its source water by installing and properly operating water treatment processes that reliably achieve:</p> <ul style="list-style-type: none"> <li>- at least 99 percent (2-log) removal of <i>Cryptosporidium</i> between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for filtered systems, or <i>Cryptosporidium</i> control under the watershed control plan for unfiltered systems</li> <li>- compliance with the profiling and benchmark requirements under 40 CFR 141.172.</li> </ul> <p>Verify that filtration is provided that meets with one of the following by 1 January 2002:</p> <ul style="list-style-type: none"> <li>- conventional filtration or direct filtration that results in: <ul style="list-style-type: none"> <li>- the turbidity level of representative samples of a system's filtered water is <math>\leq 0.3</math> NTU in at least 95 percent of the measurement taken each month</li> <li>- the turbidity level of representative samples of the system's filtered water at no time exceeds 1 NTU</li> </ul> </li> <li>- alternate technologies approved by the state.</li> </ul> <p>Verify that the systems monitor individual filters continuously and record results every 15 min.</p> <p>(NOTE: When using conventional filtration or direct filtration, a system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by a state.)</p>

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<p><b>DW.20.10.</b> Public water system may not begin construction of uncovered finished water storage facilities beginning 16 February 1999 (40 CFR 141.170(a) and 141.170(c)) [Added January 1999].</p> <p><b>DW.20.11.</b> As of 1 January 2002, Subpart H systems serving at least 10,000 people providing disinfection must perform disinfection profiling and benchmarking (40 CFR 141.170(a) and 141.172). [Added January 1999, Revised July 2000].</p>	<p>(NOTE: In addition to the requirements of 40 CFR 141.71, a public water system that does not provide filtration must maintain a watershed control program under 40 CFR 141.71(b)(2), which does the following to minimize the potential for contamination by <i>Cryptosporidium</i> oocysts in the source water:</p> <ul style="list-style-type: none"> <li>- identify watershed characteristics and activities which may have an adverse effect on source water quality</li> <li>- monitor the occurrence of activities which may have an adverse effect on source water quality.)</li> </ul> <p>(NOTE: The state must determine whether the watershed control program is adequate to limit potential contamination by <i>Cryptosporidium</i> oocysts. The adequacy of the program must be based on the comprehensiveness of the watershed review; the effectiveness of the system's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the water system has maximized land ownership and/or controlled land use within the watershed.)</p> <p>Verify that each subpart H system serving at least 10,000 people do not begin construction of uncovered finished water storage facilities beginning 16 February 1999.</p> <p>(NOTE: These requirements for filtration and disinfection are in addition to criteria under which filtration and disinfection are required under 40 CFR 141.70 through 141.75.)</p> <p>Verify that the public water systems determines its TTHM annual average using the procedure in 40 CFR 141.172(a)(1) and its HAA5 annual average using the procedure in 40 CFR 141.172 (a)(2).</p> <p>(NOTE: The annual average is the arithmetic average of the quarterly averages of four consecutive quarters of monitoring.)</p>

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	<p>(NOTE: The system may request that the state approve a more representative annual data set for the purpose of determining applicability of the requirements of this section. The state may require that a system use a more representative annual data set for the purpose of determining applicability of the requirements of this section.)</p> <p>Verify that the system submits data to the state in accordance with the determination procedures used.</p> <p>Verify that any system having either a TTHM annual average <math>\geq 0.064</math> mg/L or an HAA5 annual average <math>\geq 0.048</math> mg/L during the required period develops a disinfection profile of its disinfection practice for a period of up to 3 yr.</p> <p>(NOTE: The details of how a disinfection profile is developed can be found in 40 CFR 172(b).)</p> <p>Verify that any system required to develop a disinfection profile that decides to make a significant change to its disinfection practice consults with the state prior to making such a change.</p> <p>(NOTE: Significant changes to disinfection practice are:</p> <ul style="list-style-type: none"> <li>- changes to the point of disinfection</li> <li>- changes to the disinfectant(s) used in the treatment plant</li> <li>- changes to the disinfection process</li> <li>- any other modification identified by the state.)</li> </ul> <p>Verify that any system modifying its disinfection practice calculates its disinfection benchmark using the procedure specified 40 CFR 141.172(c)(2)(i) through (ii).</p> <p>Verify that systems using either chloramines or ozone for primary disinfection calculate the disinfection benchmark for viruses using a method approved by the state.</p>









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<p><b>PUBLIC WATER SYSTEMS</b></p> <p><b>DW.30 Notification and Reporting Requirements</b></p> <p><b>DW.30.1.</b> Public water systems are required to maintain on the premises, or at a convenient location, specific records (40 CFR 141.33(a), 141.33(b), and 141.33(d)) [Revised September 2000].</p>	<p>(NOTE: The checklist items below apply to public water systems (PWSs). A PWS is defined as a system that has at least 15 service connections or serves an average of at least 25 people for at least 60 days per year.) A PWS includes:</p> <ul style="list-style-type: none"> <li>-any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system</li> <li>-any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.</li> </ul> <p>The term "Public Water System(s)" does not include any "special irrigation district." A public water system is either a community water system or a noncommunity water system. See Checklist User Guidance to determine which checklist items are applicable to the facility being audited [Added July 2000].)</p> <p>Verify that records of bacteriological analyses are kept for a minimum of 5 yr.</p> <p>Verify that records of chemical analyses are kept for a minimum of 10 yr.</p> <p>Verify that records concerning a variance or exemption granted to the system are kept for a period ending not less than 5 yr following the expiration of the variance or exemption.</p> <p>Verify that records relating to sanitary surveys are kept for a minimum of 10 yr.</p> <p>Verify that copies of public notices issued under 40 CFR 141.201 through 141.210 and certifications made to the primacy agency are kept for 3 yr after issuance.</p>

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<p><b>DW.30.2.</b> When primary drinking water standards (i.e. MCLs and MRDLs) are exceeded, or the owner or operator of a public waters systems fails to comply with an applicable treatment technique, public notifications must be made (40 CFR 141.32) [Revised January 1999, Revised September 2000].</p>	<p>(NOTE: These requirements apply until the public notification requirements under 40 CFR 141.201 through 141.210 (see checklist items DW.30.6 through DW.30.10) are effective. For public water systems where USEPA directly implements the public water system supervision program, the date is 31 October 2000. For all other public water systems, this date is 6 May 2002 or on the date the State-adopted rule becomes effective, whichever comes first.)</p> <p>Verify that if there was an exceedance the following public notification procedures were followed:</p> <ul style="list-style-type: none"> <li>- notices were placed in a daily newspaper of general circulation in the area served by the system as soon as possible, but no later than 14 days after the violation or failure</li> <li>- notices were placed in a weekly newspaper of general circulation if there is no daily newspaper</li> <li>- notices were issued by mail delivery, by direct mail or with the water bill, or by hand delivery within 45 days after the violation or failure.</li> </ul> <p>(NOTE: The state may waive mail or hand delivery if it is determined that the violation or failure is corrected within the 45-day period.)</p> <p>Verify that if it was an acute violation, the public radio and television stations were notified no later than 72 h after the violation.</p> <p>Verify that if public notification was made, it was made according to USEPA requirements as specified in 40 CFR 141.32.</p> <p>Verify that following the initial notice, additional notice is given at least once every 3 mo by mail delivery, or by hand delivery, for as long as the violation exists.</p> <p>(NOTE: Instead of the requirements outlined here, community water systems in an area that is not served by a daily or weekly newspaper of general circulation must give notice by hand delivery or by continuous posting in conspicuous places within the area served by the system. Notice must be given within 72 h for acute violations and 14 days for other violations. Noncommunity water systems may also follow these methods.)</p> <p>Verify that a copy of the most recent public notice for any outstanding violation of any MCL, or MRDL or treatment technique requirement or any variance or exemption schedule has been given to all new billing units or new hook-ups prior to or at the time service begins.</p>

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<p><b>DW.30.3.</b> Facilities that operate public water systems must send reports to the state on any failure to comply with applicable biological, turbidity, radioactivity, and chemical standards, and on any failure to comply with monitoring requirements that apply (40 CFR 141.31) [Reviewed March 2000, Revised September 2000].</p>	<p>Verify that, in general, reports are sent within the first 10 days following the month in which the result is received or the first 10 days following the end of the required monitoring period whenever standards are not met.</p> <p>Verify that the facility reported failure to comply with any national primary drinking water regulations to the state within 48 h.</p> <p>Verify that, the public water system, within 10 days of completing the public notification requirements under 40 CFR 141.201 through 141.210 (see checklist items DW.30.6 through DW.30.10) for the initial public notice and any repeat notices, submits to the primacy agency a certification that it has fully complied with the public notification regulations.</p> <p>Verify that the public water system includes with this certification a representative copy of each type of notice distributed, published, posted, and made available to the persons served by the system and to the media.</p>
<p><b>DW.30.4.</b> Public water systems which are required to sample quarterly for disinfection byproducts, disinfectants, and disinfection byproducts precursors (DBPs) must meet specific reporting requirements (40 CFR 141.134) [Added January 1999].</p>	<p>Verify that systems required to sample quarterly or more frequently for disinfection byproducts, disinfectants, and DBPs report to the state within 10 days after the end of each quarter in which samples were collected.</p> <p>Verify that systems required to sample less frequently than quarterly report to the state within 10 days after the end of each monitoring period in which samples were collected.</p> <p>Verify that the information in Appendix 2-11 is reported, as applicable.</p>
<p><b>DW.30.5.</b> As of 1 January 2002, Subpart H systems serving at least 10,000 people that provide filtration are required to report specific information to the state (40 CFR 141.175) [Added January 1999, Revised September 2000].</p>	<p>Verify that systems that provide conventional filtration treatment or direct filtration report the following monthly:</p> <ul style="list-style-type: none"> <li>- turbidity measurements are reported within 10 days after the end of each month the system serves water to the public and includes: <ul style="list-style-type: none"> <li>- the total number of filtered water turbidity measurements taken during the month</li> <li>- the number and percentage of filtered water turbidity measurements taken during the month that are less than or equal to the turbidity limits</li> <li>- the date and value of any turbidity measurements taken during the month which exceed 1 NTU, or which exceed the maximum level set by the state</li> </ul> </li> </ul>

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- that they have conducted individual filter turbidity monitoring, within 10 days after the end of each month that the system serves water to the public
- individual filter turbidity measurement results, within 10 days after the end of each month that the system serves water to the public only if measurements demonstrate one or more of the following conditions:
  - for any individual filter that has a measured turbidity level of > 1.0 NTU in two consecutive measurements taken 15 min apart, the system reports the filter number, the turbidity measurement, and the date on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within 7 days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance
  - for any individual filter that has a measured turbidity level of > 0.5 NTU in two consecutive measurements taken 15 min apart at the end of the first 4 h of continuous filter operation after the filter has been backwashed or otherwise taken offline, the system reports the filter number, the turbidity, and the date(s) on which the exceedance occurred. In addition, the system must either produce a filter profile for the filter within 7 days of the exceedance (if the system is not able to identify an obvious reason for the abnormal filter performance) and report that the profile has been produced or report the obvious reason for the exceedance
  - for any individual filter that has a measured turbidity level of > 1.0 NTU in two consecutive measurements taken 15 min apart at any time in each of 3 consecutive months, the system reports the filter number, the turbidity measurement, and the date on which the exceedance occurred. In addition, the system conducts a self-assessment of the filter within 14 days of the exceedance and reports that the self-assessment was conducted

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<p><b>DW.30.6.</b> Public water systems are required to give notice in certain situations (40 CFR 141.201) [Added July 2000].</p>	<p>- for any individual filter that has a measured turbidity level of &gt; 2.0 NTU in two consecutive measurements taken 15 min apart at any time in each of 2 consecutive months, the system reports the filter number, the turbidity measurement, and the date on which the exceedance occurred. In addition, the system arranges for the conduct of a comprehensive performance evaluation by the state or a third party approved by the state no later than 30 days following the exceedance and have the evaluation completed and submitted to the state no later than 90 days following the exceedance.</p> <p>Verify that systems maintain the results of individual filter monitoring for at least 3 yr.</p> <p>Verify that, if at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system consults with the primacy agency as soon as practical, but no later than 24 h after the exceedance is known.</p> <p>Verify that, if at any time the turbidity in representative samples of filtered water exceed the maximum level set by the state for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system consults with the primacy agency as soon as practical, but no later than 24 h after the exceedance is known.</p> <p>(NOTE: Public water systems in States with primacy for the public water system supervision (PWSS) program must comply with these requirements no later than 6 May 2002 or on the date the State-adopted rule becomes effective, whichever comes first. Public water systems in jurisdictions where USEPA directly implements the PWSS program must comply with these requirements on 31 October 2000. Prior to these dates, public water systems must continue to comply with the public notice requirements in 40 CFR 141.32 (see checklist item DW.30.2.)</p> <p>Verify that each owner or operator of a public water system (community water systems, nontransient noncommunity water systems, and transient noncommunity water systems) give notice for all violations of national primary drinking water regulations (NPDWR) and for other situations as follows:</p> <ul style="list-style-type: none"> <li>- NPDWR violations: <ul style="list-style-type: none"> <li>- failure to comply with an applicable MCL or MRDL</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- failure to comply with a prescribed treatment technique (TT)</li> <li>- failure to perform water quality monitoring, as required by the drinking water regulations</li> <li>- failure to comply with testing procedures as prescribed by a drinking water regulation</li> <li>- variance and exemptions under sections 1415 and 1416 of SDWA:               <ul style="list-style-type: none"> <li>- operation under a variance or an exemption</li> <li>- failure to comply with the requirements of any schedule that has been set under a variance or exemption</li> </ul> </li> <li>- special public notices:               <ul style="list-style-type: none"> <li>- occurrence of a waterborne disease outbreak or other waterborne emergency</li> <li>- exceedance of the nitrate MCL by noncommunity water systems (NCWS), where granted permission by the primacy agency under 40 CFR 141.11(d)</li> <li>- exceedance of the secondary maximum contaminant level (SMCL) for fluoride</li> <li>- availability of unregulated contaminant monitoring data other violations and situations determined by the primacy agency to require a public notice, not already listed in Appendix 2-12).</li> </ul> </li> </ul> <p>(NOTE: The term "NPDWR violations" is used to include violations of the MCL, MRDL), TT, monitoring requirements, and testing procedures in 40 CFR 141. See Appendix 2-12 for the tier assignment for each specific violation or situation requiring a public notice.)</p> <p>Verify that each public water system provides public notice to persons served by the water system.</p> <p>Verify that public water systems that sell or otherwise provide drinking water to other public water systems (i.e., to consecutive systems) give public notice to the owner or operator of the consecutive system; the consecutive system is responsible for providing public notice to the persons it serves.</p> <p>(NOTE: If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the primacy agency may allow the system to limit distribution of the public notice to only persons served by that portion of the system which is out of compliance. Permission by the primacy agency for limiting distribution of the notice must be granted in writing.)</p>

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<p><b>DW.30.7.</b> For certain types of violations, Tier 1 notifications are required (40 CFR 141.202) [Added July 2000].</p>	<p>Verify that a copy of the notice is also be sent to the primacy agency.</p> <p>Verify that a Tier 1 public notice is issued for the following violations or situations:</p> <ul style="list-style-type: none"> <li>- violation of the MCL for total coliforms when fecal coliform or E. coli are present in the water distribution system (as specified in 40 CFR 141.63(b) (see checklist item DW.35.2)), or when the water system fails to test for fecal coliforms or E. coli when any repeat sample tests positive for coliform</li> <li>- violation of the MCL for nitrate, nitrite, or total nitrate and nitrite, or when the water system fails to take a confirmation sample within 24 h of the system's receipt of the first sample showing an exceedance of the nitrate or nitrite MCL</li> <li>- exceedance of the nitrate MCL by noncommunity water systems, where permitted to exceed the MCL by the primacy agency</li> <li>- violation of the MRDL for chlorine dioxide when one or more samples taken in the distribution system the day following an exceedance of the MRDL at the entrance of the distribution system exceed the MRDL, or when the water system does not take the required samples in the distribution system</li> <li>- violation of the turbidity MCL, where the primacy agency determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 h after the system learns of the violation</li> <li>- violation of the Surface Water Treatment Rule (SWTR) or Interim Enhanced Surface Water Treatment rule (IESWTR) treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit, where the primacy agency determines after consultation that a Tier 1 notice is required or where consultation does not take place within 24 h after the system learns of the violation</li> <li>- occurrence of a waterborne disease outbreak or other waterborne emergency (such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination)</li> <li>- other violations or situations with significant potential to have serious adverse effects on human health as a result of short-term exposure, as determined by the primacy agency either in its regulations or on a case-by-case basis.</li> </ul>



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**DW.30.8.** For certain types of violations, Tier 2 notifications are required (40 CFR 141.203(a) and 141.203(c)) [Added July 2000].

Verify that public water systems:

- provide a public notice as soon as practical but no later than 24 h after the system learns of the violation
- initiate consultation with the primacy agency as soon as practical, but no later than 24 h after the public water system learns of the violation or situation, to determine additional public notice requirements
- comply with any additional public notification requirements (including any repeat notices or direction on the duration of the posted notices) that are established as a result of the consultation with the primacy agency.

Verify that the notice is provided within 24 h in a form and manner reasonably calculated to reach all persons served.

(NOTE: The form and manner used by the public water system are to fit the specific situation, but must be designed to reach residential, transient, and non-transient users of the water system.)

Verify that, in order to reach all persons served, water systems use, at a minimum, one or more of the following forms of delivery:

- appropriate broadcast media (such as radio and television)
- posting of the notice in conspicuous locations throughout the area served by the water system
- hand delivery of the notice to persons served by the water system
- another delivery method approved in writing by the primacy agency.

Verify that a Tier 2 public notice is issued for the following violations or situations:

- all violations of the MCL, MRDL, and treatment technique requirements, except where a Tier 1 notice is required or where the primacy agency determines that a Tier 1 notice is required
- violations of the monitoring and testing procedure requirements, where the primacy agency determines that a Tier 2 rather than a Tier 3 public notice is required, taking into account potential health impacts and persistence of the violation
- failure to comply with the terms and conditions of any variance or exemption in place.

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that public water systems provide the public notice as soon as practical, but no later than 30 days after the system learns of the violation.</p> <p>Verify that, if the public notice is posted, the notice remains in place for as long as the violation or situation persists, but in no case for less than seven days, even if the violation or situation is resolved.</p> <p>(NOTE: The primacy agency may, in appropriate circumstances, allow additional time for the initial notice of up to 3 mo from the date the system learns of the violation. Extensions granted by the primacy agency must be in writing.)</p> <p>Verify that the public water system repeats the notice every 3 mo as long as the violation or situation persists, unless the primacy agency determines that appropriate circumstances warrant a different repeat notice frequency.</p> <p>Verify that in no circumstance is the repeat notice given less frequently than once per year.</p> <p>(NOTE: Primacy agency determinations allowing repeat notices to be given less frequently than once every 3 mo must be in writing.)</p> <p>Verify that, for either of the following turbidity violations, public water systems consult with the primacy agency as soon as practical but no later than 24 h after the public water system learns of the violation, to determine whether a Tier 1 public notice is required to protect public health:</p> <ul style="list-style-type: none"> <li>- violation of the turbidity MCL</li> <li>- violation of the SWTR or IESWTR treatment technique requirement resulting from a single exceedance of the maximum allowable turbidity limit.</li> </ul> <p>Verify that, when consultation does not take place within the 24-h period, the water system distributes a Tier 1 notice of the violation within the next 24 h (i.e., no later than 48 h after the system learns of the violation).</p> <p>Verify that public water systems provide the initial public notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.30.9.</b> For certain types of violations, Tier 3 notifications are required (40 CFR 141.204(a) through 141.204(c)) [Added July 2000].</p>	<p>Verify that a Tier 3 public notice is issued for the following violations or situations:</p> <ul style="list-style-type: none"> <li>- monitoring violations under 40 CFR 141, except where a Tier 1 notice is required or where the primacy agency determines that a Tier 2 notice is required</li> <li>- failure to comply with a testing procedure established in 40 CFR 141, except where a Tier 1 notice is required or where the primacy agency determines that a Tier 2 notice is required</li> <li>- operation under a variance granted under 40 CFR 1415 or an exemption granted under Section 1416 of the Safe Drinking Water Act</li> <li>- availability of unregulated contaminant monitoring results</li> <li>- exceedance of the fluoride secondary maximum contaminant level (SMCL).</li> </ul> <p>Verify that public water systems provide the public notice not later than 1 yr after the public water system learns of the violation or situation or begins operating under a variance or exemption.</p> <p>Verify that, following the initial notice, the public water system repeats the notice annually for as long as the violation, variance, exemption, or other situation persists.</p> <p>Verify that, if the public notice is posted, the notice remains in place for as long as the violation, variance, exemption, or other situation persists, but in no case less than seven days (even if the violation or situation is resolved).</p> <p>(NOTE: Instead of individual Tier 3 public notices, a public water system may use an annual report detailing all violations and situations that occurred during the previous 12 mo, as long as the timing requirements are met.)</p> <p>Verify that public water systems provide the initial notice and any repeat notices in a form and manner that is reasonably calculated to reach persons served in the required time period.</p> <p>Verify that the form and manner of the public notice meets the following requirements at a minimum:</p> <ul style="list-style-type: none"> <li>- unless directed otherwise by the primacy agency in writing, community water systems provide notice by:</li> </ul>

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**DW.30.10.** Public notices are required to contain specific information (40 CFR 141.205) [Added July 2000].

- mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system
  - any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by the required notice
  - unless directed otherwise by the primacy agency in writing, noncommunity water systems provide notice by:
    - posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known)
    - any other method reasonably calculated to reach other persons served by the system, if they would not normally be reached by the required notice.
- Verify that when a public water system violates a NPDWR or has a situation requiring public notification, each public notice includes the following elements:
- a description of the violation or situation, including the contaminant(s) of concern, and (as applicable) the contaminant level(s)
  - when the violation or situation occurred
  - any potential adverse health effects from the violation or situation
  - the population at risk, including subpopulations particularly vulnerable if exposed to the contaminant in their drinking water
  - whether alternative water supplies should be used
  - what actions consumers should take, including when they should seek medical help, if known
  - what the system is doing to correct the violation or situation
  - when the water system expects to return to compliance or resolve the situation
  - the name, business address, and phone number of the water system owner, operator, or designee of the public water system as a source of additional information concerning the notice
  - a statement to encourage the notice recipient to distribute the public notice to other persons served.
- Verify that, if a public water system has been granted a variance or an exemption, the public notice contains:
- an explanation of the reasons for the variance or exemption
  - the date on which the variance or exemption was issued

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	<ul style="list-style-type: none"> <li>- a brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption</li> <li>- a notice of any opportunity for public input in the review of the variance or exemption.</li> </ul> <p>Verify that, if a public water system violates the conditions of a variance or exemption, the public notice must contain the ten elements listed at the start of this checklist item.</p> <p>Verify that each public:</p> <ul style="list-style-type: none"> <li>- is displayed in a conspicuous way when printed or posted</li> <li>- does not contain overly technical language or very small print</li> <li>- is not formatted in a way that defeats the purpose of the notice</li> <li>- does not contain language which nullifies the purpose of the notice.</li> </ul> <p>Verify that, for public water systems serving a large proportion of non-English speaking consumers, as determined by the primacy agency, the public notice contains information in the appropriate language(s) regarding the importance of the notice or contains a telephone number or address where persons served may contact the water system to obtain a translated copy of the notice or to request assistance in the appropriate language.</p> <p>(NOTE: In cases where the primacy agency has not determined what constitutes a large proportion of non-English speaking consumers, the public water system must include in the public notice the information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where persons served may contact the water system to obtain a translated copy of the notice or to request assistance in the appropriate language, where appropriate to reach a large proportion of non-English speaking persons served by the water system.)</p> <p>Verify that public water systems include the following standard language in their public notice:</p> <ul style="list-style-type: none"> <li>- the health effects language specified in Appendix 2-13 corresponding to each MCL, MRDL, and treatment technique violation, and for each violation of a condition of a variance or exemption</li> </ul>

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-the following language in their notice, including the language necessary to fill in the blanks, for all monitoring and testing procedure violations:  
 We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During [compliance period], we "did not monitor or test" or "did not complete all monitoring or testing" for [contaminant(s)], and therefore cannot be sure of the quality of your drinking water during that time.

-the following language (where applicable):  
 Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.



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<p><b>COMMUNITY WATER SYSTEMS</b></p> <p><b>DW.35 Standards</b></p> <p><b>DW.35.1.</b> Community water systems, except as defined under exempted water systems in the definitions, are required to meet specific MCLs for inorganic and organic chemicals, fluorides, radium 226, radium-228, gross alpha particle radioactivity, beta particles, and photon radioactivity from manmade radionuclides (40 CFR 141.11(a), 141.11(b), 141.12, 141.15, 141.16(a), 141.62) [Reviewed July 2000].</p> <p><b>DW.35.2.</b> Community water systems are required to meet specific MCLs for microbiological contaminants (40 CFR 141.63) [Revised July 2000].</p>	<p>(NOTE: A community water system is a public water system that serves at least 15 service connections used by year round residents or regularly serves at least 25 year-round residents. Community water systems must also comply with the standards for public water systems.)</p> <p>Verify that combined radium-226 and radium-228 do not exceed 5 pCi/L.</p> <p>Verify that gross alpha particle radioactivity does not exceed 15 pCi/L.</p> <p>Verify that the average annual concentration of beta particles and photon radioactivity from manmade radionuclides does not produce an average dose rate equal to the total body or any internal organ greater than 4 mrem/ yr.</p> <p>Verify that the MCL of 4.0 mg/L for fluoride is not exceeded.</p> <p>Verify that the MCLs outlined in Appendix 2-1 and 2-2 are met.</p> <p>Verify that systems which collect at least 40 bacteriological samples per month have no more than 5 percent of the samples collected during a month that are total coliform positive.</p> <p>Verify that systems which collect less than 40 bacteriological samples per month have no more than one sample collected per month that is total coliform positive.</p> <p>Verify that there are no fecal coliform-positive repeat samples or <i>E. coli</i>-positive repeat samples, or any total coliform-positive repeat samples following a fecal coliform-positive or <i>E. coli</i>-positive routine sample.</p>



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<p><b>DW.35.3.</b> Community water systems are required to meet specific MCLs and MRDLs related to disinfection (40 CFR 141.64 and 141.65) [Added January 1999, Revised July 2000].</p>	<p>Verify that community water systems meet the MCL for disinfection by-products and the MRDLs outlined in Appendix 2-9.</p> <p>(NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 1 January 2002. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning January 1, 2004.)</p> <p>(NOTE: A system that is installing GAC or membrane technology to comply with MCL requirements may apply to the state for an extension of up to 24 mo past the compliance dates, but not beyond January 1, 2004. In granting the extension, states must set a schedule for compliance and may specify any interim measures that the system must take. Failure to meet the schedule or interim treatment requirements constitutes a violation of a National Primary Drinking Water Regulation.)</p>

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<p><b>COMMUNITY WATER SYSTEMS</b></p> <p><b>DW.40 Monitoring/Sampling</b></p> <p><b>DW.40.1.</b> Community water systems are required to meet specific monitoring requirements for inorganic contaminants (40 CFR 141.23(a)) [Revised April 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>Verify that groundwater systems:</p> <ul style="list-style-type: none"> <li>-take a minimum of one sample at every entry point to the distribution system that is representative of each well after treatment (a sampling point) beginning in the compliance period starting 1 January 1993</li> <li>-take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.</li> </ul> <p>Verify that surface water systems:</p> <ul style="list-style-type: none"> <li>-take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment (a sampling point) beginning in the compliance period starting 1 January 1993</li> <li>-takes each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.</li> </ul> <p>(NOTE: In relation to these requirements, surface water systems include systems with a combination of surface and ground sources.)</p> <p>Verify that if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions.</p> <p>(NOTE: The state may reduce the total number of samples that must be analyzed by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed if the detection limit of the method used for analysis is less than one-fifth the MCL and compositing is done in a laboratory.)</p>

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<p><b>DW.40.2.</b> Facilities with community water systems are required to meet specific monitoring requirements for asbestos (40 CFR 141.23(b)).</p>	<p>Verify that, if the concentration in a composite sample is greater than or equal to one-fifth of the MCL of any inorganic chemical, a followup sample is analyzed within 14 days from each sampling point included in the composite and analyzed for the contaminants which exceeded one-fifth of the MCL in the composite sample.</p> <p>(NOTE: Detection limits for each analytical methods and MCLs for each inorganic contaminant are listed in Appendix 2-3.)</p> <p>(NOTE: If duplicates of the original sample taken from each sampling point used in the composite sample are available, the system may use these instead of resampling. The duplicates must be analyzed and the results reported to the state within 14 days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.)</p> <p>Verify that, for groundwater systems, inorganic monitoring is repeated at least once every compliance period (every 3 yr), and samples are taken quarterly for at least two quarters if a MCL is violated.</p> <p>Verify that, for surface water systems, inorganic sampling is repeated annually and samples are taken quarterly for at least four quarters if an MCL is violated.</p> <p>(NOTE: The state may issue a waiver reducing the required monitoring.)</p> <p>Verify that asbestos is monitored during the first 3-yr compliance period of each 9-yr compliance cycle starting 1 January 1993.</p> <p>(NOTE: The facility may apply to the state for a waiver of monitoring if they believe that asbestos is not an issue.)</p> <p>Verify that, if the system is vulnerable to asbestos contamination only because of corrosion of asbestos-cement pipe, one sample is taken at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.</p> <p>Verify that, if the system is vulnerable to asbestos contamination due to both its source water supply and corrosion of asbestos-cement pipe, one sample is taken at a tap served by asbestos-cement pipe and under conditions where contamination is most likely to occur.</p> <p>Verify that, when the MCL is exceeded, monitoring is done quarterly.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.40.3.</b> Facilities with community water systems are required to meet specific monitoring requirements for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium (40 CFR 141.23(c)).</p> <p><b>DW.40.4.</b> All community water systems are required to conduct monitoring to determine compliance for nitrate and nitrite levels according to specific parameters (40 CFR 141.23(d) and 141.23 (e)).</p>	<p>Verify that monitoring is done as follows:</p> <ul style="list-style-type: none"> <li>- groundwater systems: take one sample at each sampling point during each compliance period</li> <li>- surface water systems (or combined surface/ground): take one sample annually at each sampling point</li> <li>- when MCLs are exceeded, monitoring is done quarterly.</li> </ul> <p>(NOTES: States may grant a public water system a waiver for the monitoring of cyanide.)</p> <p>Verify that the following schedules are met for monitoring of nitrate:</p> <ul style="list-style-type: none"> <li>- community water systems served by groundwater monitor annually starting 1 January 1993</li> <li>- community water systems served by surface water monitor quarterly starting 1 January 1993.</li> </ul> <p>Verify that, when the MCL for nitrate is exceeded, community water systems do repeat monitoring quarterly for at least 1 yr following any one sample in which the concentration exceeds more than 50 percent of the MCL.</p> <p>(NOTE: After the initial round of quarterly sampling is completed, each community system which is monitoring annually shall take the subsequent samples during the quarters which previously resulted in the highest analytical result.)</p> <p>Verify that public water systems take one sample at each sampling point in the compliance period beginning 1 January 1993 and ending 31 December 1995 for nitrite.</p> <p>(NOTE: After the initial sample, systems where an analytical result for nitrite is less than 50 percent of the MCL will monitor at the frequency specified by the state.)</p> <p>Verify that community systems repeat monitoring for nitrites quarterly for at least 1 yr after any one sample is greater than 50 percent of the MCL.</p> <p>Verify that systems, which are monitoring annually for nitrites, take each subsequent sample during the quarters which previously resulted in the highest analytical result.</p>

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<p><b>DW.40.5.</b> Beginning with the initial compliance period, monitoring of the contaminants listed in Table 2 of Appendix 2-1 at community water systems is required to be done according to specific parameters (40 CFR 141.24(f)).</p>	<p>Verify that, when nitrate or nitrite samples indicate an exceedance of the MCL, a confirmation sample is taken within 24 h of receipt of the results.</p> <p>(NOTE: If the system is unable to take a confirmation sample within 24 h, it must notify consumers of the exceedance.)</p> <p>Verify that groundwater systems take a minimum of one sample at every entry point of the distribution system which is representative of each well after treatment.</p> <p>Verify that surface water systems (or combined surface/ground) take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment.</p> <p>(NOTE: For both groundwater and surface water systems, each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.)</p> <p>Verify that, if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions.</p> <p>Verify that each community water system takes four consecutive quarterly samples for each contaminant, except vinyl chlorides.</p> <p>(NOTE: If the initial monitoring for contaminants is completed by December 1992 and none of the contaminants listed are found, then each system shall take one sample annually starting with the initial compliance period.)</p> <p>(NOTE: After a minimum of 3 yr of sampling, the state may reduce the number of samples to one each compliance period.)</p> <p>Verify that, if a contaminant, except vinyl chloride, is detected at a level exceeding 0.0005 mg/L in any sample, the system monitors quarterly at each sampling point which resulted in a detection.</p> <p>Verify that groundwater systems which have detected one or more of the following two-carbon organic compounds; trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.40.6.</b> Monitoring for organic contaminants listed in Table 3 of Appendix 2-1 at community water systems is required to be done according to specific parameters (40 CFR 141.24(h)).</p>	<p>dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene monitor quarterly for vinyl chlorides at each sampling point at which one or more of the two-carbon organic compounds was detected.</p> <p>Verify that, when the MCLs are exceeded, monitoring is conducted quarterly until the state determines that the system is reliably and consistently below the MCL.</p> <p>Verify that groundwater systems take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment.</p> <p>Verify that surface water systems (or surface/ground) take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment.</p> <p>(NOTE: For both groundwater and surface water systems, each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.)</p> <p>Verify that, if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions.</p> <p>Verify that each community water system takes four consecutive quarterly samples for each contaminant during each compliance period starting with the initial compliance period.</p> <p>(NOTE: Systems serving more than 3300 persons, that do not detect a contaminant in the initial compliance period, may reduce sampling to two quarterly samples in 1 yr during each repeat compliance period.)</p> <p>(NOTE: Systems serving less than or equal to 3300 person, that do not detect a contaminant in the initial compliance period, may reduce sampling to one sample during each repeat compliance period.)</p> <p>Verify that, when an organic contaminant is detected (see Appendix 2-4), the system monitors quarterly at each sampling point that resulted in a detection.</p>

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<p><b>DW.40.7.</b> Community systems are required to monitor for specific unregulated contaminants (40 CFR 141.35 and 141.40(a)(1), 141.40(a)(4) through 141.40(a)(7)) [Revised April 2000].</p>	<p>Verify that, if monitoring results in detection of one or more of aldicarb, aldicarb sulfone, aldicarb sulfoxide, heptachlor, and heptachlor epoxide, then subsequent monitoring analyzes for all related contaminants.</p> <p>(NOTE: The state may reduce the number of samples required and/or the frequency of sampling.)</p> <p>Verify that a wholesale or retail public water system that serves more than 10,000 persons, as determined by the state, and does not purchase their entire water supply from another public water system, monitors as follows:</p> <ul style="list-style-type: none"> <li>- for the unregulated contaminants on Table 1 of Appendix 2-5</li> <li>- for the unregulated contaminants on Table 2 of Appendix 2-5 if notified by the state or EPA that the system is part of the Screening Surveys</li> <li>- for the unregulated contaminants on Table 3 of Appendix 2-5 if notified by the state or EPA that you are part of the Pre-Screen Testing</li> </ul> <p>Verify that a wholesale or retail public water system that serves more than 10,000 persons, as determined by the state, and does purchase their entire water supply from another public water system, monitors as follows:</p> <ul style="list-style-type: none"> <li>- for the unregulated contaminants on Table 1 of Appendix 2-5 that have a "sampling location" indicated as "distribution system"</li> <li>- for the unregulated contaminants on Table 2 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if notified by the state or EPA that system is a part of the Screening Surveys</li> <li>- for the unregulated contaminants on Table 3 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if notified by the state or EPA that the system is a part of the Pre-Screen Testing.</li> </ul> <p>Verify that a water system that serves 10,000 or fewer persons that does not purchase their entire water supply from another public water system monitors as follows:</p> <ul style="list-style-type: none"> <li>- for the unregulated contaminants on Table 1 of Appendix 2-5 if the system is notified by the state or EPA that they are part of the State Monitoring Plan for small systems</li> </ul>

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- for the unregulated contaminants on Table 2 of Appendix 2-5 if the system is notified by the state or EPA that they are part of the Screening Surveys
- for the unregulated contaminants on Table 3 of Appendix 2-5 if the system is notified by the state or EPA that they are part of the Pre-Screen Testing.

Verify that a water system that serves 10,000 or fewer persons and purchases their entire water supply from a wholesale public water system monitors as follows:

- for the unregulated contaminants on Table 1 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if the system is notified by the State or EPA that they are part of the State Monitoring Plan for small systems
- for the unregulated contaminants on Table 2 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if the system is notified by the State or EPA that they are part of the Screening Surveys
- for the unregulated contaminants on Table 3 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if the system is notified by the State or EPA that they are part of the Pre-Screen Testing.

Verify that for Table 1, Appendix 2-5, monitoring is conducted as follows for all community water systems:

- collect samples of the listed contaminants according to the 40 CFR 141.40(a)(5) and appendix A of 40 CFR 141.40 and any other specific instructions provided by the state or EPA
- analyze the additional parameters specified in Table 4 of Appendix 2-5, "Water Quality Parameters to be Monitored with UCMR Contaminants" for each relevant contaminant type
- review the laboratory testing results to ensure reliability
- report the results as specified in 40 CFR 141.35.

Verify that, for large systems, arrangements are made for testing of the samples for each contaminant in Table 1 of Appendix 2-5 according to the methods specified in Appendix A of 40 CFR 141.40.

Verify that, for small systems, unless directed otherwise by the state or EPA, the following are also done:

- properly receive, store, maintain and use the sampling equipment sent from the laboratory designated by EPA



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- sample at the times specified by the state or the EPA
- collect and pack samples in accordance with the instructions sent by the laboratory designated by EPA
- send the samples to the laboratory designated by EPA.

Verify that, unless the state or EPA informs the system of other sampling arrangements, all community water systems meet the following:

- if shipping the samples for testing, collect the samples early enough in the day to allow adequate time to send the samples for overnight delivery to the laboratory since some samples must be processed at the laboratory within 30 h of collection
- do not collect samples on Friday, Saturday or Sunday because sampling on these days would not allow samples to be shipped and received at the laboratory within 30 h
- do not composite (that is, combine, mix or blend) the samples, collect, preserve and test each sample separately
- after receiving the laboratory results, review and confirm the system information and data regarding sample collection and test results
- report the results as provided in 40 CFR 141.35.

Verify that large systems collect, analyze, and test samples according to the timeframes, frequencies, methodologies in Table 1 of Appendix 2-5.

(NOTE: If a sample is not collected according to the specified procedures for a listed contaminant, resampling must be done within 14 days of observing the occurrence of the error (which may include notification from the laboratory that resample must be done) following the procedures specified for the method.)

Verify that, unless otherwise directed by the State or EPA, small systems:

- collect samples at the times specified for you by the state or EPA, within one 12-mo period during the years indicated in Table 1, Appendix 2-5 and according to the frequency in Table 5, Appendix 2-5
- collect samples at the locations specified by the state or EPA.
- report when a sample is not collected according to provided instructions
- store and maintain the sample collection kits sent by EPA's designated laboratory in a secure place until used for sampling.

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	<ul style="list-style-type: none"> <li>- comply with the instructions sent by the state or EPA concerning the use of containers, collection (how to fill the sample bottle), dechlorination and/or preservation, and sealing and preparing the sample and shipping containers for shipment</li> <li>- comply with the instructions sent to you by EPA's designated laboratory concerning the handling of sample containers for specific contaminants</li> <li>- completely fill out the sampling forms</li> <li>- sign and date the sampling forms.</li> <li>- send the samples and the sampling forms to the laboratory designated in your instructions.</li> </ul> <p>Verify that, if the system is selected as an Index system in the State Monitoring Plan, the system assists the state or EPA in identifying appropriate sampling locations and provides information on which wells and intakes are in use at the time of sampling, well casing and screen depths (if known) for those wells, and the pumping rate of each well or intake at the time of sampling.</p> <p>Verify that, if a large system is selected for the Screening Surveys or Pre-Screen Testing, the system:</p> <ul style="list-style-type: none"> <li>- collects and arranges for testing of the contaminants in Table 2 and Table 3 of Appendix 2-5</li> <li>- sends the samples to one of the laboratories designated by EPA in the notification</li> <li>- report the test results to EPA, and provide a copy to the State, as specified in 40 CFR 141.35.</li> </ul> <p>Verify that, if a small system is selected for the Screening Surveys or Pre-Screen Testing, the system collects samples in accordance with the instructions sent by the state or EPA, or, if informed by the State or EPA that the state or EPA will collect the sample, you must assist the State or EPA in identifying the appropriate sampling locations and in taking the samples.</p> <p>(NOTE: EPA will report the test results to you and the State.)</p>

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<p><b>DW.40.8.</b> The reporting of unregulated contaminant monitoring results must be done according to certain parameters by community water systems (40 CFR 141.35) [Revised April 2000].</p>	<p>(NOTE: Community water systems serving a population of 10,000 or less are not required to report since EPA will arrange for testing and reporting of the results. However, the system will still need to comply with consumer confidence reporting and public notification requirements for these results.)</p> <p>Verify that the results of the unregulated contaminant monitoring (see checklist items DW.40.7) are provided to EPA and a copy to the state.</p> <p>Verify that results are reported within 30 days following the month in which the system received the results from the laboratory.</p> <p>(NOTE: USEPA will place the data in the national drinking water contaminant occurrence database 60 days after the data is reported to allow for quality control review by systems and states.)</p> <p>Verify that the report includes information for each sample, and for each spiked sample and spike duplicate sample analyzed for quality control purposes and associated with each sample and its sample batch.</p> <p>(NOTE: See Appendix 2-5a for details on the report content.)</p> <p>Verify that the information is reported in the electronic or other format specified by USEPA.</p> <p>(NOTE: The laboratory to which samples were sent can report the results for the system as long as the laboratory sends the system a copy for review and recordkeeping. However, the system is responsible for the reporting of the information and ensuring that the laboratory reports these results to EPA, with a copy to the state, on time.)</p> <p>(NOTE: Previously collected data can be reported for the unregulated contaminants as long as the data meets the requirements detailed in 40 CFR 141.40 (see checklist item DW.40.7.)</p>

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<p><b>DW.40.9.</b> Community water systems, except as defined as exempted water systems, are required to monitor for total coliforms at a frequency based on the population served by the system (40 CFR 141.21(a)(2) and 141.21(a)(4)).</p>	<p>Verify that the facility's community water systems is sampling according to the schedule in Appendix 2-6.</p> <p>Verify that samples are collected at regular time intervals throughout the month;</p> <p>(NOTE: A system which uses only groundwater (except groundwater under the direct influence of surface water) and serves 4900 persons or fewer may collect all required samples in a single day if they are taken from different sites.)</p>
<p><b>DW.40.10.</b> Checklist item deleted [Deleted July 2000].</p>	<p>Deleted as a result of USEPA review of this section.</p>
<p><b>DW.40.11.</b> Community water systems are required to monitor for radioactivity (40 CFR 141.25 and 141.26) [Revised July 2000].</p>	<p>Verify that compliance for standards of gross alpha particle activity, radium-226, and radium-228 are based on an annual composite of four consecutive samples that are obtained at quarterly intervals or the average of the analyses of four samples obtained at quarterly intervals.</p> <p>(NOTE: A gross alpha particle activity measurement may be substituted for the required radium-226 and radium-228 analysis if the measured gross alpha particle activity does not exceed 5 pCi/L at a confidence level of 95 percent.)</p> <p>Verify that when the gross alpha particle activity exceeds 5 pCi/L the same or an equivalent sample is analyzed for radium-226 and if the concentration of radium-226 exceeds 3 pCi/L, the same or equivalent sample is analyzed for radium-228.</p> <p>Verify that suppliers of water monitor for gross alpha particle activity, radium-226 and radium-228 every 4 yr and within 1 yr of the introduction of a new water source for a community water system.</p> <p>(NOTE: The state may order additional samples, waive required samples and impose additional requirements.)</p> <p>Verify that if the MCL for gross alpha particle activity or total radium is exceeded and the facility is the supplier of a community water system, the installation notifies the state and the public of the exceedance.</p>

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<p><b>DW.40.12.</b> Community water systems that add a disinfectant to the water are required to analyze for TTHM (40 CFR 141.30) [Revised January 1999, Revised July 2000].</p> <p><b>DW.40.13.</b> Suppliers of water for community public water systems are required to analyze for sodium (40 CFR 141.41).</p>	<p>Verify that systems using surface water sources and serving more than 100,000 persons are initially monitored quarterly for compliance with manmade radioactivity limitations and after the initial analysis, monitoring is done at least every 4 yr.</p> <p>Verify that suppliers of any community water system using waters contaminated by nuclear facilities initiate quarterly monitoring for gross beta particle and iodine-131 radioactivity and annual monitoring for strontium-90 and tritium.</p> <p>(NOTE: The minimum number of samples required is based on the number of treatment plants used by the system.)</p> <p>Verify that community water systems serving a population of 10,000 or more individuals that add a disinfectant to the water and use surface water sources or only groundwater sources analyze for total TTHM on a quarterly basis on at least four samples.</p> <p>(NOTE: The state may reduce monitoring frequency.)</p> <p>(NOTE: These requirements apply to community water systems that are required to perform disinfection/filtration and that serve a population of 10,000 or more until 1 January 2002. The requirements also apply to community water systems that use only groundwater not under the direct influence of surface water that add a disinfectant (oxidant) in any part of the treatment process and serve a population of 10,000 or more until 1 January 2004. After 1 January 2004, this is no longer applicable.)</p> <p>Verify that one sample is taken per plant at the entry point of the distribution system annually for systems using surface water in whole or in part and every 3 yr for systems using solely groundwater sources.</p> <p>Verify that the results of the sampling were reported to the USEPA and/or state within 10 days following the end of the required monitoring period or within the first 10 days of the month following the month in which the sample was taken.</p>

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<p><b>DW.40.14.</b> Community water systems are required to identify whether certain construction materials are present in their distribution system and report to the state (40 CFR 141.42(d)) [Revised July 2000].</p> <p><b>DW.40.15.</b> Community water systems that add a chemical disinfectant to the water in any part of the drinking water process or supply water containing a chemical disinfectant are required to meet specific monitoring requirements for disinfection byproducts and disinfection byproduct precursors (DBPP).(40 CFR 141.130(a)(1), 141.130(b), 141.131, 141.132(a), 141.132(b), and 141.132(d)) [Added January 1999, Revised July 2000]</p>	<p>Verify that the community water supply system identifies whether the following construction materials are present in their distribution system and reports to the state:</p> <ul style="list-style-type: none"> <li>- lead from piping, solder, caulking, interior lining of distribution mains, alloys, and home plumbing</li> <li>- copper from piping and alloys, service lines, and home plumbing</li> <li>- galvanized piping, service lines, and home plumbing</li> <li>- ferrous piping materials such as cast iron and steel</li> <li>- asbestos cement pipe.</li> </ul> <p>(NOTE: States may require identification and reporting of other materials.)</p> <p>((NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 1 January 2002. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning 1 January 2004.)</p> <p>Verify that all samples are taken during normal operating conditions and according to the required monitoring plan.</p> <p>(NOTE: Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, if the state approves.)</p> <p>Verify that monitoring for TTHM and HAA5 is done at the frequency, either routine or reduced as appropriate, outlined in Appendix 2-10.</p> <p>Verify that sample analysis is done using appropriate methodology.</p> <p>Verify that, for systems on a reduced monitoring schedule, the average of all samples taken in the year (for systems that must monitor quarterly) or the result of the sample (for systems that must monitor no more frequently than annually) is no more than 0.060 mg/L for TTHMs and 0.045 mg/L HAA5.</p> <p>Verify that, if the required averages for systems on a reduced monitoring schedule are not met, the system returns to routine monitoring in the quarter immediately following the quarter in which the system exceeded the required averages.</p>

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	<p>(NOTE: The state may return a system to routine monitoring at the state's discretion.)</p> <p>Verify that community water systems using chlorine dioxide, for disinfection or oxidation, perform the following monitoring:</p> <ul style="list-style-type: none"> <li>- daily samples at the entrance to the distribution system plus, when the daily sample exceeds the chlorite MCL, three additional samples in the distribution system the following day at the entrance to the distribution system, as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible</li> <li>- a monthly three-sample set in the distribution system near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system.</li> </ul> <p>Verify that daily chlorite monitoring at the entrance to the distribution system is not reduced.</p> <p>(NOTE: Monthly chlorite monitoring in the distribution system may be reduced to one three-sample set per quarter after 1 yr of monitoring where no individual chlorite sample taken in the distribution system exceeds the chlorite MCL and the system has not been required to conduct additional monitoring in response to a exceedance in the daily samples. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system exceeds the chlorite MCL or the system is required to conduct additional monitoring in response to a exceedance in the daily samples.)</p> <p>Verify that systems using ozone, for disinfection or oxidation, take one sample per month for each treatment plant in the system using ozone at the entrance to the distribution system, while the ozonation system is operating under normal conditions.</p> <p>(NOTE: Systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is &lt; 0.05 mg/L based upon representative monthly bromide measurements for 1 yr. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is <math>\geq</math> 0.05 mg/L based upon</p>

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<p><b>DW.40.16.</b> Community water systems that add a chemical disinfectant to the water in any part of the drinking water process or distribute supply water containing a chemical disinfectant are required to meet specific monitoring requirements for disinfection residuals (40 CFR 141.130(a)(1), 141.130(b), 141.131, 141.132(a)(1), and 141.132(c)). [Added January 1999, Revised July 2000].</p>	<p>representative monthly measurements. If the running annual average source water bromide concentration is <math>\geq 0.05</math> mg/L, the system must resume routine monitoring.)</p> <p>Verify that Subpart H systems that use conventional filtration treatment monitor for TOC no later than the point of combined filter effluent turbidity monitoring and representative of the treated water.</p> <p>Verify that all systems using conventional filtration also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water.</p> <p>(NOTE: These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.)</p> <p>(NOTE: Subpart H systems with an average treated water TOC of less than 2.0 mg/L for 2 consecutive years, or less than 1.0 mg/L for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC <math>\geq 2.0</math> mg/L.)</p> <p>(NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 1 January 2002. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning 1 January 2004.)</p> <p>Verify that all samples are taken during normal operating conditions and according to the required monitoring plan.</p> <p>Verify that sample analysis is done using appropriate methodology.</p> <p>Verify that systems using chlorine and/or chloramines measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled.</p>



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<p><b>DW.40.17.</b> Community water systems that add a chemical disinfectant to the water in any part of the drinking water process are required to have a monitoring plan (40 CFR 141.130(a)(1), 141.130(b), 141.131, 141.132(a), and 141.132(f)) [Added January 1999, Revised July 2000].</p>	<p>(NOTE: Subpart H systems may use the results of residual disinfectant concentration sampling conducted under 40 CFR 141.74(b)(6)(i) for unfiltered systems or 40 CFR 141.74(c)(3)(i) for systems that filter, in lieu of taking separate samples.)</p> <p>Verify that monitoring is not reduced when using chlorine and/or chloramine.</p> <p>Verify that systems using chlorine dioxide for disinfection or oxidation take daily samples at the entrance to the distribution system.</p> <p>(NOTE: When a daily chlorine dioxide sample exceeds the MRDL, samples are required to be taken in the distribution system the following day at the entrance to the distribution system plus three additional chlorine dioxide distribution samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system must take three samples as close to the first customer as possible, at intervals of at least 6 h. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible,)</p> <p>Verify that monitoring is not reduced when using chlorine dioxide.</p> <p>(NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 1 January 2002. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning 1 January 2004.)</p> <p>Verify that the system has developed and maintains a monitoring plan.</p> <p>(NOTE: The plan must be made available for inspection by the state and the general public no later than 30 days following applicable compliance dates.)</p> <p>Verify that all Subpart H systems serving more then 3300 people submit a copy of the plan to the state .</p>

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Verify that the plan includes, at a minimum:

- specific locations and schedules for collecting samples for any required parameters
- how the system will calculate compliance with MCLs, MRDLs, and treatment techniques
- if approved for monitoring as a consecutive system, or as providing water to a consecutive system, the plan reflects the entire distribution system.



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>COMMUNITY WATER SYSTEMS</b></p> <p><b>DW.45 Notifications</b></p> <p><b>DW.45.1.</b> Community water systems that exceed the secondary MCL of 2.0 mg/L for fluoride but not the MCL of 4.0 mg/L are required to notify specific individuals (40 CFR 143.5).</p> <p><b>DW.45.2.</b> Community water systems are required to deliver to their customers annual consumer confidence reports (40 CFR 141.151 through 141.155) [Added October 1998, Revised September 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>Verify that notice has been provided to the following:</p> <ul style="list-style-type: none"> <li>- all billing units annually</li> <li>- all new billing units at the time service begins</li> <li>- the state public health officer.</li> </ul> <p>(NOTE: A copy of the text of the notice is found in 40 CFR 143.5(b).)</p> <p>Verify that the community water system delivers annual consumer confidence reports to their customers.</p> <p>Verify that the reports contain information on the quality of the water delivered by the systems and characterize the risks (if any) from exposure to contaminants detected in the drinking water in an accurate and understandable manner.</p> <p>Verify that one copy is delivered to each customer and the reports are made available to the public upon request.</p> <p>Verify that, no later than the date the system is required to distribute the report to its customers, each community water system mails a copy of the report to the primacy agency, followed within 3 mo by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the primacy agency.</p> <p>Verify that, no later than the date the system is required to distribute the report to its customers, each community water system delivers the report to any other agency or clearinghouse identified by the primacy agency.</p> <p>Verify that each community water system serving 100,000 or more persons posts its current year's report to a publicly-accessible site on the Internet.</p>

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<p><b>DW.45.3.</b> When a community water system is required to submit a notice, the notice is required to be provided according to specific parameters (40 CFR 141.203(c)(1), 141.204(c)(1), 141.204(d), and 141.206(a), [Added September 2000].</p>	<p>Verify that the community water system keeps copies of the report for no less than 3 yr.</p> <p>(NOTE: See Appendix 2-6a for information on the contents of the report.)</p> <p>(NOTE: Each existing community water system must deliver its first report by 19 October 1999, its second report by 1 July 2000, and subsequent reports by 1 July annually thereafter. The first report must contain data collected during, or prior to, calendar year 1998. Each report thereafter must contain data collected during, or prior to, the previous calendar year. A new community water system must deliver its first report by 1 July of the year after its first full calendar year in operation and annually thereafter. A community water system that sells water to another community water system must deliver the applicable required information to the buyer system: no later than 19 April 1999, by 1 April 2000, and by 1 April annually thereafter; or on a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.)</p> <p>(NOTE: Public water systems in States with primacy for the public water system supervision (PWSS) program must comply with these requirements no later than 6 May 2002 or on the date the State-adopted rule becomes effective, whichever comes first. Public water systems in jurisdictions where USEPA directly implements the PWSS program must comply with these requirements on 31 October 2000. Prior to these dates, public water systems must continue to comply with the public notice requirements in 40 CFR 141.32 (see checklist item DW.30.2.)</p> <p>Verify that, unless directed otherwise by the primacy agency in writing, community water systems provide Tier 2 notice by:</p> <ul style="list-style-type: none"> <li>-mail or other direct delivery to each customer receiving a bill and to other service connections to which water is delivered by the public water system</li> <li>-any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by the notice.</li> </ul> <p>(NOTE: Persons who might not normally be reached by the Tier 2 notice may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include: publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.45.4.</b> When a community water system is required to provide special notices on the availability of unregulated contaminant monitoring results or exceedances of the SMCL for fluoride, specific parameters must be met (40 CFR 141.207 and 141.208 <b>[Added September 2000]</b>).</p>	<p>water to others (e.g., apartment building owners or large private employers); posting in public places served by the system or on the Internet; or delivery to community organizations.)</p> <p>(NOTE: See checklist item DW.30.8 for additional information on Tier 2 notices and DW.30.9 for additional information on Tier 3 notices.)</p> <p>(NOTE: For community water systems, the Consumer Confidence Report (CCR) may be used as a vehicle for the initial Tier 3 public notice and all required repeat notices, as long as:</p> <ul style="list-style-type: none"> <li>-the CCR is provided to persons served no later than 12 mo after the system learns of the violation or situation</li> <li>-the Tier 3 notice contained in the CCR follows the content requirements under 40 CFR 141.205 (see checklist item DW.30.10)</li> <li>-the CCR is distributed following the delivery requirements in this checklist item.)</li> </ul> <p>Verify that community water systems give a copy of the most recent public notice for any continuing violation, the existence of a variance or exemption, or other ongoing situations requiring a public notice to all new billing units or new customers prior to or at the time service begins.</p> <p>Verify that the owner or operator of a community water system required to monitor under 40 CFR 141.40 (see checklist item DW.40.7) notifies persons served by the system of the availability of the results of unregulated contaminant sampling no later than 12 mo after the monitoring results are known.</p> <p>Verify that the form and manner of the public notice follows the requirements for a Tier 3 public notice prescribed in 40 CFR 141.204(c), (d)(1), and (d)(3) (see checklist item DW.45.3) and identifies a person and provide the telephone number to contact for information on the monitoring results.</p> <p>Verify that community water systems that exceed the fluoride secondary maximum contaminant level (SMCL) of 2 mg/l as determined by the last single sample taken, but do not exceed the MCL of 4 mg/l for fluoride, provide the public notice to persons served as soon as practical but no later than 12 mo from the day the water system learns of the exceedance.</p>

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Verify that a copy of the notice is also sent to all new billing units and new customers at the time service begins and to the State public health officer.

Verify that the public water system repeats the notice at least annually for as long as the SMCL is exceeded.

(NOTE: If the public notice is posted, the notice must remain in place for as long as the SMCL is exceeded, but in no case less than seven days (even if the exceedance is eliminated). On a case-by-case basis, the primacy agency may require an initial notice sooner than 12 mo and repeat notices more frequently than annually.)

Verify that the form and manner of the public notice (including repeat notices) follows the requirements for a Tier 3 public notice in 40 CFR 141.204(c) and (d)(1) and (d)(3) (see checklist item WQ.45.3).

Verify that the notice contains the following language, including the language necessary to fill in the blanks:

*This is an alert about your drinking water and a cosmetic dental problem that might affect children under nine years of age. At low levels, fluoride can help prevent cavities, but children drinking water containing more than 2 milligrams per liter (mg/l) of fluoride may develop cosmetic discoloration of their permanent teeth (dental fluorosis). The drinking water provided by your community water system [name] has a fluoride concentration of [insert value] mg/l.*

*Dental fluorosis, in its moderate or severe forms, may result in a brown staining and/or pitting of the permanent teeth. This problem occurs only in developing teeth, before they erupt from the gums. Children under nine should be provided with alternative sources of drinking water or water that has been treated to remove the fluoride to avoid the possibility of staining and pitting of their permanent teeth. You may also want to contact your dentist about proper use by young children of fluoride-containing products. Older children and adults may safely drink the water.*

*Drinking water containing more than 4 mg/L of fluoride (the U.S. Environmental Protection Agency's drinking water standard) can increase your risk of developing bone disease. Your drinking water does not contain more than 4 mg/l of fluoride, but we're required to notify you when we discover that the fluoride levels in your drinking water exceed 2 mg/l because of this cosmetic dental problem.*

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*For more information, please call [name of water system contact] of [name of community water system] at [phone number]. Some home water treatment units are also available to remove fluoride from drinking water. To learn more about available home water treatment units, you may call NSF International at 1-877-8-NSF-HELP."*





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**COMMUNITY WATER  
SYSTEMS**

**DW.50  
Lead and Copper**

**DW.50.1.** Community water systems must educate their users about lead in drinking water systems (40 CFR 141.85(c)(1) through 141.85(c)(3), 141.85(c)(6) through 141.85(c)(8), and 141.90(f)) [Revised April 2000].

Verify that public education materials are distributed in the following manner when a water system exceeds the lead action level based on tap water samples:

- the material is in the appropriate languages where languages other than English are spoken by a significant proportion of the population
- within 60 days after exceeding the lead action level on the basis of tap water samples collected in accordance with 40 CFR 141.86:
  - notices are inserted in each customer's water utility bill containing the information in paragraph 141.85(a)(1), along with the following alert on the water bill itself in large print: "SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION"
  - submit the information in 141.85(a)(1) to the editorial departments of the major daily and weekly newspapers circulated throughout the community
  - deliver pamphlets and/or brochures that contain the public education materials in 40 CFR 141.85(a)(1)(ii) and 141.85(a)(1)(iv) to facilities and organizations, including the following:
    - public schools and/or local school boards
    - city or county health department
    - women, infants, and children and/or Head Start Programs whenever available
    - public and private hospitals and/or clinics
    - pediatricians
    - family planning clinics
    - local welfare agencies
  - submit public service announcements to at least five of the radio and television stations with that largest audiences that broadcast to the community served by the water system.

(NOTE: A community water system having a billing cycle that does not include a billing within 60 days of exceeding the action level, or

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	<p>that cannot insert information in the water utility bill without making major changes to its billing system, may use a separate mailing to deliver the information in 40 CFR 141.85(a)(1) as long as the information is delivered to each customer within 60 days of exceeding the action level. Such water systems shall also include the "alert" language.)</p> <p>(NOTE: The text of written materials and broadcast materials can be found in 40 CFR 141.85(a) and 141.85(b).)</p> <p>Verify that the customer notification task, the submission of information to editorial departments, and the delivery of pamphlets and/or brochures is repeated every 12 mo.</p> <p>Verify that the submission of a public service announcement is done every 6 mo for as long as a community water system exceeds the lead action level.</p> <p>(NOTE: A water system may discontinue delivery of public education materials if the system has met the lead action level during the most recent 6 mo monitoring period.)</p> <p>Verify that, any water system subject to the public education requirements sends written documentation to the state that contains the following information within 10 days after the end of each period in which the system is required to perform public education tasks:</p> <ul style="list-style-type: none"> <li>- a demonstration that the system has delivered the public education materials that meet the content requirements and the delivery requirements</li> <li>- a list of all the newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.</li> </ul> <p>(NOTE: Unless required by the state, a system that previously has submitted the required information to the state, need not resubmit the information as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.)</p> <p>(NOTE: A community water system serving 3,300 or fewer people may omit the submission of a public service announcement as long as it distributes notices in each water bill to every household served by</p>

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<p><b>DW.50.2.</b> Community water systems are required to meet specific standards for lead and copper action levels and reporting requirements when these levels are exceeded (40 CFR 141.80(a)(1) and 141.80(c)).</p> <p><b>DW.50.3.</b> All water systems are required to install and operate optimal corrosion control (40 CFR 141.80(d) and 141.82).</p> <p><b>DW.50.4.</b> Systems that exceed the lead or copper action level are required to implement applicable source water treatment standards (40 CFR 141.80(e) and 141.83).</p>	<p>the system. Community water systems serving 3,300 or fewer people may further limit their public education programs as follows:</p> <ul style="list-style-type: none"> <li>- systems serving 500 or fewer people may forego the submissions to editorial departments and limit the distribution of the required pamphlets and brochures to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children, unless it is notified by the state in writing that it must make a broader distribution</li> <li>- if approved by the state in writing, a system serving 501 to 3,300 people may omit the submissions to editorial departments and limit the distribution of the required pamphlets and brochures to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.</li> </ul> <p>A community water system serving 3,300 or fewer people that delivers public education in accordance with this NOTE shall repeat the required public education tasks at least once during each calendar year in which the system exceeds the lead action level.)</p> <p>Verify that the concentration of lead does not exceed 0.015 mg/L in more than 10 percent of tap water samples collected during any monitoring period.</p> <p>Verify that the concentration of copper does not exceed 1.3 mg/L in more than 10 percent of tap water samples collected during any monitoring period.</p> <p>Verify that the water system has corrosion control that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any of the national primary drinking water standards.</p> <p>(NOTE: Please see 40 CFR 141.81 for design details for corrosion control systems in relationship to the size of the water system.)</p> <p>Verify that systems exceeding the lead or copper action level do lead and copper source water monitoring and make a treatment recommendation to the state within 6 mo after exceeding the lead or copper action level.</p>

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<p><b>DW.50.5.</b> Facilities with water systems exceeding the lead action level after implementation of corrosion control and source water treatment requirements are required to replace lead service lines (40 CFR 141.80(f) and 141.84).</p> <p><b>DW.50.6.</b> Monitoring for lead and copper at community water systems is required to start on a specified date and be done at a specified number of sites according to the chart in Appendix 2-7 (40 CFR 141.80(h), 141.86(a)(1) through 141.86(a)(5), 141.86(a)(8), 141.86(c), 141.86(d) through 141.86(g)) [May 1996, Revised July 2000].</p>	<p>Verify that, if the state requires the installation of source water treatment, the installation is done within 24 mo after the states initial response.</p> <p>Verify that followup tap water monitoring and source water monitoring is completed within 36 mo after the state's initial response.</p> <p>Verify that lead service line replacement is done according to the schedules and parameters outlined in 40 CFR 141.84.</p> <p>(NOTE: A system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line is less than or equal to 0.015 mg/L.)</p> <p>(NOTE: Replacement of lead service lines can stop when the first draw samples that are collected meet the lead action levels during two consecutive monitoring periods and the system submits the results to the state.)</p> <p>Verify that water systems have completed a materials evaluation of its distribution system to identify a pool of targeted sampling sites and which is sufficiently large to ensure that the water system can collect the number of samples required.</p> <p>(NOTE: Sampling sites may not include point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.)</p> <p>(NOTE: See Appendix 2-7 for details on the required number of samples and when the sampling program is required to start.)</p> <p>Verify that selected sampling sites (tier 1 sampling sites) for community water systems consist of single family structures that have one or both of the following:</p> <ul style="list-style-type: none"> <li>- contain copper pipes with lead solder installed after 1982 or contain lead pipes</li> <li>- are served by a lead service line.</li> </ul> <p>(NOTE: When multiple family residences comprise at least 20 percent of the structure served by a water system, the system may include these types of structures in its sampling pool.)</p> <p>Verify that, if the community water system has insufficient tier 1 sampling sites, the sampling pool is completed with tier 2 sites that consist of buildings, including multiple family residences, that:</p>

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- contain copper pipes with lead solder installed after 1982 or contain lead pipes
- are served by a lead service line.

Verify that if the community water system has insufficient tier 1 and tier 2 sites, the sample is completed with tier 3 sites consisting of single family structures that contain copper pipes with lead solder installed before 1983.

Verify that, if the community water system has insufficient tier 1, tier 2, and tier 3 sampling sites, the community water system completes its sampling pool with representative sites throughout the distribution system.

(NOTE: A representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.)

Verify that any water system with a distribution system that contains lead service lines draws 50 percent of the samples from sites that contain lead pipes or copper pipes with lead solder, and 50 percent of the samples from sites served by a lead service line.

Verify that a water system that cannot identify a sufficient number of sampling sites served by a lead service line collects first-draw samples from all of the sites identified as being served by such lines.

(NOTE: See the text of 40 CFR 141.86(b) for details of sample collection methods.)

Verify that, for the initial tap sample, all large water systems monitor during two consecutive 6-mo periods.

Verify that all small and medium-sized water systems monitor during each 6-mo period until:

- the system exceeds the lead or copper action levels and is then required to implement corrosion control treatment
- the system meets the lead and copper action levels during two consecutive 6- mo monitoring periods.

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**DW.50.7.** All large water systems and all small and medium size systems that exceed the lead or copper action level are required to monitor for water quality parameters in addition to lead and copper (40 CFR 141.80(h) and 141.87).

(NOTE: A small or medium-sized water system that meets the lead and copper action levels during each of two consecutive 6-mo monitoring periods can reduce the frequency of sampling to once a year. If action levels are met during 3 consecutive years of monitoring, the frequency may be reduced to once every 3 yr.)

Verify that, for monitoring after the installation of corrosion control and source water treatment, large systems with optimal corrosion control by 1 January 1997 monitor during two consecutive 6-mo periods by 1 January 1998.

Verify that, for monitoring after the installation of corrosion control and source water treatment, small or medium-sized systems that install optimal corrosion control within 24 mo after being required to do so by the state, monitor during two consecutive 6- mo periods within 36 mo after being required to install optimal corrosion control treatment.

Verify that, for monitoring after the installation of corrosion control and source water treatment required by the state, all systems that install state required systems monitor during two consecutive months within 36 mo after the initial state requirement.

Verify that, after the state has specified water quality parameter values for optimal corrosion control, monitoring is done during each subsequent 6-mo monitoring period beginning when the state specified the optimal values.

(NOTE: See the text of 40 CFR 141.86(d)(4) for information on when a water system can implement reduced monitoring.)

(NOTE: Small water systems may be able to obtain a waiver from the state.)

Verify that monitoring for water quality parameters is done according to Appendix 2-8.

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<p><b>DW.50.8.</b> Community water systems that fail to meet the lead or copper action levels are required to meet specific monitoring requirements (40 CFR 141.80(h) and 141.88) [Reviewed July 2000, Revised July 2000].</p>	<p>Verify that groundwater systems that fail to meet the lead or copper action level on the basis of tap samples take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment (hereafter called a sampling point).</p> <p>Verify that the groundwater system takes one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.</p> <p>Verify that surface water systems that fail to meet the lead or copper action level on the basis of tap samples take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment (a sampling point).</p> <p>Verify that the surface water system takes each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.</p> <p>(NOTE: For the purposes of this checklist item, surface water systems include systems with a combination of surface and ground sources.)</p> <p>Verify that, if a system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).</p> <p>(NOTE: The state may reduce the total number of samples that must be analyzed by allowing the use of compositing.)</p> <p>Verify that, if compositing of samples is allowed, it is done by certified laboratory personnel.</p> <p>(NOTE: Composite samples from a maximum of five samples are allowed, provided that, if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration is greater than or equal to 0.160 mg/L, then either:</p> <ul style="list-style-type: none"> <li>- a follow-up sample shall be taken and analyzed within 14 days at each sampling point included in the composite; or</li> <li>- if duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.)</li> </ul>



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(NOTE: Where the results of sampling indicate an exceedance of maximum permissible source water levels, the state may require that one additional sample be taken as soon as possible after the initial sample was taken (but not to exceed 2 weeks) at the same sampling point.)

Verify that systems that exceed lead or copper action levels at the tap collect one source water sample from each entry point to the distribution system within 6 mo after the exceedance.

Verify that systems that install source water treatment as required by the state collects an additional source water sample from each entry point to the distribution system during two consecutive 6-mo monitoring periods.

Verify that the system monitors as follows when the state specifies maximum permissible source water levels:

- once during the 3-yr compliance period for water systems using only groundwater
- annually for water systems using surface water or a combination of surface and groundwater.

(NOTE: A water system using only groundwater may reduce the monitoring frequency for lead and copper in source water to once during each 9-yr compliance cycle if the system meets one of the following criteria:

- the system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the state during at least three consecutive compliance periods
- the State has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.)

(NOTE: A water system using surface water (or a combination of surface water and groundwater) may reduce the monitoring frequency to once during each 9-yr

compliance cycle if the system meets one of the following criteria:

- the system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the state for at least three consecutive years

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.50.9.</b> In reference to lead and copper in water systems, community water systems are required to report specific information to the state (40 CFR 141.90(a) through 141.90(e), 141.90(g), and 141.90(h)) [Reviewed July 2000, Revised July 2000].</p>	<ul style="list-style-type: none"> <li>- the state has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.)</li> </ul> <p>Verify that a water system reports the following information for all tap water samples specified in 40 CFR 141.86 (see checklist item DW.50.6) and for all water quality parameter samples specified in 40 CFR 141.87 (see checklist item DW.50.7) within the first 10 days following the end of each applicable monitoring period (i.e., every 6 mo, annually, every 3 yr, or every 9 yr):</p> <ul style="list-style-type: none"> <li>- the results of all tap samples for lead and copper, including the location of each site and the criteria under which the site was selected for the system's sampling pool</li> <li>- documentation for each tap water lead or copper sample for which the water system requests invalidation</li> <li>- the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, unless the state calculates the system's 90th percentile lead and copper levels</li> <li>- any site that was not sampled during previous monitoring periods and why the sampling sites have changed</li> <li>- the results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica</li> <li>- the results of all water samples collected at the entry points to the distribution system for applicable water quality parameters under 40 CFR 141.87(b) through 40 CFR 141.87(e)</li> <li>- the results of all water quality parameter samples collected during each 6-mo monitoring period within the first 10 days following the end of the monitoring period unless the state has specified a more frequent reporting requirement.</li> </ul> <p>Verify that, if the system is a facility, such as a prison or hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point-of-use devices, or the system provides water as part of the cost of services provided and does not separately charge for water consumption, one of the following is required when the system does not have enough taps that can provide first-draw samples:</p> <ul style="list-style-type: none"> <li>- provide written documentation to the state identifying standing times and locations for enough non-first-draw samples to make up</li> </ul>

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	<p>its sampling pool by the start of the first applicable monitoring period that commences after 11 April 2000, unless the state has waived prior state approval of non-first-draw sample sites selected by the system</p> <ul style="list-style-type: none"> <li>-if the state has waived prior approval of non-first-draw sample sites selected by the system, identify, in writing, each site that did not meet the 6-h minimum standing time and the length of standing time for that particular substitute sample collected and include this information with the lead and copper tap sample results required to be submitted.</li> </ul> <p>Verify that, no later than 60 days after the addition of a new source or any change in water treatment, unless the state requires earlier notification, a water system deemed to have optimized corrosion control, a water system subject to reduced monitoring, or a water system subject to a monitoring waiver, sends written documentation to the state describing the change.</p> <p>(NOTE: In those instances where prior state approval of the treatment change or new source is not required, water systems are encouraged to provide the notification to the state beforehand to minimize the risk the treatment change or new source will adversely affect optimal corrosion control.)</p> <p>Verify that any small system applying for a monitoring waiver, or subject to a waiver, provides the following information to the state in writing by the specified deadline:</p> <ul style="list-style-type: none"> <li>-by the start of the first applicable monitoring period, any small water system applying for a monitoring waiver provides the documentation required to demonstrate that it meets the waiver criteria</li> <li>-no later than 9 yr after the monitoring previously conducted, each small system desiring to maintain its monitoring waiver provides a demonstration that the 90th percentile lead level does not exceed 0.005 mg/L and the 90th percentile copper level does not exceed 0.65 mg/L</li> <li>-no later than 60 days after it becomes aware that it is no longer free of lead-containing and/or copper-containing material, as appropriate, each small system with a monitoring waiver provides written notification to the state, setting forth the circumstances resulting in the lead-containing and/or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.50.10.</b> All systems subject to the lead and copper requirements are required to retain onsite all the original records of sampling data, analysis, reports, surveys, letters, evaluations, state determinations, and any other pertinent documents for at least 12 yr (40 CFR 141.80(j) and 141.91).</p>	<p>-by 10 October 2000, any small system with a waiver granted prior to 11 April 2000 and that has not previously met the monitoring criteria for a waiver issuance provides a demonstration that the 90th percentile lead level does not exceed 0.005 mg/L and the 90th percentile copper level does not exceed 0.65 mg/L.</p> <p>Verify that each groundwater system that limits water quality parameter monitoring to a subset of entry points provides, by the commencement of such monitoring, written correspondence to the state that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.</p> <p>Verify that water systems report the sampling results for all source water samples collected according to 40 CFR 141.88 (see checklist item DW.50.8) within the first 10 days following the end of each source water monitoring period.</p> <p>Verify that, with the exception of the first round of source water sampling, the system specifies any site that was not sampled during previous monitoring periods, and includes an explanation of why the sampling point has changed.</p> <p>Verify that the following reports are submitted as applicable:</p> <ul style="list-style-type: none"> <li>- corrosion control treatment</li> <li>- source water treatment</li> <li>- lead service line replacement</li> <li>- demonstration of public education program.</li> <li>-</li> </ul> <p>Verify that records are kept onsite for 12 yr.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>NONCOMMUNITY WATER SYSTEMS</b></p> <p><b>DW.60 Standards</b></p> <p><b>DW.60.1.</b> Noncommunity water systems, except as defined under exempted water systems, will not exceed an MCL for nitrate of 10 mg/L (40 CFR 141.11(d) and 141.62(b)) [Reviewed July 2000, Revised September 2000].</p>	<p>(NOTE: A noncommunity water system is one which is not a community water system. It is a public water system. Noncommunity water systems are classified as either a nontransient, noncommunity (NTNC) water system, or a transient, noncommunity water system.)</p> <p>Verify that the nitrate level at noncommunity water systems does not exceed 10 mg/L.</p> <p>Verify that the nitrite level at noncommunity water systems does not exceed 1 mg/L.</p> <p>Verify that the total nitrate and nitrite levels at noncommunity water systems do not exceed 10 mg/L.</p> <p>(NOTE: At the discretion of the state, nitrate levels not to exceed 20 mg/L may be allowed in a noncommunity system if the supplier of the water demonstrates to the satisfaction of the state that:</p> <ul style="list-style-type: none"> <li>- such water will not be available to children under 6 mo of age</li> <li>- public notification requirements under 40 CFR 141.209 are met and there is continuous posting of the fact that nitrate levels exceed 10 mg/L and the potential health effects of exposure</li> <li>- local and state public health officials are notified annually of nitrate levels that exceed 10 mg/L</li> <li>- no adverse health effects result.)</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>NONCOMMUNITY WATER SYSTEMS</b></p> <p><b>DW.65 Monitoring/Sampling</b></p> <p><b>DW.65.1.</b> Noncommunity water systems, except as defined under exempted water systems, are required to monitor for total coliforms according to a specific schedule (40 CFR 141.21(a)(3)).</p> <p><b>DW.65.2.</b> Checklist item deleted [Deleted July 2000].</p> <p><b>DW.65.3.</b> Noncommunity water systems that add a chemical disinfectant to the water in any part of the drinking water process are required to meet specific monitoring requirements for disinfection byproducts and disinfection byproduct precursors (DBPP).(40 CFR 141.130(a)(1), 141.130(b), 141.131, 141.132(a), 141.132(b)(1), and 141.132(d)) [Added January 1999].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>Verify that the noncommunity water systems using only groundwater (except groundwater under the direct influence of surface water) and serving 1000 persons or less, monitors each calendar quarter the system provides water to the public.</p> <p>Verify that the following noncommunity water systems are monitoring for total coliforms according to the schedule outlined in Appendix 2-6:</p> <ul style="list-style-type: none"> <li>- systems using only groundwater (except groundwater under the direct influence of surface water) and serving more than 1000 persons during any month</li> <li>- systems using surface water, in total or in part</li> <li>- systems using groundwater under the direct influence of surface water.</li> </ul> <p>Deleted as a result of review by USEPA.</p> <p>(NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 16 December 2001. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning 16 December 2003.)</p> <p>Verify that all samples are taken during normal operating conditions.</p> <p>(NOTE: Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required if the state approves.)</p> <p>Verify that monitoring for TTHM and HAA5 is done at the frequency, either routine or reduced as appropriate, outlined in Appendix 2-10.</p> <p>Verify that sample analysis is done using appropriate methodology.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that for systems on a reduced monitoring schedule, the average of all samples taken in the year (for systems that must monitor quarterly) or the result of the sample (for systems that must monitor no more frequently than annually) is no more than 0.060 mg/L for TTHMs and 0.045 mg/L HAA5.</p> <p>Verify that, if the required averages for systems on a reduced monitoring schedule are not met, the system returns to routine monitoring in the quarter immediately following the quarter in which the system exceeded the required averages.</p> <p>(NOTE: The State may return a system to routine monitoring at the state's discretion.)</p> <p>Verify that Subpart H systems that use conventional filtration treatment monitor for TOC no later than the point of combined filter effluent turbidity monitoring and representative of the treated water.</p> <p>Verify that all systems using conventional filtration also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water.</p> <p>(NOTE: These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.)</p> <p>(NOTE: Subpart H systems with an average treated water TOC of less than 2.0 mg/L for 2 consecutive years, or less than 1.0 mg/L for 1 yr, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The system must revert to routine monitoring in the month following the quarter when the annual average treated water TOC <math>\geq</math> 2.0 mg/L.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.65.4.</b> Noncommunity water systems that add a chemical disinfectant to the water in any part of the drinking water process are required to meet specific monitoring requirements for disinfection residuals (40 CFR 141.130(a)(1), 141.130(b), 141.131, 141.132(a), and 141.132(c)) [Added January 1999].</p>	<p>(NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 16 December 2001. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning 16 December 2003.)</p> <p>Verify that all samples are taken during normal operating conditions.</p> <p>(NOTE: Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required if the State approves.)</p> <p>Verify that sample analysis is done using appropriate methodology.</p> <p>Verify that systems using chlorine and/or chloramines measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled.</p> <p>(NOTE: Subpart H systems may use the results of residual disinfectant concentration sampling conducted under 40 CFR 141.74(b)(6)(i) for unfiltered systems or 40 CFR 141.74(c)(3)(i) for systems which filter, in lieu of taking separate samples.)</p> <p>Verify that monitoring is not reduced when using chlorine and/or chloramine.</p> <p>Verify that systems using chlorine dioxide for disinfection or oxidation take daily samples at the entrance to the distribution system.</p> <p>(NOTE: When a daily sample exceeds the MRDL, samples are required to be taken in the distribution system the following day at the entrance to the distribution system plus three additional chlorine dioxide distribution samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.65.5.</b> Noncommunity water systems that add a chemical disinfectant to the water in any part of the drinking water process are required to have a monitoring plan (40 CFR 141.130(a)(1), 141.130(b), 141.132(a), and 141.132(f)) [Added January 1999].</p>	<p>to the distribution system (i.e., no booster chlorination), the system must take three samples as close to the first customer as possible, at intervals of at least 6 h. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system must take one sample as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible.)</p> <p>Verify that monitoring is not reduced when using chlorine dioxide.</p> <p>(NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 16 December 2001. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning 16 December 2003.)</p> <p>Verify that the system has developed and maintains a monitoring plan.</p> <p>(NOTE: The plan must be made available for inspection by the state and the general public no later than 30 days following applicable compliance dates.)</p> <p>Verify that all Subpart H systems serving more then 3,300 people submit a copy of the plan tot he state .</p> <p>Verify that the plan includes, at a minimum:</p> <ul style="list-style-type: none"> <li>-specific locations and schedules for collecting samples for any required parameters</li> <li>-how the system will calculate compliance with MCLs, MRDLs, and treatment techniques</li> <li>-if approved for monitoring as a consecutive system, or as providing water to a consecutive system, the plan reflects the entire distribution system.</li> </ul>

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REGULATORY REQUIREMENTS	REVIEWER CHECKS SEPTEMBER 2000
<p><b>NONCOMMUNITY WATER SYSTEMS</b></p> <p><b>DW.75 Notification and Reporting Requirements</b></p> <p><b>DW.75.1.</b> When a noncommunity water system is required to submit a Tier 2 or a Tier 3 notice, the notice is required to be provided according to specific parameters (40 CFR 141.203(c)(2), 141.204(c)(2), and 141.206(b)) <b>[Added September 2000]</b>.</p>	<p>(NOTE: Public water systems in States with primacy for the public water system supervision (PWSS) program must comply with these requirements no later than 6 May 2002 or on the date the State-adopted rule becomes effective, whichever comes first. Public water systems in jurisdictions where USEPA directly implements the PWSS program must comply with these requirements on 31 October 2000. Prior to these dates, public water systems must continue to comply with the public notice requirements in 40 CFR 141.32 (see checklist item DW.30.2.)</p> <p>Verify that, unless directed otherwise by the primacy agency in writing, noncommunity water systems provide the Tier 2 or Tier 3 notice by:</p> <ul style="list-style-type: none"> <li>-posting the notice in conspicuous locations throughout the distribution system frequented by persons served by the system, or by mail or direct delivery to each customer and service connection (where known)</li> <li>-any other method reasonably calculated to reach other persons regularly served by the system, if they would not normally be reached by the notice</li> </ul> <p>(NOTE: Persons who might not normally be reached by the notice may include those who do not pay water bills or do not have service connection addresses (e.g., house renters, apartment dwellers, university students, nursing home patients, prison inmates, etc.). Other methods may include: publication in a local newspaper; delivery of multiple copies for distribution by customers that provide their drinking water to others (e.g., apartment building owners or large private employers); posting in public places served by the system or on the Internet; or delivery to community organizations.)</p> <p>(NOTE: See checklist item DW.30.8 for additional information on Tier 2 notices and DW.30.9 for additional information on Tier 3 notices.)</p>

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<b>REGULATORY REQUIREMENTS</b>	<b>REVIEWER CHECKS</b> <b>SEPTEMBER 2000</b>
	Verify that noncommunity water systems continuously post the public notice in conspicuous locations in order to inform new consumers of any continuing violation, variance or exemption, or other situation requiring a public notice for as long as the violation, variance, exemption, or other situation persists.

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<p><b>NONTRANSIENT/ NONCOMMUNITY (NTNC) WATER SYSTEMS</b></p> <p><b>DW.76 Standards</b></p> <p><b>DW.76.1.</b> NTNC water systems, except as defined under exempted water systems, are required to meet specific MCLs for organic contaminants, inorganic contaminants and microbiological contaminants (40 CFR 141.60 through 141.63).</p> <p><b>DW.76.2.</b> NTNC water systems are required to meet specific MCLs and MRDLs related to disinfection (40 CFR 141.64 and 141.65) [Added January 1999].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: An NTNC water system must also meet the standards for a public water system and a noncommunity water system. An NTNC is defined as a water system that is not a community water system that regularly serves at least 25 of the same persons over 6 mo of the year.)</p> <p>Verify that the standards outlined in Appendix 2-1 and 2-2 are met.</p> <p>Verify that systems, which collect at least 40 bacteriological samples per month, have no more than 5 percent of the samples collected during a month that are total coliform positive.</p> <p>Verify that systems, which collect less than 40 bacteriological samples per month, have no more than one sample collected per month that is total coliform positive.</p> <p>Verify that there are no fecal coliform-positive repeat sampling or <i>E. coli</i>-positive repeat samples, or any total coliform-positive repeat samples following a fecal coliform-positive or <i>E. coli</i>-positive routine sample.</p> <p>Verify that NTNC water systems meet the MCL for disinfection byproducts and the MRDLs outlined in Appendix 2-9.</p> <p>(NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 16 December 2001. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning 16 December 2003.)</p> <p>(NOTE: A system that is installing GAC or membrane technology to comply with MCL requirements may apply to the State for an extension of up to 24 mo past the compliance dates, but not beyond 16 December 2003. In granting the extension, states must set a schedule for compliance and may specify any interim measures that the system must take. Failure to meet the schedule or interim treatment requirements constitutes a violation of a National Primary Drinking Water Regulation.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>NTNC WATER SYSTEMS</b></p> <p><b>DW.77 Monitoring/Sampling</b></p> <p><b>DW.77.1.</b> Facilities with NTNC water systems are required to meet specific monitoring requirements for inorganic contaminants (40 CFR 141.23(a)) [Revised July 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: An NTNC water system must also meet the standards for a public water system and a noncommunity water system. An NTNC is defined as water system that is not a community water system that regularly serves at least 25 of the same persons over 6 mo of the year [Added July 2000].)</p> <p>Verify that groundwater systems:</p> <ul style="list-style-type: none"> <li>-take a minimum of one sample at every entry point to the distribution system that is representative of each well after treatment (a sampling point) beginning in the compliance period starting 1 January 1993</li> <li>-take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.</li> </ul> <p>Verify that surface water systems:</p> <ul style="list-style-type: none"> <li>-take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment (a sampling point) beginning in the compliance period starting 1 January 1993</li> <li>-takes each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.</li> </ul> <p>(NOTE: In relation to these requirements, surface water systems include systems with a combination of surface and ground sources.)</p> <p>Verify that, if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions.</p> <p>(NOTE: The state may reduce the total number of samples which must be analyzed by allowing the use of compositing. Composite samples from a maximum of five sampling points are allowed if the detection limit of the method used for analysis is less than one fifth the MCL and compositing is done in a laboratory.)</p> <p>Verify that, if the concentration in a composite sample is greater than or equal to one- fifth of the MCL of any inorganic chemical, a followup</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.77.2.</b> Facilities with NTNC water systems are required to meet specific monitoring requirements for asbestos (40 CFR 141.23(b)).</p>	<p>sample is analyzed within 14 days from each sampling point included in the composite and analyzed for the contaminants which exceeded one fifth of the MCL in the composite sample.</p> <p>(NOTE: Detection limits for each analytical methods and MCLs for each inorganic contaminant are listed in Appendix 2-3.)</p> <p>(NOTE: If duplicates of the original sample taken from each sampling point used in the composite sample are available, the system may use these instead of resampling. The duplicates must be analyzed and the results reported to the state within 14 days after completing analysis of the composite sample, provided the holding time of the sample is not exceeded.)</p> <p>Verify that, for groundwater systems, inorganic monitoring is repeated at least once every compliance period (every 3 yr), and samples are taken quarterly for at least two quarters if an MCL is violated.</p> <p>Verify that, for surface water systems, inorganic sampling is repeated annually and samples are taken quarterly for at least four quarters if an MCL is violated.</p> <p>(NOTE: The state may issue a waiver reducing the required monitoring.)</p> <p>Verify that asbestos is monitored during the first 3-yr compliance period of each 9-yr compliance cycle starting 1 January 1993.</p> <p>(NOTE: The facility may apply to the state for a waiver of monitoring if they believe asbestos is not an issue.)</p> <p>Verify that, if the system is vulnerable to asbestos contamination only because of corrosion of asbestos-cement pipe, one sample is taken at a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur.</p> <p>Verify that, if the system is vulnerable to asbestos contamination due to both its source water supply and corrosion of asbestos-cement pipe, one sample is taken at a tap served by asbestos-cement pipe and under conditions where contamination is most likely to occur.</p> <p>Verify that, when the MCL is exceeded, monitoring is done quarterly.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.77.3.</b> Facilities with NTNC water systems are required to meet specific monitoring requirements for antimony, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium, and thallium (40 CFR 141.23(c)).</p> <p><b>DW.77.4.</b> NTNC water systems are required to conduct monitoring to determine compliance for nitrate and nitrite levels according to specific parameters (40 CFR 141.23(d) and 141.23(e)).</p>	<p>Verify that monitoring is done as follows:</p> <ul style="list-style-type: none"> <li>- groundwater systems: take one sample at each sampling point during each compliance period</li> <li>- surface water systems (or combined surface/ground): take one sample annually at each sampling point</li> <li>- when MCLs are exceeded, monitoring is done quarterly.</li> </ul> <p>(NOTES: States may grant a public water system a waiver for the monitoring of cyanide.)</p> <p>Verify that the following schedules are met for monitoring of nitrate:</p> <ul style="list-style-type: none"> <li>- NTNC water systems served by groundwater monitor annually starting 1 January 1993</li> <li>- NTNC water systems served by surface water monitor quarterly starting 1 January 1993.</li> </ul> <p>(NOTE: States may allow surface water systems to reduce annual sampling if analytical results from four consecutive quarters are less than 50 percent of the MCL.)</p> <p>Verify that NTNC water systems do repeat monitoring quarterly for at least 1 yr following any one sample in which the concentration exceeds more than 50 percent of the MCL.</p> <p>(NOTE: States may allow groundwater systems to return to annual sampling if four consecutive quarters results are consistently and reliably below the MCL.)</p> <p>(NOTE: After the initial round of quarterly sampling is completed, each NTNC system, which is monitoring annually, shall take the subsequent samples during the quarters which previously resulted in the highest analytical result.)</p> <p>Verify that NTNC water systems take one sample at each sampling point in the compliance period beginning 1 January 1993 and ending 31 December 1995 for nitrite.</p> <p>(NOTE: After the initial sample, systems where an analytical result for nitrite is less than 50 percent of the MCL will monitor at the frequency specified by the state.)</p> <p>Verify that NTNC systems repeat monitoring for nitrites quarterly for at least 1 yr after any one sample is greater than 50 percent of the MCL.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.77.5.</b> Beginning with the initial compliance period, monitoring of the contaminants listed in Table 2 of Appendix 2-1 at NTNC water systems is required to be done according to specific parameters (40 CFR 141.24(f)).</p>	<p>Verify that systems, which are monitoring annually for nitrites, take each subsequent sample during the quarters which previously resulted in the highest analytical result.</p> <p>Verify that, when nitrate or nitrite samples indicate an exceedence of the MCL, a confirmation sample is taken within 24 h of receipt of the results.</p> <p>(NOTE: If the system is unable to take a confirmation sample within 24 h, it must notify consumers of the exceedence.)</p> <p>Verify that groundwater systems take a minimum of one sample at every entry point of the distribution system which is representative of each well after treatment.</p> <p>Verify that surface water systems (or combined surface/ground) take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment.</p> <p>(NOTE: For both groundwater and surface water systems, each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.)</p> <p>Verify that, if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions.</p> <p>Verify that each NTNC water system takes four consecutive quarterly samples for each contaminant, except vinyl chlorides.</p> <p>(NOTE: If the initial monitoring for contaminants is completed by December 1992 and none of the contaminants listed are found, then each system shall take one sample annually starting with the initial compliance period.)</p> <p>(NOTE: After a minimum of 3 yr of sampling, the state may reduce the number of samples to one each compliance period.)</p> <p>Verify that, if a contaminant, except vinyl chloride, is detected at a level exceeding 0.0005 mg/L in any sample, the system monitors quarterly at each sampling point which resulted in a detection.</p>

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<p><b>DW.77.6.</b> Monitoring for organic contaminants listed in Table 3 of Appendix 2-1 at NTNC water systems is required to be done according to specific parameters (40 CFR 141.24(h)).</p>	<p>Verify that groundwater systems, which have detected one or more of the following two-carbon organic compounds; trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene, monitor quarterly for vinyl chlorides at each sampling point at which one or more of the two-carbon organic compounds was detected.</p> <p>Verify that, when the MCLs are exceeded, monitoring is conducted quarterly until the state determines that the system is reliably and consistently below the MCL.</p> <p>Verify that groundwater systems take a minimum of one sample at every entry point to the distribution system which is representative of each well after treatment.</p> <p>Verify that surface water systems (or surface/ground) take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment.</p> <p>(NOTE: For both groundwater and surface water systems, each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.)</p> <p>Verify that, if the system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions.</p> <p>Verify that each NTNC water system takes four consecutive quarterly samples for each contaminant during each compliance period starting with the initial compliance period.</p> <p>(NOTE: Systems serving more than 3300 persons that do not detect a contaminant in the initial compliance period may reduce sampling to two quarterly samples in 1 yr during each repeat compliance period.)</p> <p>(NOTE: Systems serving less than or equal to 3300 person that do not detect a contaminant in the initial compliance period may reduce sampling to one sample during each repeat compliance period.)</p> <p>Verify that, when an organic contaminant is detected (see Appendix 2-4), the system monitors quarterly at each sampling point that resulted in a detection.</p>

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<p><b>DW.77.7.</b> NTNC systems are required to monitor for specific unregulated contaminants (40 CFR 141.35 and 141.40(a)(1), 141.40(a)(4) through 141.40(a)(7)) [Revised April 2000].</p>	<p>Verify that, if monitoring results in detection of one or more of aldicarb, aldicarb sulfone, aldicarb sulfoxide, heptachlor, and heptachlor epoxide, subsequent monitoring analyzes for all related contaminants.</p> <p>(NOTE: The state may reduce the number of samples required and/or the frequency of sampling.)</p> <p>Verify that a wholesale or retail public water system that serves more than 10,000 persons, as determined by the state, and does not purchase their entire water supply from another public water system, monitors as follows:</p> <ul style="list-style-type: none"> <li>- for the unregulated contaminants on Table 1 of Appendix 2-5</li> <li>- for the unregulated contaminants on Table 2 of Appendix 2-5 if notified by the state or EPA that the system is part of the Screening Surveys</li> <li>- for the unregulated contaminants on Table 3 of Appendix 2-5 if notified by the state or EPA that you are part of the Pre-Screen Testing</li> </ul> <p>Verify that a wholesale or retail public water system that serves more than 10,000 persons, as determined by the State, and does purchase their entire water supply from another public water system, monitors as follows:</p> <ul style="list-style-type: none"> <li>- for the unregulated contaminants on Table 1 of Appendix 2-5 that have a "sampling location" indicated as "distribution system"</li> <li>- for the unregulated contaminants on Table 2 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if notified by the state or EPA that system is a part of the Screening Surveys</li> <li>- for the unregulated contaminants on Table 3 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if notified by the state or EPA that the system is a part of the Pre-Screen Testing.</li> </ul> <p>Verify that a water system that serves 10,000 or fewer persons that does not purchase their entire water supply from another public water system monitors as follows:</p> <ul style="list-style-type: none"> <li>- for the unregulated contaminants on Table 1 of Appendix 2-5 if the system is notified by the State or EPA that they are part of the State Monitoring Plan for small systems</li> <li>- for the unregulated contaminants on Table 2 of Appendix 2-5 if the system is notified by the state or EPA that they are part of the Screening Surveys</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- for the unregulated contaminants on Table 3 of Appendix 2-5 if the system is notified by the state or EPA that they are part of the Pre-Screen Testing.</li> </ul> <p>Verify that a water system that serves 10,000 or fewer persons and purchases their entire water supply from a wholesale public water system monitors as follows:</p> <ul style="list-style-type: none"> <li>- for the unregulated contaminants on Table 1 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if the system is notified by the state or EPA that they are part of the State Monitoring Plan for small systems</li> <li>- for the unregulated contaminants on Table 2 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if the system is notified by the state or EPA that they are part of the Screening Surveys</li> <li>- for the unregulated contaminants on Table 3 of Appendix 2-5 that have a "sampling location" indicated as "distribution system" if the system is notified by the state or EPA that they are part of the Pre-Screen Testing.</li> </ul> <p>Verify that for Table 1, Appendix 2-5, monitoring is conducted as follows for all NTNC water systems:</p> <ul style="list-style-type: none"> <li>- collect samples of the listed contaminants according to the 40 CFR 141.40(a)(5) and appendix A of 40 CFR 141.40 and any other specific instructions provided by the state or EPA</li> <li>- analyze the additional parameters specified in Table 4 of Appendix 2-5, "Water Quality Parameters to be Monitored with UCMR Contaminants" for each relevant contaminant type</li> <li>- review the laboratory testing results to ensure reliability</li> <li>- report the results as specified in 40 CFR 141.35.</li> </ul> <p>Verify that, for large systems, arrangements are made for testing of the samples for each contaminant in Table 1 of Appendix 2-5 according to the methods specified in Appendix A of 40 CFR 141.40.</p> <p>Verify that, for small systems, unless directed otherwise by the State or EPA, the following are also done:</p> <ul style="list-style-type: none"> <li>- properly receive, store, maintain and use the sampling equipment sent from the laboratory designated by EPA</li> <li>- sample at the times specified by the state or the EPA</li> <li>- collect and pack samples in accordance with the instructions sent by the laboratory designated by EPA</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- send the samples to the laboratory designated by EPA.</li> </ul> <p>Verify that, unless the state or EPA informs the system of other sampling arrangements, all NTNC water systems meet the following:</p> <ul style="list-style-type: none"> <li>- if shipping the samples for testing, collect the samples early enough in the day to allow adequate time to send the samples for overnight delivery to the laboratory since some samples must be processed at the laboratory within 30 h of collection</li> <li>- do not collect samples on Friday, Saturday or Sunday because sampling on these days would not allow samples to be shipped and received at the laboratory within 30 h</li> <li>- do not composite (that is, combine, mix or blend) the samples, collect, preserve and test each sample separately</li> <li>- after receiving the laboratory results, review and confirm the system information and data regarding sample collection and test results</li> <li>- report the results as provided in 40 CFR 141.35.</li> </ul> <p>Verify that large systems collect, analyze, and test samples according to the timeframes, frequencies, methodologies in Table 1 of Appendix 2-5.</p> <p>(NOTE: If a sample is not collected according to the specified procedures for a listed contaminant, resampling must be done within 14 days of observing the occurrence of the error (which may include notification from the laboratory that resample must be done) following the procedures specified for the method.)</p> <p>Verify that, unless otherwise directed by the State or EPA, small systems:</p> <ul style="list-style-type: none"> <li>- collect samples at the times specified for you by the state or EPA, within one 12-mo period during the years indicated in Table 1, Appendix 2-5 and according to the frequency in Table 5, Appendix 2-5</li> <li>- collect samples at the locations specified by the state or EPA</li> <li>- report when a sample is not collected according to provided instructions</li> <li>- store and maintain the sample collection kits sent by EPA's designated laboratory in a secure place until used for sampling</li> <li>- comply with the instructions sent by the state or EPA concerning the use of containers, collection (how to fill the sample bottle), dechlorination and/or preservation, and sealing and preparing the sample and shipping containers for shipment</li> </ul>

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**DW.77.8.** The reporting of unregulated contaminant monitoring results must be done according to certain parameters by NTNC water systems (40 CFR 141.35) [Revised April 2000].

- comply with the instructions sent to you by EPA's designated laboratory concerning the handling of sample containers for specific contaminants
- completely fill out the sampling forms
- sign and date the sampling forms
- send the samples and the sampling forms to the laboratory designated in your instructions.

Verify that if the system is selected as an Index system in the State Monitoring Plan, the system assists the state or EPA in identifying appropriate sampling locations and provides information on which wells and intakes are in use at the time of sampling, well casing and screen depths (if known) for those wells, and the pumping rate of each well or intake at the time of sampling.

Verify that, if a large system is selected for the Screening Surveys or Pre-Screen Testing, the system:

- collects and arranges for testing of the contaminants in Table 2 and Table 3 of Appendix 2-5
- sends the samples to one of the laboratories designated by EPA in the notification
- report the test results to EPA, and provide a copy to the State, as specified in 40 CFR 141.35.

Verify that, if a small system is selected for the Screening Surveys or Pre-Screen Testing, the system collects samples in accordance with the instructions sent by the state or EPA, or, if informed by the state or EPA that the state or EPA will collect the sample, you must assist the state or EPA in identifying the appropriate sampling locations and in taking the samples.

(NOTE: EPA will report the test results to you and the State.)

(NOTE: NTNC water systems serving a population of 10,000 or less are not required to report since EPA will arrange for testing and reporting of the results. However, the system will still need to comply with consumer confidence reporting and public notification requirements for these results.)

Verify that the results of the unregulated contaminant monitoring (see checklist items DW.77.7) are provided to EPA and a copy to the state.



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.77.9.</b> NTNC water systems that adds ozone or chlorine dioxide to the water in any part of the drinking water process are required to meet specific monitoring requirements (40 CFR 141.130(a)(1), 141.130(b), 141.131, 141.132(a), 141.132(b)(2) and 141.132(b)(3)) [Added January 1999, Revised September 2000].</p>	<p>Verify that results are reported within 30 days following the month in which the system received the results from the laboratory.</p> <p>(NOTE: USEPA will place the data in the national drinking water contaminant occurrence database 60 days after the data is reported to allow for quality control review by systems and states.)</p> <p>Verify that the report includes information for each sample, and for each spiked sample and spike duplicate sample analyzed for quality control purposes and associated with each sample and its sample batch.</p> <p>(NOTE: See Appendix 2-5a for details on the report content.)</p> <p>Verify that the information is reported in the electronic or other format specified by USEPA.</p> <p>(NOTE: The laboratory to which samples were sent can report the results for the system as long as the laboratory sends the system a copy for review and recordkeeping. However, the system is responsible for the reporting of the information and ensuring that the laboratory reports these results to EPA, with a copy to the state, on time.)</p> <p>(NOTE: Previously collected data can be reported for the unregulated contaminants as long as the data meets the requirements detailed in 40 CFR 141.40 (see checklist item DW.77.7.)</p> <p>(NOTE: This requirements applies to Subpart H systems serving 10,000 or more persons beginning 1 January 2002. Subpart H systems serving fewer than 10,000 persons and systems using only groundwater not under the direct influence of surface water must comply with this section beginning 1 January 2004.)</p> <p>Verify that all samples are taken during normal operating conditions.</p> <p>(NOTE: Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, if the state approves.)</p> <p>Verify that NTNC water systems using chlorine dioxide, for disinfection or oxidation, perform the following monitoring for chlorite:</p> <ul style="list-style-type: none"> <li>- daily samples at the entrance to the distribution system plus when the daily sample exceeds the chlorite MCL, additional samples in the distribution system the following day at the entrance to the distribution system, as close to the first customer</li> </ul>

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	<p>as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible</p> <ul style="list-style-type: none"> <li>- a monthly three-sample set in the distribution system near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system.</li> </ul> <p>Verify that daily chlorite monitoring at the entrance to the distribution system is not reduced.</p> <p>(NOTE: Monthly chlorite monitoring in the distribution system may be reduced to one three-sample set per quarter after 1 yr of monitoring where no individual chlorite sample taken in the distribution system exceeds the chlorite MCL and the system has not been required to conduct additional monitoring in response to a exceedance in the daily samples. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system exceeds the chlorite MCL or the system is required to conduct additional monitoring in response to a exceedance in the daily samples.)</p> <p>Verify that systems using ozone, for disinfection or oxidation, take one sample per month for each treatment plant in the system using ozone at the entrance to the distribution system while the ozonation system is operating under normal conditions.</p> <p>(NOTE: Systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is &lt; 0.05 mg/L based upon representative monthly bromide measurements for 1 yr. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is <math>\geq</math> 0.05 mg/L based upon representative monthly measurements. If the running annual average source water bromide concentration is <math>\geq</math> 0.05 mg/L, the system must resume routine monitoring.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>NTNC WATER SYSTEMS</b></p> <p><b>DW.78</b> <b>Lead and Copper</b></p> <p><b>DW.78.1.</b> Facilities with NTNC water systems must notify their users about an exceedence of lead in drinking water systems (40 CFR 141.85(c)(1), (141.85(c)(4), and 141.85(c)(5) and 141.90(f)) [Revised July 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>Verify that, within 60 days of exceeding the lead action levels, public education materials are distributed in the following manner:</p> <ul style="list-style-type: none"> <li>- the material is in the appropriate languages where languages other than English are spoken by a significant proportion of the population</li> <li>- post informational posters on lead in drinking water in a public place or commons area in each of the buildings served by the system</li> <li>- distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the NTNC.</li> </ul> <p>Verify that an NTNC water system repeats distribution of information at least once each calendar year in which the system exceeds the lead action level.</p> <p>(NOTE: The text of written materials and broadcast materials can be found in 40 CFR 141.85(a) and 141.85(b).)</p> <p>Verify that any water system subject to the public education requirements sends written documentation to the state that contains the following information within 10 days after the end of each period in which the system is required to perform public education tasks:</p> <ul style="list-style-type: none"> <li>- a demonstration that the system has delivered the public education materials that meet the content requirements and the delivery requirements</li> <li>- a list of all the newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.</li> </ul> <p>(NOTE: Unless required by the State, a system that previously has submitted the required information to the state, need not resubmit the information as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.78.2.</b> NTNC water systems are required to meet specific standards for lead and copper action levels and reporting requirements when these levels are exceeded (40 CFR 141.80(a)(1) and 141.80(c)).</p>	<p>Verify that the concentration of lead does not exceed 0.015 mg/L in more than 10 percent of tap water samples collected during any monitoring period.</p> <p>Verify that the concentration of copper does not exceed 1.3 mg/L in more than 10 percent of tap water samples collected during any monitoring period.</p>
<p><b>DW.78.3.</b> NTNC water systems are required to install and operate optimal corrosion control (40 CFR 141.80(d) and 141.82).</p>	<p>Verify that the water system has corrosion control that minimizes the lead and copper concentrations at users' taps while insuring that the treatment does not cause the water system to violate any of the national primary drinking water standards.</p> <p>(NOTE: Please see 40 CFR 141.81 for design details for corrosion control systems in relationship to the size of the water system.)</p>
<p><b>DW.78.4.</b> NTNC systems that exceed the lead or copper action level are required to implement applicable source water treatment standards (40 CFR 141.80(e) and 141.83).</p>	<p>Verify that systems exceeding the lead or copper action level do lead and copper source water monitoring and make a treatment recommendation to the state within 6 mo after exceeding the lead or copper action rate.</p> <p>Verify that, if the state requires the installation of source water treatment, the installation is done within 24 mo after the state's initial response.</p> <p>Verify that followup tap water monitoring and source water monitoring is completed within 36 mo after the state's initial response.</p>
<p><b>DW.78.5.</b> Facilities with NTNC water systems exceeding the lead action level after implementation of corrosion control and source water treatment requirements are required to replace lead service lines (40 CFR 141.80(f) and 141.84).</p>	<p>Verify that lead service line replacement is done according to the schedules and parameters outlined in 40 CFR 141.84.</p> <p>(NOTE: A system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line is less than or equal to 0.015 mg/L.)</p> <p>(NOTE: Replacement of lead service lines can stop when the first draw samples that are collected meet the lead action levels during two consecutive monitoring periods and the system submits the results to the state.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.78.6.</b> Monitoring for lead and copper at NTNC water systems is required to start on a specified date and be done at a specified number of sites according to the chart in Appendix 2-7 (40 CFR 141.80(g), 141.86(a)(1) 141.86(a)(6) through 141.86(a)(8), 141.86(c), 141.86(d) through 141.86(g))[Revised July 2000].</p>	<p>Verify that water systems have completed a materials evaluation of its distribution system to identify a pool of targeted sampling sites and which is sufficiently large to ensure that the water system can collect the number of samples required.</p> <p>(NOTE: Sampling sites may not include point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.)</p> <p>(NOTE: See Appendix 2-7 for details on the required number of samples and when the sampling program is required to start.)</p> <p>Verify that selected sampling sites (tier 1 sampling sites) for NTNC water systems consist of buildings that:</p> <ul style="list-style-type: none"> <li>- contain copper pipes with lead solder installed after 1982 or contain lead pipes</li> <li>- are served by a lead service line.</li> </ul> <p>(NOTE: An NTNC water system with insufficient tier 1 sites that meet the targeting criteria shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the NTNC water system shall use representative sites throughout the distribution system. A representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.)</p> <p>Verify that any water system with a distribution system that contains lead service lines draws 50 percent of the samples from sites that contain lead pipes or copper pipes with lead solder, and 50 percent of the samples from sites served by a lead service line.</p> <p>Verify that a water system that cannot identify a sufficient number of sampling sites served by a lead service line collects first-draw samples from all of the sites identified as being served by such lines.</p> <p>(NOTE: See the text of 40 CFR 141.86(b) for details of sample collection methods.)</p> <p>Verify that, for the initial tap sample, all large water systems monitor during two consecutive 6-mo periods.</p> <p>Verify that all small and medium-sized water systems monitor during each 6 mo period until:</p>

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- the system exceeds the lead or copper action levels and is then required to implement corrosion control treatment
- the system meets the lead and copper action levels during two consecutive 6- mo monitoring periods.

(NOTE: A small or medium-sized water system that meets the lead and copper action levels during each of two consecutive 6-mo monitoring periods can reduce the frequency of sampling to once a year. If action levels are met during 3 consecutive years of monitoring, the frequency may be reduced to once every 3 yr.)

Verify that, for monitoring after the installation of corrosion control and source water treatment, large systems with optimal corrosion control by 1 January 1997 monitor during two consecutive 6-mo periods by 1 January 1998.

Verify that, for monitoring after the installation of corrosion control and source water treatment, small or medium-sized systems that install optimal corrosion control within 24 mo after being required to do so by the state, monitor during two consecutive 6-mo periods within 36 mo after being required to install optimal corrosion control treatment.

Verify that, for monitoring after the installation of corrosion control and source water treatment required by the state, all systems that install state required systems monitor during two consecutive months within 36 mo after the initial state requirement.

Verify that, after the state has specified water quality parameter values for optimal corrosion control, monitoring is done during each subsequent 6-mo monitoring period beginning when the state specified the optimal values.

(NOTE: See the text of 40 CFR 141.86(d)(4) for information on when a water system can implement reduced monitoring.)

(NOTE: Small water systems may be able to obtain a waiver from the state.)

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<p><b>DW.78.7.</b> All large water systems and all small and medium size systems that exceed the lead or copper action level are required to monitor for water quality parameters in addition to lead and copper (40 CFR 141.40(h) and 141.87).</p> <p><b>DW.78.8.</b> NTNC water systems, that fail to meet the lead or copper action levels, are required to meet specific monitoring requirements (40 CFR 141.80(h) and 141.88) [Revised July 2000].</p>	<p>Verify that monitoring for water quality parameters is done according to Appendix 2-8.</p> <p>Verify that groundwater systems that fail to meet the lead or copper action level on the basis of tap samples take a minimum of one sample at every entry point to the distribution system that is representative of each well after treatment (hereafter called a sampling point).</p> <p>Verify that the groundwater system takes one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.</p> <p>Verify that surface water systems that fail to meet the lead or copper action level on the basis of tap samples take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment (a sampling point).</p> <p>Verify that the surface water system takes each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.</p> <p>(NOTE: For the purposes of this checklist item, surface water systems include systems with a combination of surface and ground sources.)</p> <p>Verify that, if a system draws water from more than one source and the sources are combined before distribution, the system samples at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).</p> <p>(NOTE: The state may reduce the total number of samples which must be analyzed by allowing the use of compositing.)</p> <p>Verify that, if compositing of samples is allowed, it is done by certified laboratory personnel.</p>



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	<p>(NOTE: Composite samples from a maximum of five samples are allowed, provided that, if the lead concentration in the composite sample is greater than or equal to 0.001 mg/L or the copper concentration is greater than or equal to 0.160 mg/L, then either:</p> <ul style="list-style-type: none"> <li>- a follow-up sample shall be taken and analyzed within 14 days at each sampling point included in the composite; or</li> <li>- if duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.)</li> </ul> <p>(NOTE: Where the results of sampling indicate an exceedance of maximum permissible source water levels, the state may require that one additional sample be taken as soon as possible after the initial sample was taken (but not to exceed 2 weeks) at the same sampling point.)</p> <p>Verify that systems that exceed lead or copper action levels at the tap collect one source water sample from each entry point to the distribution system within 6 mo after the exceedance.</p> <p>Verify that systems that install source water treatment as required by the state collect an additional source water sample from each entry point to the distribution system during two consecutive 6-mo monitoring periods.</p> <p>Verify that the system monitors as follows when the state specifies maximum permissible source water levels:</p> <ul style="list-style-type: none"> <li>- once during the 3-yr compliance period for water systems using only groundwater</li> <li>- annually for water systems using surface water or a combination of surface and groundwater.</li> </ul> <p>(NOTE: A water system using only groundwater may reduce the monitoring frequency for lead and copper in source water to once during each 9-yr compliance cycle if the system meets one of the following criteria:</p> <ul style="list-style-type: none"> <li>- the system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the state during at least three consecutive compliance periods</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.78.9.</b> In reference to lead and copper in water systems, NTNC water systems are required to report specific information to the state (40 CFR 141.90(a) through 141.90(e), 141.90(g), and 141.90(h)) [<b>Revised July 2000</b>].</p>	<ul style="list-style-type: none"> <li>-the state has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.)</li> </ul> <p>(NOTE: A water system using surface water (or a combination of surface water and groundwater) may reduce the monitoring frequency to once during each 9-yr compliance cycle if the system meets one of the following criteria:</p> <ul style="list-style-type: none"> <li>- the system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the state for at least three consecutive years</li> <li>- the state has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.)</li> </ul> <p>Verify that a water system reports the following information for all tap water samples specified in 40 CFR 141.86 (see checklist item DW.78.6) and for all water quality parameter samples specified in 40 CFR 141.87 (see checklist item DW.78.7) within the first 10 days following the end of each applicable monitoring period (i.e., every 6 mo, annually, every 3 yr, or every 9 yr):</p> <ul style="list-style-type: none"> <li>- the results of all tap samples for lead and copper, including the location of each site and the criteria under which the site was selected for the system's sampling pool</li> <li>- documentation for each tap water lead or copper sample for which the water system requests invalidation</li> <li>- the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, unless the state calculates the system's 90th percentile lead and copper levels</li> <li>- any site that was not sampled during previous monitoring periods and why the sampling sites have changed</li> <li>- the results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica</li> <li>- the results of all water samples collected at the entry points to the distribution system for applicable water quality parameters under 40 CFR 141.87(b) through 40 CFR 141.87(e)</li> </ul>

**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>- the results of all water quality parameter samples collected during each 6-mo monitoring period within the first 10 days following the end of the monitoring period unless the state has specified a more frequent reporting requirement.</p> <p>Verify that, if the system is a facility, such as a prison or hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point-of-use devices, or the system provides water as part of the cost of services provided and does not separately charge for water consumption, one of the following is required when the system does not have enough taps that can provide first-draw samples:</p> <ul style="list-style-type: none"> <li>- provide written documentation to the state identifying standing times and locations for enough non-first-draw samples to make up its sampling pool by the start of the first applicable monitoring period that commences after 11 April 2000, unless the state has waived prior state approval of non-first-draw sample sites selected by the system</li> <li>- if the state has waived prior approval of non-first-draw sample sites selected by the system, identify, in writing, each site that did not meet the 6-h minimum standing time and the length of standing time for that particular substitute sample collected and include this information with the lead and copper tap sample results required to be submitted.</li> </ul> <p>Verify that, no later than 60 days after the addition of a new source or any change in water treatment, unless the state requires earlier notification, a water system deemed to have optimized corrosion control, a water system subject to reduced monitoring, or a water system subject to a monitoring waiver, sends written documentation to the state describing the change.</p> <p>(NOTE: In those instances where prior state approval of the treatment change or new source is not required, water systems are encouraged to provide the notification to the state beforehand to minimize the risk the treatment change or new source will adversely affect optimal corrosion control.)</p> <p>Verify that any small system applying for a monitoring waiver, or subject to a waiver, provides the following information to the state in writing by the specified deadline:</p> <ul style="list-style-type: none"> <li>- by the start of the first applicable monitoring period, any small water system applying for a monitoring waiver provides the</li> </ul>

**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>documentation required to demonstrate that it meets the waiver criteria</p> <ul style="list-style-type: none"> <li>- no later than 9 yr after the monitoring previously conducted, each small system desiring to maintain its monitoring waiver provides a demonstration that the 90th percentile lead level does not exceed 0.005 mg/L and the 90th percentile copper level does not exceed 0.65 mg/L</li> <li>- no later than 60 days after it becomes aware that it is no longer free of lead-containing and/or copper-containing material, as appropriate, each small system with a monitoring waiver provides written notification to the state, setting forth the circumstances resulting in the lead-containing and/or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials</li> <li>- by 10 October 2000, any small system with a waiver granted prior to 11 April 2000 and that has not previously met the monitoring criteria for a waiver issuance provides a demonstration that the 90th percentile lead level does not exceed 0.005 mg/L and the 90th percentile copper level does not exceed 0.65 mg/L.</li> </ul> <p>Verify that each groundwater system that limits water quality parameter monitoring to a subset of entry points provides, by the commencement of such monitoring, written correspondence to the state that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.</p> <p>Verify that water systems report the sampling results for all source water samples collected according to 40 CFR 141.88 (see checklist item DW.78.8) within the first 10 days following the end of each source water monitoring period.</p> <p>Verify that, with the exception of the first round of source water sampling, the system specifies any site that was not sampled during previous monitoring periods, and includes an explanation of why the sampling point has changed.</p> <p>Verify that the following reports are submitted as applicable:</p> <ul style="list-style-type: none"> <li>- corrosion control treatment</li> <li>- source water treatment</li> <li>- lead service line replacement</li> <li>- demonstration of public education program.</li> </ul>

**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**DW.78.10.** All NTNC systems subject to the lead and copper requirements are required to retain onsite all the original records of sampling data, analysis, reports, surveys, letters, evaluations, state determinations, and any other pertinent documents for at least 12 yr (40 CFR 141.80(j) and 141.91).

Verify that records are kept onsite for 12 yr.

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.80</b></p> <p><b>TRANSIENT/ NONCOMMUNITY WATER SYSTEMS</b></p> <p><b>DW.80.1.</b> Transient noncommunity water systems are required to conduct monitoring to determine compliance for nitrate and nitrite levels according to specific parameters (40 CFR 141.23(d) through 141.23(f)) [Revised September 2000].</p>	<p>(NOTE: A transient water system must also meet the requirements for a public water system and for a noncommunity water systems. It is defined as a noncommunity water system that does not regularly serve at least 25 of the same person over 6 mo per year.)</p> <p>Verify that transient noncommunity water systems monitor annually for nitrate starting 1 January 1993.</p> <p>Verify that, when the MCL for nitrate is exceeded, transient noncommunity water systems do repeat monitoring quarterly for at least 1 yr following any one sample in which the concentration exceeds more than 50 percent of the MCL.</p> <p>Verify that transient noncommunity water systems take one sample at each sampling point in the compliance period beginning 1 January 1993 and ending 31 December 1995 for nitrite.</p> <p>(NOTE: After the initial sample, systems where an analytical result for nitrite is less than 50 percent of the MCL will monitor at the frequency specified by the state.)</p> <p>Verify that transient noncommunity systems repeat monitoring for nitrites quarterly for at least 1 yr after any one sample is greater than 50 percent of the MCL.</p> <p>Verify that systems, which are monitoring annually for nitrites, take each subsequent sample during the quarters which previously resulted in the highest analytical result.</p> <p>Verify that, when nitrate or nitrite samples indicate an exceedence of the MCL, a confirmation sample is taken within 24 h of receipt of the results of the first sample.</p> <p>(NOTE: If the system is unable to take a confirmation sample within 24 h, it must notify consumers of the exceedence and meet other Tier 1 public notification requirements and take confirmation samples within two weeks.)</p>

**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.80.2.</b> Transient noncommunity water systems are required to meet specific MRDLs related to disinfection (40 CFR 141.65) [Added January 1999, Revised July 2000].</p>	<p>Verify that transient noncommunity water systems meet the MRDLs outlined in Appendix 2-9.</p> <p>(NOTE: The MCL standards in Appendix 2-9 are not applicable.)</p> <p>(NOTE: This requirement applies to Subpart H systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant beginning 1 January 2002. Subpart H systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only groundwater not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the MRDL beginning 1 January 2004.)</p>

**COMPLIANCE CATEGORY:  
DRINKING WATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DW.95</b></p> <p><b>SOLE SOURCE AQUIFER</b></p> <p><b>DW.95.1.</b> Projects that may affect the recharge zone or stream flow source zone of a designated sole source aquifer are regulated (40 CFR 149.103 and 149.104).</p>	<p>(NOTE: Currently the only Federally designated sole source aquifers are the Edwards Aquifer in the San Antonio, TX area and the Buried Valley Aquifer System in southwest Ohio.)</p> <p>Determine if the facility is located near a designated sole source aquifer.</p> <p>Determine if the facility uses water from the aquifer, what impact water use may have on the aquifer, and if the water system requires additional treatment to protect the aquifer.</p> <p>Verify that the facility maintains a list of projects for which environmental impact statements will be prepared.</p> <p>Verify that, if any projects may potentially cause direct or indirect contamination through its recharge zone, a petition has been submitted to the USEPA regional administrator.</p>





[NOTE: ALL Appendices where Reviewed July 2000]

Appendix 2-1

Primary Drinking Water Standards for Organic Contaminants  
[Revised January 1999]

Table 1: MCLs Applicable to Community Water Systems (40 CFR 141.12)

Contaminant	mg/L
Total Trihalomethanes (TTHMs) (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform) and trichloromethane (chloroform))	0.10

(NOTE: The standard for TTHM only applies to community water systems subject to filtration and disinfection requirements which serve a population of 10,000 people or more until 16 December 2001. This MCL applies to community water systems that use only groundwater not under the direct influence of surface water and serve a population of 10,000 people or more until 16 December 2003. After 16 December 2003, this section is no longer applicable.)

Table 2: MCLs Applicable to Community and Nontransient, Noncommunity Water Systems (40 CFR 141.61(a))

Contaminant	mg/L
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.20
1,2-Dichloroethane	0.005
1,2-Dichloropropane	0.005
Benzene	0.005
Carbon Tetra chloride	0.005
cis-1,2-Dichloroethylene	0.07
Ethylbenzene	0.7
Monochlorobenzene	0.1
O-Dichlorobenzene	0.6
para-Dichlorobenzene	0.075
Styrene	0.1
Tetrachloroethylene	0.005
Toluene	1.0
trans-1,2-Dichloroethylene	0.1
Trichloroethylene	0.005
Vinyl chloride	0.002
Xylenes (total)	10.0
Dichloromethane	0.005*
1,2,4-Trichlorobenzene	0.07*
1,1,2-Trichloroethane	.005*

\* The effective date for these MCLs is 17 January 1994

**Table 3: MCLs For Synthetic Organic Contaminants Applicable to Community Water Systems and Nontransient, Noncommunity Water Systems (40 CFR 141.61(c))**

Contaminant	mg/L
Alachlor	0.002*
Aldicarb	0.003*
Aldicarb sulfoxide	0.004*
Aldicarb sulfone	0.002
Atrazine	0.003
Carbofuran	0.04
Chlordane	0.002
Dibromochloropropane	0.0002
2,4-D	0.07
Ethylene dibromide	0.00005
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Lindane	0.0002
Methoxychlor	0.04
Pentachlorophenol	0.001
Polychlorinated biphenyls	0.0005
Toxaphene	0.003
2,4,5-TP	0.05
Benzo(a)pyrene	0.0002
Delapon	0.2
Di(2-ethylhexyl) adipate	0.4
Di(2-ethylhexyl) phthalate	0.006
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Glyphosate	0.7
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Oxamyl (Vydate)	0.2
Picloram	0.5
Simazin	0.004
2,3,7,8,-TCDD (Dioxin)	3. x 10 <sup>-8</sup>

\*The MCLs for these compounds have been postponed indefinitely in the 27 May 1992 Federal Register.

**Appendix 2-2**  
**Primary Drinking Water Standards for Inorganic Contaminants**

**Table 1: MCLs Applicable Only to Community Water Systems (40 CFR 141.11, 141.12, and 141.62(b)(1))**

Contaminant	mg/L
Arsenic	0.05
Fluoride	4.0
Total Trihalomethanes	0.10*

\* This MCL only applies to community water systems which serve a population of 10,000 individuals or more and which add a disinfectant (oxidant) to the water in any part of the drinking water treatment process.

**Table 2: MCLs Applicable to Community Water Systems and Nontransient, Noncommunity Water Systems (40 CFR 141.62(b)(2) through 141.62(b)(6) and 141.62(b)(10) through 141.62(b)(15))**

Contaminant	mg/L
Asbestos	7 million fibers/L
Barium	2.0
Cadmium	0.005
Chromium	0.1
Mercury	0.002
Selenium	0.05
Antimony	0.006
Beryllium	0.004
Cyanide (as free Cyanide)	0.2
Thallium	0.002

**Table 3: MCLs Applicable to Community, Nontransient, Noncommunity and Transient Noncommunity Water Systems (40 CFR 141.62(b)(7) through 141.62(b)(9))**

<b>Contaminant</b>	<b>mg/L</b>
Nitrate (as N)	10.0
Nitrite (as N)	1.0
Total Nitrate and Nitrite (as N)	10.0

**Appendix 2-3**

**Detection Limitations for Inorganic Contaminants  
(40 CFR 141.23(a))**

**(NOTE: These detection limitations apply to Community and NTNC water systems.)**

<b>Contaminant</b>	<b>MCL (mg/L)</b>	<b>Analytical Method</b>	<b>Detection Limit (mg/L)</b>
Antimony	0.006	Atomic Absorption Furnace	0.003
		Atomic Absorption: Platform	0.0008 <sup>5</sup>
		ICP Mass spectrometry	0.0004
		Hydride Atomic Absorption	0.001
Asbestos	7 MFL <sup>1</sup>	Transmission Electron Microscopy	0.01 million fibers/L
Barium	2.0	Atomic Absorption; furnace technique	0.002
		Atomic Absorption; direct aspiration	0.1
		Inductively Coupled Plasma	0.002(0.001)
Beryllium	0.004	Atomic Absorption, Furnace	0.0002
		Atomic Absorption: Platform	0.00002 <sup>5</sup>
		Inductively Coupled Plasma <sup>3</sup>	0.0003
		ICP Mass Spectrometry	0.0003
Cadmium	0.005	Atomic Absorption; furnace technique	0.0001
		Inductively Coupled Plasma <sup>2</sup>	0.001
Chromium	0.1	Atomic Absorption; furnace technique	0.001
		Inductively Coupled Plasma	0.007
			(0.001)
Cyanide	0.2	Distillation, Spectrophotometric <sup>3</sup>	0.02
		Distillation, Automated, Spectrophotometric <sup>3</sup>	0.005
		Spectrophotometric <sup>3</sup>	0.05
		Distillation, Selective Electrode <sup>3</sup>	0.02
		Distillation, Amenable, Spectrophotometric <sup>4</sup>	
Mercury	0.002	Manual Cold Vapor Technique	0.0002
		Automated Cold Vapor Technique	0.0002
Nickel	0.1	Atomic Absorption, Furnace	0.001
		Atomic Absorption: Platform	0.0006 <sup>5</sup>
		Inductively Coupled Plasma <sup>3</sup>	0.005
		ICP Mass Spectrometry	0.0005
Nitrate	10 as N	Manual Cadmium Reduction	0.01
		Automated Hydrazine Reduction	0.01
		Automated Cadmium Reduction	0.05
		Ion Selective Electrode	1.0
		Ion Chromatography	0.01

Contaminant	MCL (mg/L)	Analytical Method	Detection Limit (mg/L)
Nitrite	1 as N	Spectrophotometric	0.01
		Automated Cadmium Reduction	0.05
		Manual Cadmium Reduction	0.01
		Ion Chromatography	0.004
Selenium	0.05	Atomic Absorption; furnace	0.002
		Atomic Absorption; gaseous hydride	0.002
Thallium	0.002	Atomic Absorption Furnace	0.001
		Atomic Absorption: Platform	0.0007 <sup>5</sup>
		ICP-Mass Spectrometry	0.0003

<sup>1</sup> MFL = million fibers per liter > 10 ppm.

<sup>2</sup> Using a 2x preconcentration step as noted in Method 200.7. Lower MDLs may be achieved by using a 4x preconcentration.

<sup>3</sup> Screening method for total cyanides.

<sup>4</sup> Measures "free" cyanides.

<sup>5</sup> Lower MDLs are reported using stabilized temperature graphite furnace atomic absorption.

**Appendix 2-4**

**Detection Limitations  
(40 CFR 141.24(h)(18))**

(NOTE: These detection limitations apply to Community and NTNC water systems.)

<b>Contaminant</b>	<b>Detection Limit</b>
Alachlor	0.0002
Aldicarb	0.0005
Aldicarb sulfoxide	0.0005
Aldicarb sulfone	0.0008
Atrazine	0.0001
Benzo[a]pyrene	0.00002
Carbofuran	0.0009
Chlordane	0.0002
Dalapon	0.001
1,2-Dibromo-3-chloropropane (DBCP)	0.00002
Di (2-ethylhexyl) adipate	0.0006
Di (2-ethylhexyl) phthalate	0.0006
Dinoseb	0.0002
Diquat	0.0004
2,4-D	0.0001
Endothall	0.009
Endrin	0.00001
Ethylene dibromide (EDB)	0.00001
Glyphosate	0.006
Heptachlor	0.00004
Heptachlor epoxide	0.00002
Hexachlorobenzene	0.0001
Hexachlorocyclopentadiene	0.0001
Lindane	0.00002
Methoxychlor	0.0001
Oxamyl	0.002
Picloram	0.0001
Pentachlorophenol	0.00004
Polychlorinated biphenyls	0.0001
Simazine	0.00007
Toxaphene	0.001
2,3,7,8-TCDD (Dioxin)	0.00000005
2,4,5-TP	0.0002





Appendix 2-5

Unregulated Contaminant Monitoring Regulation (1999)  
 (40 CFR 141.40(a)(3); 141.40(a)(4), Table 1)  
 [Revised April 2000]

Table 1--Assessment Monitoring Chemical Contaminants					
1 - Contaminant	2 - CAS Registry Number	3 - Analytical Methods	4 - Minimum Reporting Levels	5 - Sampling Location	6 - Period during which monitoring is to be completed
2,4-dinitrotoluene	121-14-2	EPA 525.2 <sup>a</sup>	2 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003
2,6-dinitrotoluene	606-20-2	EPA 525.2 <sup>a</sup>	2 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003
Acetochlor	34256-82-1	EPA 525.2 <sup>a</sup>	2 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003
DCPA mono-acid degradate <sup>n</sup>	887-54-7	EPA 515.1 <sup>a</sup> EPA 515.2 <sup>a</sup> D5317-93 <sup>b</sup> AOAC 992.32 <sup>c</sup>	1 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003
DCPA di-acid degradate <sup>n</sup>	2136-79-0	EPA 515.1 <sup>a</sup> EPA 515.2 <sup>a</sup> D5317-93 <sup>b</sup> AOAC 992.32 <sup>c</sup>	1 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003
4,4'-DDE	72-55-9	EPA 508 <sup>a</sup> EPA 508.1 <sup>a</sup> EPA 525.2 <sup>a</sup> D5812-96 <sup>b</sup> AOAC 990.06 <sup>c</sup>	0.8 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003
EPTC	759-94-4	EPA 507 <sup>a</sup> EPA 525.2 <sup>a</sup> D5475-93 <sup>b</sup> AOAC 991.07 <sup>c</sup>	1 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003
Molinate	2212-67-1	EPA 507 <sup>a</sup> EPA 525.2 <sup>a</sup> D5475-93 <sup>b</sup> AOAC 991.07 <sup>c</sup>	0.9 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003
MTBE	1634-04-4	EPA 524.2 <sup>a</sup> D5790-95 <sup>b</sup> SM 6210D <sup>d</sup> SM 6200B <sup>d</sup>	5 µg/L <sup>g</sup>	EPTDS <sup>f</sup>	2001-2003

**Table 1--Assessment Monitoring Chemical Contaminants**

1 - Contaminant	2 - CAS Registry Number	3 - Analytical Methods	4 - Minimum Reporting Levels	5 - Sampling Location	6 - Period during which monitoring is to be completed
Nitrobenzene	98-95-3	EPA 524.2 <sup>a</sup> D5790-95 <sup>b</sup> SM6210D <sup>d</sup> SM6200B <sup>d</sup>	10 µg/L <sup>g</sup>	EPTDS <sup>f</sup>	2001-2003
Perchlorate	14797-73-0	EPA 314.0	4 µg/L <sup>o</sup>	EPTDS <sup>f</sup>	2001-2003
Terbacil	5902-51-2	EPA 507 <sup>a</sup> EPA 525.2 <sup>a</sup> D5475-93 <sup>b</sup> AOAC 991.07 <sup>c</sup>	2 µg/L <sup>e</sup>	EPTDS <sup>f</sup>	2001-2003

**Table 2 - Screening Survey Chemical Contaminants To Be Sampled After Notice of Analytical Methods Availability**

1 - Contaminant	2 - CAS Registry Number	3 - Analytical Methods	4 - Minimum Reporting Levels	5 - Sampling Location	6 - Period during which monitoring is to be completed
1,2-diphenylhydrazine	122-66-7	EPA 525.2 <sup>i</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
2-methyl-phenol	95-48-7	SPE/GC/MS <sup>l</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
2,4-dichlorophenol	120-83-2	SPE/GC/MS <sup>l</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
2,4-dinitrophenol	51-28-5	SPE/GC/MS <sup>l</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
2,4,6-trichlorophenol	88-06-2	SPE/GC/MS <sup>l</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
Alachlor ESA	TBD <sup>h</sup>	TBD <sup>h</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
Diazinon	333-41-5	EPA 525.2 <sup>k</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
Disulfoton	298-04-4	EPA 525.2 <sup>k</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
Diuron	330-54-1	SPE/HPLC/ UV <sup>j</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
Fonofos	944-22-9	EPA 525.2 <sup>i</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
Linuron	330-55-2	SPE/HPLC/UV <sup>j</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
Polonium-210	13981-52-7	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>
Prometon	1610-18-0	EPA 525.2 <sup>k</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
Terbufos	13071-79-9	EPA 525.2 <sup>k</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>
RDX	121-82-4	Reserved <sup>h</sup>	Reserved <sup>h</sup>	EPTDS <sup>f</sup>	Reserved <sup>h</sup>

Table 2 - Screening Survey Chemical Contaminants To Be Sampled After Notice of Analytical Methods Availability					
1 - Contaminant	2 - CAS Registry Number	3 - Analytical Methods	4 - Minimum Reporting Levels	5 - Sampling Location	6 - Period during which monitoring is to be completed
<b>Screening Survey Microbiological Contaminants To Be Sampled After Notice of Analytical Methods Availability</b>					
Aeromonas	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>

Table 3 - Pre-Screen Testing Radionuclides To Be Sampled After Notice of Analytical Methods Availability					
1 - Contaminant	2 - CAS Registry Number	3 - Analytical Methods	4 - Minimum Reporting Levels	5 - Sampling Location	6 - Period during which monitoring is to be completed
Lead-210	14255-04-0	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved
<b>Pre-Screen Testing Microorganisms To Be Sampled After Notice of Analytical Methods Availability</b>					
Cyanobacteria (blue-green algae, other freshwater algae and their toxins).					
Echoviruses					
Coxsackieviruses					
Helicobacter pylori					
Microsporidia	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>
Calciviruses	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>
Adenoviruses	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>	Reserved <sup>h</sup>

Column headings are:

- 1 Chemical or microbiological contaminant: the name of the contaminants to be analyzed.
- 2 CAS (Chemical Abstract Service Number) Registry No. or Identification Number: a unique number identifying the chemical contaminants.
- 3 Analytical Methods: method numbers identifying the methods that must be used to test the contaminants.
- 4 Minimum Reporting Level: the value and unit of measure at or above which the concentration or density of the contaminant must be measured using the Approved Analytical Methods.

- 5 Sampling Location: the locations within a PWS at which samples must be collected.
- 6 Years During Which Monitoring to be Completed: The years during which the sampling and testing are to occur for the indicated contaminant.

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents listed in footnotes b-d and m was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at 800-426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street, SW., Washington, DC 20460 (Telephone: 202-260-3027); or at the Office of Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.

- <sup>a</sup> The version of the EPA methods which you must follow for this Rule are listed at Sec. 141.24 (e).
- <sup>b</sup> Annual Book of ASTM Standards, 1996 and 1998, Vol. 11.02, American Society for Testing and Materials. Method D5812-96 is located in the Annual Book of ASTM Standards, 1998, Vol. 11.02. Methods D5790-95, D5475-93, and D5317-93 are located in the Annual Book of ASTM Standards, 1996 and 1998, Vol 11.02. Copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.
- <sup>c</sup> Official Methods of Analysis of AOAC (Association of Official Analytical Chemist) International, Sixteenth Edition, 4th Revision, 1998, Volume I, AOAC International, First Union National Bank Lockbox, PO Box 75198, Baltimore, MD 21275-5198. 1-800-379-2622.
- <sup>d</sup> SM 6210 D is only found in the 18th and 19th editions of Standard Methods for the Examination of Water and Wastewater, 1992 and 1995, American Public Health Association; either edition may be used. SM 6200 B is only found in the 20th edition of Standard Methods for the Examination of Water and Wastewater, 1998. Copies may be obtained from the American Public Health Association, 1015 Fifteenth Street NW, Washington, DC 20005.
- <sup>e</sup> Minimum Reporting Level determined by multiplying by 10 the least sensitive method's minimum detection limit ( $MDL = \text{standard deviation} \times \text{Student's T value for 99\% confidence level with } n-1 \text{ degrees of freedom}$ ), or when available, multiplying by 5 the least sensitive method's estimated detection limit (where the EDL equals the concentration of compound yielding approximately a 5 to 1 signal to noise ratio or the calculated MDL, whichever is greater).
- <sup>f</sup> Entry Points to the Distribution System (EPTDS), After Treatment, representing each non-emergency water source in routine use over the twelve-month period of monitoring; sampling must occur at the EPTDS, unless the State has specified other sampling points that are used for compliance monitoring 40 CFR 141.24(f)(1), (2), and (3). See 40 CFR 141.40(a)(5)(ii)(C) for a complete explanation of requirements, including the use of source (raw) water sampling points.
- <sup>g</sup> Minimum Reporting Levels (MRL) for Volatile Organic Compounds (VOC) determined by multiplying either the published Method Detection Limit (MDL) or 0.5 ug/L times 10, whichever is greater. The MDL of 0.5 ug/L (0.0005 mg/L) was selected to conform to VOC MDL requirements of 40 CFR 141.24(f)(17)(E).
- <sup>h</sup> To be Determined at a later time.
- <sup>i</sup> Compound currently not listed as a contaminant in this method. Methods development currently being conducted in an attempt to add it to the scope of this method.
- <sup>j</sup> Methods development currently in progress to develop a solid phase extraction/high performance liquid chromatography/ultraviolet method for the determination of this compound.
- <sup>k</sup> Compound listed as being a contaminant using EPA Method 525.2; however, adequate sample preservation is not available. Preservation studies currently being conducted to develop adequate sample preservation.
- <sup>l</sup> Methods development currently in progress to develop a solid phase extraction /gas chromatography /mass spectrometry method for the determination of this compound.

<sup>m</sup> Method 314.0, "Determination of Perchlorate in Drinking Water Using Ion Chromatography," Revision 1.0, USEPA 815-B-99-003, November 1999. Available by requesting a copy from the EPA Safe Drinking Water Hotline within the United States at (800) 426-4791 (Hours are Monday through Friday, excluding federal holidays, from 9:00 a.m. to 5:30 p.m. Eastern Time). Alternately, the method can be assessed and downloaded directly on-line at [www.epa.gov/safewater/methods/sourcalt.html](http://www.epa.gov/safewater/methods/sourcalt.html).

<sup>n</sup> The approved methods do not allow for the identification and quantification of the individual acids, the single analytical result obtained should be reported as total DCPA mono- and di-acid degradates.

<sup>o</sup> MRL was established at a concentration, which is at least 1/4th the lowest known adverse health concentration, at which acceptable precision and accuracy has been demonstrated in spiked matrix samples.

**Table 4 - Water Quality Parameters To Be Monitored With UCMR Contaminants**

Parameter	Contaminant Type	Methodology		
		EPA Method	Standard Methods <sup>1</sup>	Other
pH	Chemical; Microbiological	<sup>2</sup> 150.1 <sup>2</sup> 150.2	4500-H + B	ASTM D1293-84 <sup>3</sup> ASTM D1293-95 <sup>3</sup>
Turbidity	Microbiological	<sup>4,5</sup> 180.1	2130 B <sup>4</sup>	GLI Method 2 <sup>4,6</sup>
Temperature	Microbiological	.....	2550	
Free Disinfectant Residual	Microbiological	.....	4500-CI D 4500-CI F 4500-CI G 4500-CI H 4500-CIO <sub>2</sub> D 4500-CIO <sub>2</sub> E 4500-O <sub>3</sub> B	ASTM D 1253-86 <sup>3</sup>
Total Disinfectant Residual	Microbiological	.....	4500-CI D 4500-CI E <sup>4</sup> 4500-CI F 4500-CI G <sup>4</sup> 4500-CI I	ASTM D 1253-86 <sup>3</sup>

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of the following documents was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the documents may be obtained from the sources listed below. Information regarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at 800-426-4791. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street, SW., Washington, DC 20460 (Telephone: 202-260-3027); or at the Office of Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.

<sup>1</sup> The 18th and 19th Editions of *Standard Methods for the Examination of Water and Wastewater*, 1992 and 1995. Methods 2130 B; 2550; 4500-CI D, E, F, G, H, I; 4500-CIO<sub>2</sub> D, E; 4500-H B; and 4500-O<sub>3</sub> B in the 20th edition *Standard Methods for the Examination of Water and*

*Wastewater, 1998*, American Public Health Association, 1015 Fifteenth St. NW, Washington D.C., 20005.

- <sup>2</sup> Methods 150.1 and 150.2 are available from USEPA, NERL, 26 W. Martin Luther King Dr., Cincinnati, Ohio 45268. The identical methods are also in "Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983, available from the National Technical Information Service (NTIS), U.S. Department of Commerce, 5285 Port Royal Rd., Springfield, Virginia 22161, PB84-128677. (Note: NTIS toll-free number is 800-553-6847.)
- <sup>3</sup> *Annual Book of ASTM Standards, 1994 and 1996*, Volumes 11.01, ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428. Version D1293-84 is located in the *Annual Book of ASTM Standards, 1994*, Volumes 11.01. Version D1293-95 is located in the *Annual Book of ASTM Standards, 1996*, Volumes 11.01.
- <sup>4</sup> "Technical Notes on Drinking Water," EPA-600/R-94-173, October 1994, Available at NTIS, PB95-104766.
- <sup>5</sup> "Methods for the Determination of Inorganic Substances in Environmental Samples," EPA-600/R-93-100, August 1993. Available at NTIS, PB94-121811
- <sup>6</sup> GLI Method 2, "Turbidity," November 2, 1992, Great Lakes Instruments Inc., 8855 North 55th St., Milwaukee, Wisconsin 53223.

**Table 5 - Monitoring Frequency by Contaminant and Water Source Types**

Contaminant Type	Water Source Type	Timeframe	Frequency
Chemical	Surface Water	12 mo	Four quarterly samples taken as follows: Select either the first, second, or third month of a quarter and sample in that same month of each of four consecutive quarters <sup>a</sup> to ensure that one of those sampling events occurs during the vulnerable time. <sup>b</sup>
	Groundwater	12 mo	Two times in a year taken as follows: Sample during 1 mo of the vulnerable time <sup>b</sup> and during 1 mo 5 to 7 mo earlier or later. <sup>c</sup>
Microbiological	Surface and groundwater	12 mo	Two times in a year taken as follows: Sample during 1 month of the vulnerable time <sup>b</sup> and during 1 mo 5 to 7 mo earlier or later. <sup>c</sup>

- <sup>a</sup> "Select either the first, second, or third month of a quarter and sample in that same month of each of 4 consecutive quarters" means that you must monitor during each of the 4 mo of either: January, April, July, October; or February, May, August, November; or March, June, September, December.
- <sup>b</sup> "Vulnerable time" means 1 May through 31 July, unless the state or EPA informs you that it has selected a different time period for sampling as your system's vulnerable time.
- <sup>c</sup> "Sample during 1 mo of the vulnerable time and during 1 mo 5 to 7 mo earlier or later" means, for example, that if you select May as your "vulnerable time" month to sample, then 1 mo 5 to 7 months earlier would be either October, November or December of the preceding year, and 1 mo 5 to 7 m later would be either, October, November, or December of the same year.





**Appendix 2-5a**  
**Unregulated Contaminant Monitoring Reporting Requirements**  
**(40 CFR 141.35, Table 1)**  
**[Added April 2000]**

**Data element**

1. Public Water System (PWS)  
Identification Number

**Definition**

The code used to identify each PWS. The code begins with the standard two-character postal state abbreviation; the remaining seven characters are unique to each PWS.

2. Public Water System  
Facility Identification  
Number--Source, Treatment  
Plant, and Sampling Point

An identification number established by the state, or, at the state's discretion, the PWS, that is unique to the system for an intake for each source of water, a treatment plant and a sampling point. Within each PWS, each intake, treatment plant and sampling point must receive a unique identification number, including, for intake; surface water intake, ground water well or wellfield centroid; and including, for sampling point; entry points to the distribution system, wellhead, intake, locations within the distribution system, or other representative sampling point specified by the state. The same identification number must be used consistently throughout the history of unregulated contaminant monitoring to represent the facility.

3. Sample Collection Date.

The date the sample is collected reported as 4-digit year, 2-digit month, and 2-digit day.

4. Sample Identification  
Number.

A numeric value assigned by the PWS or laboratory to uniquely identify a specific sampling occurrence.

5. Contaminant/Parameter

The unregulated contaminant or water quality parameter for which the sample is being analyzed.

6. Analytical Results--Sign.

An alphanumeric value indicating whether the sample analysis result was:

(a) (<) "less than" means the detected at a level "less than" the MRL.

(b) (=) "equal to" means the contaminant was detected at a level "equal to" the value reported in "Analytical Result--Value."

7. Analytical Result--Value

The actual numeric value of the analysis for chemical and microbiological results, or the minimum reporting level (MRL) if the analytical result is less than the specified contaminant's MRL.

Data element	Definition
8. Analytical Result Measure.	Unit of The unit of measurement for the analytical results reported. [(e.g., µg/L); colony-forming units per milliliter, (CFU/mL), etc.]
9. Analytical Method Number	The identification number of the analytical method used.
10. Sample Analysis Type	The type of sample collected. Permitted values include: (a) Field Sample--sample collected and submitted for analysis under this rule. (b) Batch Spike/Spike Duplicate--Samples associated with a batch used for calculating analytical precision and accuracy. A batch is defined as the set of field samples plus one spiked sample and one spiked duplicate sample analyzed for contaminant concentrations
11. Sample Batch Identification Number	A number assigned by the laboratory to the batch of samples analyzed with the spiked sample (at the spiking concentration reported), to be reported as 9-digit laboratory number (assigned by the state or U.S. EPA), 4-digit year, 2-digit month, 2-digit day and 2-digit batch number.
12. Detection Level	“Detection level” refers to the detection limit applied to both the method and equipment. Detection limit is the lowest concentration of a target contaminant that a given method or piece of equipment can reliably ascertain and report as greater than zero ( e.g., Instrument Detection Limit, Method Detection Limit, or Estimated Detection Limit).
13. Detection Level Unit of Measure	The unit of measure to express the concentration, count, or other value of a contaminant level for the detection level reported. (e.g., µg/L, colony forming units/mL (CFU/mL), etc.)
14. Analytical Precision	Precision is the degree of agreement among a set of repeated measurements and is monitored through the use of replicate samples or measurements. For purposes of the Unregulated Contaminant Monitoring Regulation (UCMR), Analytical Precision is defined as the relative percent difference (RPD) between spiked matrix duplicates. The RPD for the spiked matrix duplicates analyzed in the same batch of samples as the analytical result being reported is to be entered in this field. Precision is calculated as Relative Percent Difference (RPD) between spiked matrix duplicates using, $RPD = [(X_1 - X_2) / (X_1 + X_2)/2] \times 100$

**Data element****Definition**

## 15. Analytical Accuracy

Accuracy describes how close a result is to the true value measured through the use of spikes, standards, surrogates or performance evaluation samples. For purposes of unregulated contaminant monitoring, accuracy is defined as the percent recovery of the contaminant in the spiked matrix sample analyzed in the same analytical batch as the sample result being reported and calculated using;

$$\% \text{ recovery} = \left[ \frac{\text{amt. found in spiked sample} - \text{amt. found in sample}}{\text{amt. spiked}} \right] \times 100$$

## 16. Spiking Concentration

The concentration of method analytes added to a sample to be analyzed for calculating analytical precision and accuracy where the value reported use the same unit of measure reported for Analytical Results

## 17. Presence/Absence

Chemicals: Presence--a response was produced by the analysis (i.e., greater than or equal to the MDL but less than the MRL)/Absence--no response was produced by the analysis (i.e., less than the MDL).

Microbiologicals: Presence--indicates a response was produced by the analysis / Absence--indicates no response was produced by the analysis.



**Appendix 2-6**

**Coliform Bacteria Sampling Frequency  
(40 CFR 141.21(a)(2))**

**(NOTE: This sampling frequency applies to Community and Noncommunity water systems.)**

Population Served Per Month	Minimum Number of Samples Per Month
25 to 1000	1
1001 to 2500	2
2501 to 3300	3
3301 to 4100	4
4101 to 4900	5
4901 to 5800	6
5801 to 6700	7
6701 to 7600	8
7601 to 8500	9
8501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480



## Appendix 2-6a

### Consumer Confidence Report Contents (40 CFR 141.153 and 141.154) [Added January 1999, Revised September 2000]

- a. Each community water system must provide to its customers an annual report that contains the information specified below in items "a" through "h" and the required additional health information listed on pages H4 through H5." The full text of the regulations regarding Consumer Confidence Report contents can be found in 40 CFR 141.153 and 141.154.
- b. Each report must identify the source(s) of the water delivered by the community water system by providing information on:
  1. The type of the water: e.g., surface water, groundwater; and
  2. The commonly used name (if any) and location of the body (or bodies) of water.

If a source water assessment has been completed, the report must notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the primacy agency, the report must include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the primacy agency or written by the operator.

- c. Each report must include the following definitions:
  1. Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
  2. Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

A report for a community water system operating under a variance or an exemption issued under Sections 1415 or 1416 of the SDWA must include the following definition: Variances and Exemptions: state or U.S. EPA permission not to meet an MCL or a treatment technique under certain conditions.

A report that contains data on contaminants that EPA regulates using any of the following terms must include the applicable definitions:

- A. Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.
- B. Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.
- C. Maximum residual disinfectant level goal or MRDLG: The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- D. Maximum residual disinfectant level or MRDL: The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.



d. Information on Detected Contaminants. This subsection specifies the requirements for information to be included in each report for contaminants subject to mandatory monitoring (except *Cryptosporidium*). It applies to:

1. Contaminants subject to an MCL, action level, maximum residual disinfectant level, or treatment technique (regulated contaminants)
2. Contaminants for which monitoring is required by 40 CFR 141.40 (unregulated contaminants); and
3. Disinfection by-products or microbial contaminants for which monitoring is required by 40 CFR 141.142 and 141.143, except as provided under paragraph (e)(1) of this section, and which are detected in the finished water.

The data relating to these contaminants must be displayed in one table or in several adjacent tables. Any additional monitoring results that a community water system chooses to include in its report must be displayed separately.

The data must be derived from data collected to comply with U.S. EPA and state monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter except that:

1. Where a system is allowed to monitor for regulated contaminants less often than once a year, the table(s) must include the date and results of the most recent sampling and the report must include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than 5 years need be included.
2. Results of monitoring in compliance with 40 CFR 141.142 and 141.143 need only be included for 5 years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

For detected regulated contaminants (listed in Appendix A to 40 CFR 141, Subpart O), the table(s) must contain:

1. The MCL for that contaminant expressed as a number equal to or greater than 1.0 (as provided in Appendix A to 40 CFR 141, Subpart O);
2. The MCLG for that contaminant expressed in the same units as the MCL;
3. If there is no MCL for a detected contaminant, the table must indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report must include the definitions for treatment technique and/or action level, as appropriate, specified in paragraph(c)(3) of 40 CFR 141.153;
4. For contaminants subject to an MCL, except turbidity and total coliforms, the highest contaminant level used to determine compliance with an NPDWR and the range of detected levels, as follows:
  - a. When compliance with the MCL is determined annually or less frequently: The highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL.
  - b. When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point: the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL.
  - c. When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all sampling points: the average and range of detection expressed in the same units as the MCL.
5. For turbidity.

- a. When it is reported pursuant to 40 CFR 141.13: The highest average monthly value.
  - b. When it is reported pursuant to the requirements of 40 CFR 141.71: the highest monthly value. The report should include an explanation of the reasons for measuring turbidity.
  - c. When it is reported pursuant to 40 CFR 141.73 or 141.173: The highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in 40 CFR 141.73 or 151.173 for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity;
6. For lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level;
  7. For total coliform:
    - a. The highest monthly number of positive samples for systems collecting fewer than 40 samples per month; or
    - b. The highest monthly percentage of positive samples for systems collecting at least 40 samples per month;
  8. For fecal coliform: The total number of positive samples; and
  9. The likely source(s) of detected contaminants to the best of the operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the operator. If the operator lacks specific information on the likely source, the report must include one or more of the typical sources for that contaminant listed in appendix A to this subpart that is most applicable to the system.

If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area, and the report should identify each separate distribution system. Alternatively, systems could produce separate reports tailored to include data for each service area.

The table(s) must clearly identify any data indicating violations of MCLs, MRDLs, or treatment techniques, and the report must contain a clear and readily understandable explanation of the violation including: the length of the violation, the potential adverse health effects, and actions taken by the system to address the violation. To describe the potential health effects, the system must use the relevant language of Appendix A to Subpart O of 40 CFR 141.

For detected unregulated contaminants for which monitoring is required (except *Cryptosporidium*), the table(s) must contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

e. Information on *Cryptosporidium*, radon, and other contaminants:

If the system has performed any monitoring for *Cryptosporidium*, including monitoring performed to satisfy the requirements of 40 CFR 141.143, which indicates that *Cryptosporidium* may be present in the source water or the finished water, the report must include:

1. A summary of the results of the monitoring; and
2. An explanation of the significance of the results.

If the system has performed any monitoring for radon that indicates that radon may be present in the finished water, the report must include:

1. The results of the monitoring; and
2. An explanation of the significance of the results.

If the system has performed additional monitoring that indicates the presence of other contaminants in the finished water, U.S. EPA strongly encourages systems to report any results that may indicate a health concern. To determine if results may indicate a health concern, U.S. EPA recommends that systems find out if U.S. EPA has proposed an NPDWR or issued a health advisory for that contaminant by calling the Safe Drinking Water Hotline (800-426-4791). U.S. EPA considers detects above a proposed MCL or health advisory level to indicate possible health concerns. For such contaminants, U.S. EPA recommends that the report include:

1. The results of the monitoring; and
2. An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

f. Compliance with NPDWR. In addition to the requirements of 40 CFR 141.153(d)(6), the report must note any violation that occurred during the year covered by the report of a requirement listed below, and include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation.

1. Monitoring and reporting of compliance data;
2. Filtration and disinfection prescribed by Subpart H of 40 CFR 141. For systems that have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of such equipment or processes which constitutes a violation, the report must include the following language as part of the explanation of potential adverse health effects: Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
3. Lead and copper control requirements prescribed by Subpart I of 40 CFR 141. For systems that fail to take one or more actions prescribed by 40 CFR 141.80(d), 141.81, 141.82, 141.83, or 141.84, the report must include the applicable language of Appendix A to Subpart O of 40 CFR 141 for lead, copper, or both.
4. Treatment techniques for Acrylamide and Epichlorohydrin prescribed by 40 CFR 141, Subpart K. For systems that violate the requirements of 40 CFR 141, Subpart K, the report must include the relevant language from Appendix A to Subpart O of 40 CFR 141.
5. Recordkeeping of compliance data.
6. Special monitoring requirements prescribed by 40 CFR 141.40 and 141.41; and
7. Violation of the terms of a variance, an exemption, or an administrative or judicial order.

g. Variances and Exemptions. If a system is operating under the terms of a variance or an exemption issued under Sections 1415 or 1416 of the SDWA, the report must contain:

1. An explanation of the reasons for the variance or exemption;
2. The date on which the variance or exemption was issued;
3. A brief status report on the steps the system is taking to install treatment, find alternative sources of water, or otherwise comply with the terms and schedules of the variance or exemption; and
4. A notice of any opportunity for public input in the review, or renewal, of the variance or exemption.

h. Additional information:

The report must contain a brief explanation regarding contaminants that may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language of items h(1) through h(3) listed below or systems may use their own comparable language. The report must also include the language of item h(4) below.

1. The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.
2. Contaminants that may be present in source water include:
  - a. Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
  - b. Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
  - c. Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
  - d. Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
  - e. Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.
3. To ensure that tap water is safe to drink, U.S. EPA prescribes regulations to limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.
4. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline (800-426-4791).

The report must include the telephone number of the owner, operator, or designee of the community water system as a source of additional information concerning the report.

In communities with a large proportion of non-English speaking residents, as determined by the Primacy Agency, the report must contain information in the appropriate language(s) regarding the importance of the report or contain a telephone number or address where such residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language.

The report must include information (e.g., time and place of regularly scheduled board meetings) about opportunities for public participation in decisions that may affect the quality of the water.

The systems may include such additional information as they deem necessary for public education consistent with, and not detracting from, the purpose of the report.

#### **Required Additional Health Information. (40 CFR 141.154)**

- a. All reports must prominently display the following language: Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their healthcare providers. U.S. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).
- b. A system that detects arsenic at levels above 25 µg/l, but below the MCL:
  1. Must include in its report a short informational statement about arsenic, using language such as: U.S. EPA is reviewing the drinking water standard for arsenic because of special concerns that it may not be stringent enough. Arsenic is a naturally occurring mineral known to cause cancer in humans at high concentrations.
  2. May write its own educational statement, but only in consultation with the Primacy Agency.
- c. A system that detects nitrate at levels above 5 mg/L, but below the MCL:
  1. Must include a short informational statement about the impacts of nitrate on children using language such as: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than 6 mo of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask advice from your health care provider.
  2. May write its own educational statement, but only in consultation with the Primacy Agency.
- d. Systems that detect lead above the action level in more than 5%, but fewer than 10%, of homes sampled:
  1. Must include a short informational statement about the special impact of lead on children using language such as: Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

2. May write its own educational statement, but only in consultation with the Primacy Agency.
- e. Community water systems that detect TTHM above 0.080 mg/l, but below the MCL in Sec. 141.12, as an annual average, monitored and calculated under the provisions of 40 CFR 141.30, must include health effects language for TTHMs prescribed by Appendix A.



**Appendix 2-7**

**Monitoring and Sampling Parameters for Lead and Copper in Drinking Water  
(40 CFR 141.86(c)(5) and 141.86(d)(1))  
[Revised July 2000]**

***Number of Sampling Sites Required***

Water systems shall collect at least one sample during each specified monitoring period from the number of sites listed in the first column ("standard monitoring") of the table. A system conducting reduced monitoring shall collect at least one sample from the number of sites specified in the second column ("reduced monitoring") of the table during each specified monitoring period. Reduced monitoring sites shall be representative of the sites required for standard monitoring. States may specify sampling locations when a system is conducting reduced monitoring.

<b>System Size (people served)</b>	<b>Number of sites (standard monitoring)</b>	<b>Number of sites (reduced monitoring)</b>
> 100,000	100	50
10,001 - 100,000	60	30
3301 - 10,000	40	20
501 - 3300	20	10
101 - 500	10	5
</= 100	5	5

***Initial Tap Sampling***

The first 6-mo monitoring period for small, medium, and large systems begin on the following dates:

<b>System Size (people served)</b>	<b>First 6-mo monitoring period begins on:</b>
> 50,000	1 Jan 1992
3301 - 50,000	1 Jul 1992
3300	1 Jul 1993





## Appendix 2-8

### Summary of Monitoring Requirements for Water Quality Parameters<sup>1</sup> (40 CFR 141.87) [Revised July 2000]

Monitoring Period	Parameters <sup>2</sup>	Location	Frequency
Initial Monitoring	pH, alkalinity, orthophosphate or silica <sup>3</sup> , calcium, conductivity, temperature.	Taps and at entry points to distribution system.	Every 6 mo.
After Installation of Corrosion Control	pH, alkalinity, orthophosphate or silica <sup>3</sup> , calcium. <sup>4</sup>	Taps	Every 6 mo.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as a part of corrosion control), inhibitor dosage rate and inhibitor residual. <sup>5</sup>	Entry points to distribution system. <sup>6</sup>	No less frequently than every 2 weeks.
After State Specifies Parameter Values for Optimal Corrosion Control	pH, alkalinity, orthophosphate or silica <sup>3</sup> , calcium. <sup>4</sup>	Taps	Every 6 mo.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as a part of corrosion control), inhibitor dosage rate and inhibitor residual. <sup>5</sup>	Entry points to distribution system. <sup>6</sup>	No less frequently than every 2 weeks.
Reduced Monitoring	pH, alkalinity, orthophosphate or silica <sup>3</sup> , calcium <sup>4</sup> .	Taps	Every 6 mo, annually <sup>7</sup> or every 3 yr <sup>8</sup> ; reduced number of sites.
	pH, alkalinity dosage rate and concentration (if alkalinity adjusted as a part of corrosion control), inhibitor dosage rate and inhibitor residual <sup>5</sup>	Entry points to distribution system. <sup>6</sup>	No less frequently than every 2 weeks.

<sup>1</sup> Table is for illustrative purposes; consult the text of this section for precise regulatory requirements.

<sup>2</sup> Small and medium-size systems have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

<sup>3</sup> Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

<sup>4</sup> Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

<sup>5</sup> Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

<sup>6</sup> Groundwater systems may limit monitoring to representative locations throughout the system.

<sup>7</sup> Water systems may reduce frequency of monitoring for water quality parameters at the tap from every 6 mo to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of monitoring.

<sup>8</sup> Water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every 3 yr if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to 0.005 mg/L, 90th percentile copper levels less than or equal to 0.65 mg/L, and the range of water quality parameters designated by the state under 40 CFR 141.82(f) as representing optimal corrosion control during two consecutive 6-mo monitoring periods.

## Appendix 2-9

### MCL and MRDL Requirements Related to Disinfection (40 CFR 141.64 and 141.65) [Added January 1999]

- The MCLs for disinfection byproducts are as follows:

Disinfection byproduct	MCL (mg/L)
Total trihalomethanes (TTHM)	0.080
Haloacetic acids (five) (HAA5)	0.060
Bromate	0.010
Chlorite	1.0

- Maximum residual disinfectant levels (MRDLs) are as follows:

Disinfectant residual	MRDL (mg/L)
Chlorine	4.0 (as Cl <sub>2</sub> ).
Chloramines	4.0 (as Cl <sub>2</sub> ).
Chlorine dioxide	0.8 (as ClO <sub>2</sub> ).



Appendix 2-10

Monitoring Frequency for TTHM and HAA5  
(40 CFR 141.132(b))  
[Added January 1999]

Table 1: Routine Monitoring Frequency for TTHM and HAA5

Type of system	Minimum monitoring frequency	Sample location in the distribution system
Subpart H system serving at least 10,000 persons.	Four water samples per quarter per treatment plant.	At least 25% of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods. <sup>1</sup>
Subpart H system serving from 500 to 9,999 persons.	One water sample per quarter per treatment plant.	Locations representing maximum residence time. <sup>1</sup>
Subpart H system serving < 500 persons.	One sample per year per treatment plant during month of warmest water temperature.	Locations representing maximum residence time. <sup>1</sup> If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria (see 40 CFR 141.132(c))
System using only groundwater not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons.	One water sample per quarter per treatment plant <sup>2</sup> .	Locations representing maximum residence time. <sup>1</sup>
System using only groundwater not under direct influence of surface water using chemical disinfectant and serving < 10,000 persons.	One sample per year per treatment plant <sup>2</sup> during month of warmest water temperature.	Locations representing maximum residence time. <sup>1</sup> If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets criteria for reduced monitoring (see 40 CFR 141.132(c))

<sup>1</sup> If a system elects to sample more frequently than the minimum required, at least 25% of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

<sup>2</sup> Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with state approval in accordance with criteria developed under 40 CFR 142.16(f)(5).

**Table 2: Reduced Monitoring Frequency for TTHM and HAA5**

If you are a . . .	You may reduce monitoring if you have monitored at least one year and your . . .	To this level
Subpart H system serving at least 10,000 persons which has a source water annual average TOC level before any treatment, $\leq 4.0$ mg/L.	TTHM annual average $\leq 0.040$ mg/L and HAA5 annual average $\leq 0.30$ mg/L.	One sample per treatment plant per quarter at distribution system location reflecting maximum residence time.
Subpart H system serving from 500 to 9999 persons which has a source water annual average TOC level, before any treatment, $\leq 4.0$ mg/L.	TTHM annual average $\leq 0.040$ mg/L and HAA5 annual average $\leq 0.030$ mg/L.	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature. NOTE: Any Subpart H system serving fewer than 500 persons may not reduce its monitoring to < one sample per treatment plant per year.
System using only groundwater not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons.	TTHM annual average $\leq 0.040$ mg/L and HAA5 annual average $\leq 0.030$ mg/L.	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature
System using only groundwater not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons.	TTHM annual average $\leq 0.040$ mg/L and HAA5 annual average $\leq 0.030$ mg/L for two consecutive years or TTHM annual average $\leq 0.020$ mg/L and HAA5 annual average $\leq 0.015$ mg/L for 1 yr.	One sample per treatment plant per 3 yr monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature with the 3-yr cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring.







**Appendix 2-11**

**Reporting Requirements  
(40 CFR 141.134(b))  
[Added January 1999]**

**Disinfection Byproducts, systems must report the information specified in the following table:**

<b>If you are a...</b>	<b>You must report...<sup>1</sup></b>
<p>System monitoring for TTHM and HAA5 under the requirements of 40 CFR 141.132(b) on a quarterly or more frequent basis.</p>	<ul style="list-style-type: none"> <li>(1) The number of samples taken during the last quarter.</li> <li>(2) The location, date, and result of each sample taken during the last quarter.</li> <li>(3) The arithmetic average of all samples taken in the last quarter.</li> <li>(4) The annual arithmetic average of the quarterly arithmetic averages of this section for the last four quarters.</li> <li>(5) Whether the MCL exceeded.</li> </ul>
<p>System monitoring for TTHMs and HAA5 under the requirements of 40 CFR 141.132(b) less frequently than quarterly (but at least annually).</p>	<ul style="list-style-type: none"> <li>(1) The number of samples taken during the last year</li> <li>(2) The location, date, and result of each sample taken during the last quarter.</li> <li>(3) The arithmetic average of all samples taken over the last year.</li> <li>(4) Whether the MCL was exceeded.</li> </ul>
<p>System monitoring for TTHMs and HAA5 under the requirements of 40 CFR 141.132(b) less frequently than annually.</p>	<ul style="list-style-type: none"> <li>(1) The location, date, and result of the last sample taken.</li> <li>(2) Whether the MCL was exceeded.</li> </ul>
<p>System monitoring for chlorite under the requirements of 40 CFR 141.132(b).</p>	<ul style="list-style-type: none"> <li>(1) The number of samples taken each month for the last 3 mo.</li> <li>(2) The location, date, and result of each sample taken during the last quarter.</li> <li>(3) For each month in the reporting period, the arithmetic average of all samples taken in the month.</li> <li>(4) Whether the MCL was exceeded, and in which month it was exceeded.</li> </ul>
<p>System monitoring for bromate under the requirements of 40 CFR 141.132(b).</p>	<ul style="list-style-type: none"> <li>(1) The number of samples taken during the last quarter</li> <li>(2) The location, date, and result of each sample taken during the last quarter.</li> <li>(3) The arithmetic average of the monthly arithmetic averages of all samples in the last year.</li> <li>(4) Whether the MCL was exceeded.</li> </ul>

**Disinfectants, systems must report the information specified in the following table:**

If you are a...	You must report... <sup>1</sup>
System monitoring for chlorine or chloramines under the requirements of 40 CFR 141.132(c).	<ol style="list-style-type: none"> <li>(1) The number of samples taken during each month of the last quarter.</li> <li>(2) The monthly arithmetic average of all samples taken in each month for the last 12 mo.</li> <li>(3) The arithmetic average of all monthly averages for the last 12 mo.</li> <li>(4) Whether the MRDL was exceeded.</li> </ol>
System monitoring for chlorine dioxide under the requirements of 40 CFR 141.132(c).	<ol style="list-style-type: none"> <li>(1) The dates, results, and locations of samples taken during the last quarter.</li> <li>(2) Whether the MRDL was exceeded.</li> <li>(3) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute/nonacute.</li> </ol>

<sup>1</sup> The state may choose to perform calculations and determine whether the MRDL was exceeded, in lieu of having the system report that information.

**Disinfection Byproduct Precursors and Enhanced Coagulation or Enhanced Softening, systems must report the information specified in the following table:**

If you are a . . .	You must report . . . <sup>1</sup>
System monitoring monthly or quarterly for TOC under the requirements of 40 CFR 141.132(d) and required to meet the enhanced coagulation or enhanced softening requirements in 40 CFR 141.135(b)(2) or (3).	<ol style="list-style-type: none"> <li>(1) The number of paired (source water and treated water, prior to continuous disinfection) samples taken during the last quarter.</li> <li>(2) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.</li> <li>(3) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal.</li> <li>(4) Calculations for determining compliance with the TOC percent removal requirements, as provided in 40 CFR 141.135(c)(1).</li> <li>(5) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in 40 CFR 141.135(b) for the last four quarters.</li> </ol>
System monitoring monthly or quarterly for TOC under the requirements of 40 CFR 141.132(d) and meeting one or more of the alternative compliance criteria in 40 CFR 141.135(a)(2) or (3).	<ol style="list-style-type: none"> <li>(1) The alternative compliance criterion that the system is using.</li> <li>(2) The number of paired samples taken during the last quarter.</li> <li>(3) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.</li> </ol>

**Disinfection Byproduct Precursors and Enhanced Coagulation or Enhanced Softening, systems must report the information specified in the following table:**

If you are a . . .	You must report . . . <sup>1</sup>
	<ul style="list-style-type: none"> <li>(4) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in 40 CFR 141.135(a)(2)(i) or (iii) or of treated water TOC for systems meeting the criterion in 40 CFR 141.135(a)(2)(ii).</li> <li>(5) The running annual arithmetic average based on monthly averages (or samples) of source water SUVA for systems meeting criterion in 40 CFR 141.135(a)(2)(v) or of treated water SUVA for systems meeting the criterion in 40 CFR 141.135(a)(2)(vi).</li> <li>(6) The running annual average of source water alkalinity for systems meeting the criterion in 40 CFR 141.135(a)(2)(iii) and of treated water alkalinity for systems meeting the criterion in 40 CFR 141.135(a)(3)(i).</li> <li>(7) The running annual average for both TTHM and HAA5 for systems meeting the criterion in 40 CFR 141.135(a)(2)(iii) or (iv).</li> <li>(8) The running annual average of the amount of magnesium hardness removal (as CaCO<sub>3</sub>, in mg/L) for systems meeting the criterion in 40 CFR 141.135(a)(3)(ii).</li> <li>(9) Whether the system is compliance with the particular alternative criterion in 40 CFR 141.135(a)(2) or (3).</li> </ul>

<sup>1</sup> The state may choose to perform calculations and determine whether the treatment technique was met, in lieu of having the system report that information.



Appendix 2-12

NPDWR Violations and Other Situations Requiring Public Notice  
(40 CFR 141, Subpart Q, Appendix A)  
[Added September 2000]

Contaminant	MCL/MRDL/TT violations <sup>2</sup>		Monitoring and testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
<i>I. Violations of National Primary Drinking Water Regulations (NPDWR).<sup>3</sup></i>				
<b>A. Microbiological Contaminants</b>				
1. Total Coliform	2	141.63(a)	3	141.21(a)-(e)
2. Fecal coliform/E.coli	1	141.63(b)	<sup>4</sup> 1, 3	141.21(e)
3. Turbidity MCL	2	141.13(a)	3	141.22
4. Turbidity MCL (average of 2 days' samples >5 NTU)	<sup>5</sup> 2, 1	141.13(b)	3	141.22
5. Turbidity (for TT violations resulting from a single exceedance of maximum allowable turbidity level)	<sup>6</sup> 2, 1	141.71(a)(2), 141.71(c)(2)(i) 141.73(a)(2), 141.73(b)(2), 141.73(c)(2), 141.73(d), 141.173(a)(2), 141.173(b)	3	141.74(a)(1), 141.74(b)(2), 141.74(c)(1), 141.174
6. Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. allowable turbidity level (TT).	2	141.70-141.73	3	141.74
7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max. turbidity level (TT)	2	<sup>7</sup> 141.170-141.173	3	141.172, 141.174
<b>B. Inorganic Chemicals (IOCs)</b>				
1. Antimony	2	141.62(b)	3	141.23(a), (c)
2. Arsenic	2	141.11(b), 141.23(n)	3	141.23(a), (l), (m)
3. Asbestos (fibers >10 µm)	2	141.62(b)	3	141.23(a)-(b)
4. Barium	2	141.62(b)	3	141.23(a), (c)
5. Beryllium	2	141.62(b)	3	141.23(a), (c)
6. Cadmium	2	141.62(b)	3	141.23(a), (c)
7. Chromium (total)	2	141.62(b)	3	141.23(a), (c)
8. Cyanide	2	141.62(b)	3	141.23(a), (c)

Contaminant	MCL/MRDL/TT violations <sup>2</sup>		Monitoring and testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
9. Flouride	2	141.62(b)	3	141.23(a), (c)
10. Mercury (inorganic)	2	141.62(b)	2	141.23(a), (c)
11. Nitrate	1	141.62(b)	<sup>8</sup> 1, 3	141.23(a), (d), 141.23(f)(2)
12. Nitrite	1	141.62(b)	<sup>8</sup> 1, 3	141.23(a), (e), 141.23(f)(2)
13. Total Nitrate and Nitrite	1	141.62(b)	3	141.23(a)
14. Selenium	2	141.62(b)	3	141.23(a), (c)
15. Thallium	2	141.62(b)	3	141.23(a), (c)
C. Lead and Copper Rule (Action Level for lead is 0.015 mg/L, for copper is 1.3 mg/L)				
1. Lead and Copper Rule (TT)	2	141.80-141.85	3	141.86-141.89
D. Synthetic Organic Chemicals (SOCs)				
1. 2,4-D	2	141.61(c)	3	141.24(h)
2. 2,4,5-TP (Silvex)	2	141.61(c)	3	141.24(h)
3. Alachlor	2	141.61(c)	3	141.24(h)
4. Atrazine	2	141.61(c)	3	141.24(h)
5. Benzo(a)pyrene (PAHs)	2	141.61(c)	3	141.24(h)
6. Carbofuran	2	141.61(c)	3	141.24(h)
7. Chlordane	2	141.61(c)	3	141.24(h)
8. Dalapon	2	141.61(c)	3	141.24(h)
9. Di (2-ethylhexyl) adipate	2	141.61(c)	3	141.24(h)
10. Di (2-ethylhexyl) phthalate	2	141.61(c)	3	141.24(h)
11. Dibromochloropropane	2	141.61(c)	3	141.24(h)
12. Dinoseb	2	141.61(c)	3	141.24(h)
13. Dioxin (2,3,7,8-TCDD)	2	141.61(c)	3	141.24(h)
14. Diquat	2	141.61(c)	3	141.24(h)
15. Endothall	2	141.61(c)	3	141.24(h)
16. Endrin	2	141.61(c)	3	141.24(h)
17. Ethylene dibromide	2	141.61(c)	3	141.24(h)
18. Glyphosate	2	141.61(c)	3	141.24(h)
19. Heptachlor	2	141.61(c)	3	141.24(h)
20. Heptachlor epoxide	2	141.61(c)	3	141.24(h)
21. Hexachlorobenzene	2	141.61(c)	3	141.24(h)
22. Hexachlorocyclo-pentadiene	2	141.61(c)	3	141.24(h)
23. Lindane	2	141.61(c)	3	141.24(h)
24. Methoxychlor	2	141.61(c)	3	141.24(h)
25. Oxamyl (Vydate)	2	141.61(c)	3	141.24(h)
26. Pentachlorophenol	2	141.61(c)	3	141.24(h)
27. Picloram	2	141.61(c)	3	141.24(h)
28. Polychlorinated biphenyls (PCBs)	2	141.61(c)	3	141.24(h)
29. Simazine	2	141.61(c)	3	141.24(h)
30. Toxaphene	2	141.61(c)	3	141.24(h)

Contaminant	MCL/MRDL/TT violations <sup>2</sup>		Monitoring and testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
E. Volatile Organic Chemicals (VOCs)				
1. Benzene	2	141.61(a)	3	141.24(f)
2. Carbon tetrachloride	2	141.61(a)	3	141.24(f)
3. Chlorobenzene	2	141.61(a)	3	141.24(f)
(monochlorobenzene)	2	141.61(a)	3	141.24(f)
4. o-Dichlorobenzene	2	141.61(a)	3	141.24(f)
5. p-Dichlorobenzene	2	141.61(a)	3	141.24(f)
6. 1,2-Dichloroethane	2	141.61(a)	3	141.24(f)
7. 1,1-Dichloroethylene	2	141.61(a)	3	141.24(f)
8. cis-1,2-Dichloroethylene	2	141.61(a)	3	141.24(f)
9. trans-1,2-Dichloroethylene	2	141.61(a)	3	141.24(f)
10. Dichloromethane	2	141.61(a)	3	141.24(f)
11. 1,2-Dichloropropane	2	141.61(a)	3	141.24(f)
12. Ethylbenzene	2	141.61(a)	3	141.24(f)
13. Styrene	2	141.61(a)	3	141.24(f)
14. Tetrachloroethylene	2	141.61(a)	3	141.24(f)
15. Toluene	2	141.61(a)	3	141.24(f)
16. 1,2,4-Trichlorobenzene	2	141.61(a)	3	141.24(f)
17. 1,1,1-Trichloroethane	2	141.61(a)	3	141.24(f)
18. 1,1,2-Trichloroethane	2	141.61(a)	3	141.24(f)
19. Trichloroethylene	2	141.61(a)	3	141.24(f)
20. Vinyl chloride	2	141.61(a)	3	141.24(f)
21. Xylenes (total)	2	141.61(a)	3	141.24(f)
F. Radioactive Contaminants				
1. Beta/photon emitters	2	141.16	3	141.25(a), 141.26(b)
2. Alpha emitters	2	141.15(b)	3	141.25(a), 141.26(a)
3. Combined radium (226 & 228)	2	141.15(a)	3	141.25(a), 141.26(a)
G. Disinfection Byproducts (DBPs), Byproduct Precursors, Disinfectant Residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). EPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs). <sup>9</sup>				
1. Total trihalomethanes (TTHMs)	2	<sup>10</sup> 141.12 141.64(a)	3	141.30, 141.132(a)-(b)



Contaminant	MCL/MRDL/TT violations <sup>2</sup>		Monitoring and testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
2. Haloacetic Acids (HAA5)	2	141.64(a)	3	141.132(a)-(b)
3. Bromate	2	141.64(a)	3	141.132(a)-(b)
4. Chlorite	2	141.64(a)	3	141.132(a)-(b)
5. Chlorine (MRDL)	2	141.65(a)	3	141.132(a), (c)
6. Chloramine (MRDL)	2	141.65(a)	3	141.132(a), (c)
7. Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL	2	141.65(a), 141.133(c)(3)	2 <sup>11</sup> , 3	141.132(a), (c), 141.133(c)(2)
8. Chlorine dioxide (MRDL), where sample(s) in distribution system the next day are also above MRDL	1 <sup>2</sup>	141.65(a), 141.133(c)(3)	1	141.132(a), (c), 141.133(c)(2)
9. Control of DBP precursors-- TOC (TT)	2	141.135(a)-(b)	3	141.132(a), (d)
10. Bench marking and disinfection profiling	N/A	N/A	3	141.172
11. Development of monitoring plan	N/A	N/A	3	141.132(f)
<b>H. Other Treatment Techniques</b>				
1. Acrylamide (TT)	2	141.111	N/A	N/A
2. Epichlorohydrin (TT)	2	141.111	N/A	N/A
<i>II. Unregulated Contaminant Monitoring.<sup>13</sup></i>				
A. Unregulated Contaminants	N/A	N/A	3	141.40
B. Nickel	N/A	N/A	3	141.23(c), (k)
<i>III. Public Notification for Variances and Exemptions:</i>				
A. Operation under a variance or exemption	3	<sup>14</sup> 1415, 1416	N/A	N/A
B. Violation of conditions of a variance or exemption	2	1415, 1416, <sup>15</sup> 142.307	N/A	N/A
<i>IV. Other Situations Requiring Public Notification:</i>				
A. Flouride secondary maximum contaminant level (SMCL) exceedance	3	143.3	N/A	N/A
B. Exceedance of nitrate MCL for non-community systems, as allowed by primacy agency	1	141.11(d)	N/A	N/A
C. Availability of unregulated				

Contaminant	MCL/MRDL/TT violations <sup>2</sup>		Monitoring and testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
contaminant monitoring data	3	141.40	N/A	N/A
D. Waterborne disease outbreak	1	141.2, 141.71 (c)(2)(ii)	N/A	N/A
E. Other waterborne emergency <sup>16</sup>	1	N/A	N/A	N/A
F. Other situations as determined by primacy agency	<sup>17</sup> 1, 2, 3	N/A	N/A	N/A

#### Appendix A--Endnotes

1. Violations and other situations not listed in this table (e.g., reporting violations and failure to prepare Consumer Confidence Reports), do not require notice, unless otherwise determined by the primary agency. Primacy agencies may, at their option, also require a more stringent public notice tier (e.g., Tier 1 instead of Tier 2 or Tier 2 instead of Tier 3) for specific violations and situations listed in this Appendix, as authorized under Sec. 141.202(a) and Sec. 141.203(a).

2. MCL--Maximum contaminant level, MRDL--Maximum residual disinfectant level, TT--Treatment technique

3. The term Violations of National Primary Drinking Water Regulations (NPDWR) is used here to include violations of MCL, MRDL, treatment technique, monitoring, and testing procedure requirements.

4. Failure to test for fecal coliform or E. coli is a Tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are Tier 3.

5. Systems that violate the turbidity MCL of 5 NTU based on an average of measurements over two consecutive days must consult with the primacy agency within 24 hours after learning of the violation. Based on this consultation, the primacy agency may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the primacy agency in the 24-hour period, the violation is automatically elevated to Tier 1.

6. Systems with treatment technique violations involving a single exceedance of a maximum turbidity limit under the Surface Water Treatment Rule (SWTR) or the Interim Enhanced Surface Water Treatment Rule (IESWTR) are required to consult with the primacy agency within 24 hours after learning of the violation. Based on this consultation, the primacy agency may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the primacy agency in the 24-hour period, the violation is automatically elevated to Tier 1.

7. Most of the requirements of the Interim Enhanced Surface Water Treatment Rule (63 FR 69477) (Secs. 141.170-141.171, 141.173-141.174) become effective January 1, 2002 for Subpart H systems (surface water systems and ground water systems under the direct influence of surface water) serving at least 10,000 persons. However, Sec. 141.172 has some requirements that become effective as early as April 16, 1999. The Surface Water Treatment Rule remains in effect for systems serving at least 10,000 persons even after 2002; the Interim Enhanced Surface Water Treatment Rule adds additional requirements and does not in many cases supercede the SWTR.

8. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.

9. Subpart H community and non-transient non-community systems serving <gr-thn-eq>10,000 must comply with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements beginning January 1, 2002. All other community and non-transient non-community systems must meet the MCLs and MRDLs beginning January 1, 2004. Subpart H transient non-community systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. Subpart H transient non-community systems serving fewer than 10,000 persons and using only ground water not under the direct

influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.

10. Sec. 141.12 will no longer apply after January 1, 2004.

11. Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.

12. If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. Failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

13. Some water systems must monitor for certain unregulated contaminants listed in Sec. 141.40.

14. This citation refers to Secs. 1415 and 1416 of the Safe Drinking Water Act. Secs. 1415 and 1416 require that "a schedule prescribed . . . for a public water system granted a variance [or exemption] shall require compliance by the system . . ."

15. In addition to Secs. 1415 and 1416 of the Safe Drinking Water Act, 40 CFR 142.307 specifies the items and schedule milestones that must be included in a variance for small systems.

16. Other waterborne emergencies require a Tier 1 public notice under Sec. 141.202(a) for situations that do not meet the definition of a waterborne disease outbreak given in 40 CFR 141.2 but that still have the potential to have serious adverse effects on health as a result of short-term exposure. These could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as failures or significant interruption in water treatment processes, natural disasters that disrupt the water supply or distribution system, chemical spills, or unexpected loading of possible pathogens into the source water.

17. Primacy agencies may place other situations in any tier they believe appropriate, based on threat to public health.

Appendix 2-13

Standard Health Effects Language for Public Notification  
 (40 CFR 141, Subpart Q, Appendix B)  
 [Added September 2000]

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
<i>National Primary Drinking Water Regulations (NPDWR)</i> <i>A. Microbiological Contaminants</i>			
1a. Total Coliform	Zero	See footnote <sup>3</sup>	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
1b. Fecal Coliform/E coli	Zero	Zero	Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
2a. Turbidity (MCL) <sup>4</sup>	None	1 NTU <sup>5</sup> /5 NTU	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
2b. Turbidity (SWTR TT) <sup>6</sup>	None	TT <sup>7</sup>	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
2c. Turbidity (IESWTR TT) <sup>8</sup>	None	TT	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms.

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
			These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
<i>B. Surface Water Treatment Rule (SWTR) and Interim Enhanced Surface Water Treatment Rule (IESWTR) Violations</i>			
3. Giardia lamblia (SWTR/IESWTR)	Zero	TT	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches
4. Viruses (SWTR/IESWTR)			
5. Heterotrophic plate count (HPC) bacteria <sup>9</sup> (SWTR/IESWTR)			
6. Legionella (SWTR/IESWTR)			
7. Cryptosporidium (IESWTR)			
8. Antimony	0.006	0.006	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
9. Arsenic	None	0.05	Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
10. Asbestos (10 µm)	7 MFL <sup>11</sup>	7 MFL	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.
11. Barium	2	2	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
12. Beryllium	0.004	0.004	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
13. Cadmium	0.005	0.005	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
14. Chromium (total)	0.1	0.1	Some people who use water containing chromium well in excess of the MCL over many years could experience allergic

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
			dermatitis.
15. Cyanide	0.2	0.2	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
16. Fluoride	4.0	4.0	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
17. Mercury (inorganic)	0.002	0.002	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
18. Nitrate	10	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
19. Nitrite	1	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
20. Total Nitrate and Nitrite	10	10	Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.
21. Selenium	0.05	0.05	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
22. Thallium	0.0005	0.002	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
<i>C. Lead and Copper Rule</i>			
23. Lead	Zero	TT <sup>12</sup>	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.
24. Copper	1.3	TT <sup>13</sup>	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.
<i>D. Synthetic Organic Chemicals (SOCs)</i>			
25. 2,4-D	0.07	0.07	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver, or adrenal glands.
26. 2,4,5-TP (Silvex)	0.05	0.05	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27. Alachlor	Zero	0.002	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
28. Atrazine	0.003	0.003	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
29. Benzo(a)pyrene (PAHs)	Zero	0.0002	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
30. Carbofuran	0.04	0.04	Some people who drink water containing carbofuran in excess of the MCL over

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
			many years could experience problems with their blood, or nervous or reproductive systems.
31. Chlordane	Zero	0.002	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
32. Dalapon	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
33. Di (2-ethylhexyl) adipate	0.4	0.4	Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience general toxic effects or reproductive difficulties.
34. Di (2-ethylhexyl) phthalate	Zero	0.006	Some people who drink water containing di (2-ethylhexyl) phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
35. Dibromochloropropane (DBCP).	Zero	0.0002	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
36. Dinoseb	0.007	0.007	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
37. Dioxin (2,3,7,8-TCDD)	Zero	$3 \times 10^{-8}$	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
38. Diquat	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
39. Endothall	0.1	0.1	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
40. Endrin	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. Ethylene dibromide	Zero	0.00005	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience



Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
			problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
42. Glyphosate	0.7	0.7	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
43. Heptachlor	Zero	0.0004	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
44. Heptachlor epoxide	Zero	0.0002	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
45. Hexachlorobenzene	Zero	0.001	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
46. Hexachlorocyclo-pentadiene	0.05	0.05	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
47. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
48. Methoxychlor	0.04	0.04	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
49. Oxamyl (Vydate)	0.2	0.2	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. Pentachlorophenol	Zero	0.001	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
51. Picloram	0.5	0.5	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
52. Polychlorinated biphenyls (PCBs)	Zero	0.0005	Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
53. Simazine	0.004	0.004	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.
54. Toxaphene	Zero	0.003	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
<i>E. Volatile Organic Chemicals (VOCs)</i>			
55. Benzene	Zero	0.005	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
56. Carbon tetrachloride	Zero	0.005	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
57. Chlorobenzene (monochlorobenzene)	0.1	0.1	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
58. o-Dichlorobenzene	0.6	0.6	Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
59. p-Dichlorobenzene	0.075	0.075	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
60. 1,2-Dichloroethane	Zero	0.005	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
61. 1,1-Dichloroethylene	0.007	0.007	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
62. cis-1,2-Dichloroethylene	0.07	0.07	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
63. trans-1,2-Dichloroethylene	0.1	0.1	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
64. Dichloromethane	Zero	0.005	Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.
65. 1,2-Dichloropropane	Zero	0.005	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
66. Ethylbenzene	0.7	0.7	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
67. Styrene	0.1	0.1	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
68. Tetrachloroethylene	Zero	0.005	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.
69. Toluene	1	1	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.
70. 1,2,4-Trichlorobenzene	0.07	0.07	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
71. 1,1,1-Trichloroethane	0.2	0.2	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory system.
72. 1,1,2-Trichloroethane	0.003	0.005	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
73. Trichloroethylene	Zero	0.005	Some people who drink water containing trichloroethylene in excess of the MCL

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
			over many years could experience problems with their liver and may have an increased risk of getting cancer.
74. Vinyl chloride	Zero	0.002	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
75. Xylenes (total)	10	10	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
<i>F. Radioactive Contaminants</i>			
76. Beta/photon emitters	Zero	4 mrem/yr <sup>14</sup>	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
77. Alpha emitters	Zero	15 pCi/L <sup>15</sup>	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
78. Combined radium (226 & 228).	Zero	5 pCi/L	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
<i>G. Disinfection Byproducts (DBPs), Byproduct Precursors, and Disinfectant Residuals: Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). EPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs)<sup>16</sup></i>			
79. Total trihalomethanes (TTHMs)	N/A	0.10/0.080 <sup>17 18</sup>	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
80. Haloacetic Acids (HAA)	N/A	0.060 <sup>19</sup>	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.
81. Bromate	Zero	0.010	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
82. Chlorite	0.08	1.0	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
83. Chlorine	4 (MRDLG) <sup>20</sup>	4.0 (MRDL) <sup>21</sup>	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
84. Chloramines	4 (MRDLG)	4.0 (MRDL)	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
85a. Chlorine dioxide, where any 2 consecutive daily samples taken at the entrance to the distribution system are above the MRDL.	0.8 (MRDL)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. Add for public notification only: The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.
85b. Chlorine dioxide, where one or more distribution system samples are above the MRDL.	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. Add for public notification only: The chlorine dioxide violations reported today include exceedances of the EPA standard within

Contaminant	MCLG <sup>1</sup> mg/L	MCL <sup>2</sup> mg/L	Standard Health Effects Language for Public Notification.
			the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.
86. Control of DBP precursors (TOC).	None	TT	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
<i>H. Other Treatment Techniques</i>			
87. Acrylamide	Zero	TT	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
88. Epichlorohydrin	Zero	TT	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.



To: Ilker Adiguzel

From: Eddy Dean Smith Date: 09 DEC 99

Re: Determination of Overhead Rate

Attached are the supporting documents for a Scope of Work to be sent to three universities [University of Illinois/ University of Missouri/ Southern Illinois University] for research services in support of the development of biosorbent technology for the treatment of Army wastewaters and air pollution streams. This technology is being developed under the D048 mission in User Requirement "Treatment of Munitions Wastewaters". The effort in this SOW will be conducted entirely at whichever university is awarded the small purchase, under the supervision of the respective university professor who receives the award, and will not be managed by ERDC personnel on a day to day basis. No personnel from the chosen university will perform any work under this SOW at any ERDC site nor at any military installation. The biosorbent technology being developed and tested is one of a kind, and not commercially available. Please apply the low overhead rate to this work item and assign the MSCONTSVC code.

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Eddy Dean Smith, CN-E Principal Investigator

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Ilker R. Adiguzel, CN-E Branch Chief

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John T. Bandy, Installations Division Chief



## SECTION 3

### HAZARDOUS MATERIALS MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section primarily addresses the proper storage and handling of chemicals and the spill contingency and response requirements related to hazardous materials. Oil, pesticides, and asbestos are hazardous materials which require special management practices at FWS facilities, and are addressed in separate sections. Radioactive substances and the general category of hazardous wastes are also not included in this section. This section does not focus on individual hazardous chemicals or substances used, but deals with the generic requirements and management practices (MPs) associated with minimizing impacts on the environment due to spills or releases of hazardous materials because of improper storage and handling.

All underground storage tank (UST) regulations that apply to hazardous materials have been consolidated into Section 9, Underground Storage Tank (UST) Management.

#### B. Federal Legislation

- *The Occupational Safety and Health Act* (OSHA) of 1970. This act, last amended in November 1990, 29 U.S. Code (USC) 651-678, is a Federal statute which governs the issues related to occupational safety and health. The purpose and policy of this act is to assure every working man and woman in the nation safe and healthful working condition and to preserve our human resources by, among other things, providing for the development and publication of occupational safety and health standards, providing for an effective enforcement program, and providing for appropriate reporting procedures with respect to occupational safety and health which procedures will help achieve the objectives of this Act and accurately describe the nature of the occupational safety and health (29 USC 651(b)(9)(10)(12)).
- *The Hazardous Materials Transportation Act* of 1975. This act, as last amended in November 1990, 49 USC 1801-1819, et al., is the Federal legislation which governs the transportation of hazardous materials in the nation. The policy of Congress is to improve the regulatory and enforcement authority of the Secretary of Transportation to protect the Nation adequately against the risks to life and property which are inherent in the transportation of hazardous materials in commerce (49 USC 1801).
- *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) of 1980. This act was amended by the *Superfund Amendments and Reauthorization Act* (SARA) of 1986, 42 USC 9601-11050, 10 USC 2701-2810 et al. CERCLA/SARA regulates the prevention, control, and compensation relating to environmental pollution.
- *The Emergency Planning and Community Right-to-Know Act* (EPCRA) of 1986. This act was designed to promote emergency planning and preparedness at both the state and local level. It provides citizens and local governments with information regarding the potential hazards in their community. EPCRA requires the use of emergency planning and designates state and local governments as recipients for information regarding chemicals and toxins used in the community.

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*. This EO of 13 October 1978 requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the Agency funds meet applicable Federal, state, and local environmental requirements and for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.
- EO13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*. This EO, dated 14 September 1998, mandates the head of each executive agency incorporate waste prevention and recycling in the agency's daily operations and work to increase and expand markets for recovered materials through greater Federal Government preference and demand for such products. Under this EO, it is the national policy to prefer pollution prevention, whenever feasible. Pollution that cannot be prevented should be recycled; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should be employed only as a last resort. This EO also stipulates that agencies will comply with executive branch policies for the acquisition and use of environmentally preferable products and services and implement cost-effective procurement preference programs favoring the purchase of these products and services. Finally, the EO creates a Steering Committee, a Federal Environmental Executive (FEE), and a Task Force, and establishes Agency Environmental Executive (AEE) positions within each agency, to be responsible for ensuring the implementation of this order. The FEE, AEEs, and members of the Steering Committee and Task Force are to be full-time Federal Government employees. This EO revokes EO 12873 [Added October 1998].
- EO 13148, *Greening the Government through Leadership in Environmental Management*. This EO, dated 21 April 2000, mandates that environmental management considerations must be a fundamental and integral component of Federal Government policies, operations, planning, and management. The primary goal of this EO in the hazardous materials arena is that Federal facilities shall be leaders and responsible members of their communities by informing the public and their workers of possible sources of pollution resulting from facility operations [Added July 2000].
- The National Fire Code, *Flammable and Combustible Liquids Code*, National Fire Protection Association (NFPA) 30, prohibits the storage of Class I and Class II liquids in plastic containers in general-purpose warehousing.
- Federal regulations used to develop the checklist include:
  - EO 12088, *Federal Compliance with Pollution Control Standards*.
  - 29 CFR 1910, *Occupational Safety and Health Standards*.
  - 40 CFR 300, *National Oil and Hazardous Substances Pollution Contingency Plan*.
  - 40 CFR 302, *Reportable Quantities of Hazardous Materials* (Table 302.4).
  - 40 CFR 355, *Emergency Planning and Notification*.
  - 40 CFR 370, *Hazardous Chemical Reporting: Community Right-To-Know*.
  - 40 CFR 372, *Toxic Chemical Release Reporting and Community Right-To-Know*.
  - 49 CFR 171, *General Information, Regulations, and Definitions*.
  - 49 CFR 172, *Hazardous Materials Tables, Hazardous Materials Communications Requirements and Emergency Response Information Requirements*.
  - 49 CFR 173, *Shippers, General Requirements for shipments and Packaging*.
  - 49 CFR 178, *Specifications by Packaging*.
  - 49 CFR 179, *Specifications for Tank Cars*.
  - NFPA, *Fire Protection Guide of Hazardous Materials*.

### C. State/Local Regulations

Hazardous materials may be regulated on the state level as well as local agencies (county/ city fire departments) who may require flammable/combustible materials to meet certain storage requirements. Usually, these local ordinances will follow the NFPA *Fire Protection Guide on Hazardous Materials* (Pamphlets 325A, 325M, 491, 491F, and 704M).

### D. FWS/DOI Manuals

- 560 FW 2, *Pollution Prevention*. This chapter, dated 24 June 1994, encourages the use of pollution prevention to conserve natural resources.

### E. Key Compliance Requirements

- Planning and Documentation - Facilities should maintain a master listing of hazardous materials storage sites. When the facility needs outside fire protection help, it should tell the local fire department the types of hazardous chemicals it uses, the areas where it uses them, what it uses them for, and the amount it uses. Facilities are required to have Material Safety Data Sheet (MSDS) files for each hazardous chemical it stores and uses, not including such items as hazardous waste, tobacco, or drugs and cosmetics meant for personal use (29 CFR 1910.1200(b) and 1910.1200(g)).
- Personnel Training - Facilities are required to provide all employees with written information about hazardous chemicals to which they are exposed. Personnel who work with hazardous materials are required to be trained in the use of and potential hazards of such materials. All employees and supervisors working on sites exposed to hazardous materials or other hazards are required to be trained before engaging in these activities (29 CFR 1910.1200).
- Pollution Prevention - FWS facilities are required to prepare Pollution Prevention Plans by 31 December 1995. Additionally, it is Service policy that facilities will conduct their activities in a manner to prevent pollution through the use of waste source reduction and waste recycling.
- Hazardous Substance Release Reporting - FWS facilities are required to notify the National Response Center (NRC) immediately if it releases hazardous substances in excess of or equal to reportable quantities (RQs) (see Appendix 3-1). Facilities with continuous and stable releases have limited notification requirements. If a facility produces, uses, or stores extremely hazardous chemicals, and has a reportable release of these substances, it is required to notify the community emergency coordinator or local planning committee or Governor if there is no planning committee (40 CFR 302.1 through 302.6, 302.8, and 355.40).
- Emergency Planning - A facility with extremely hazardous substances in amounts equal to or greater than the limits found in Appendix 3-1 is required to notify the emergency response commission and designate a representative to participate in local emergency planning (40 CFR 355.10 through 355.40 and 355 Appendix A).
- Right-to-Know Requirements - Facilities required by OSHA to have an MSDS for a hazardous chemical are required to submit the MSDSs to the emergency commission and fire department with jurisdiction over the facility. New MSDSs will be submitted within 3 mo after discovery of significant new information (40 CFR 370.20 through 370.28).

- Hazardous Materials Storage - Containers for hazardous chemicals are required to be labeled or tagged with the identity of the substance and appropriate warning markings. Areas where hazardous materials are stored or used around the facility are required to be kept free from accumulations of materials that create a hazard, such as leaking containers, or a placement of containers in a manner that would create hazards such as tripping, fire, or pests. Substances that together may create a fire hazard must be separated (29 CFR 1910.176(c), 1910.1200(b), and 1200(f)).
- Hazardous Materials in Laboratories - Facilities that use hazardous chemicals in laboratories are required to have a Chemical Hygiene Plan which is reviewed annually. Such facilities are also required to provide employees with information and training about the hazardous chemicals in their work areas. Records about the exposure of employees are to be kept along with medical records (29 CFR 1910.1450(e), 1910.1450(f), 1910.1450(h), and 1910.1450(j)).
- Storage of Flammable/Combustibles - In general, containers of flammable combustible liquids are to be stored and handled so as to not damage the container or label, block exits, or create a fire hazard (29 CFR 1910.106(d)).
- Flammable Combustible Storage Cabinets - Storage cabinets are to be fire resistant and labeled FLAMMABLE - KEEP FIRE AWAY. No more than 60 gal of Class I or Class II liquids and no more than 120 gal of Class III liquids can be stored in a cabinet (29 CFR 1910.106(d)(3)).
- Flammable Combustible Storage Rooms - Storage rooms inside a building are to be fire resistant and have a raised sill or ramp to prevent the flow of spilled material from exiting the room. Ventilation and clear aisles must be provided and dispensing must be done by an approved pump or self-closing faucet (29 CFR 1910.106(d)(4)).
- Flammable/Combustible Warehouses or Storage Buildings - These structures will have 3-ft wide aisles for access to doors, windows, or standpipe connections. Materials will be stacked using pallets or dunnage when needed for stabilization and fire protection must be provided (29 CFR 1910.106(d)(5)(iv)).
- Outside Storage of Flammable Combustible Liquids - Containers of flammable/combustible liquids can be stored outside if no more than 1100 gal of liquid are stored adjacent to a building. More than 1100 gal can be stored if there are 10 ft or more between buildings and the nearest flammable container. The storage area must be graded to divert spills or surrounded by a curb (29 CFR 1910.106(d)(6)).
- Storage of Flammable/Combustibles in Industrial Areas - Specific guidelines, requirements, or operating standards apply wherever flammable/combustible materials are stored, dispensed, or used in industrial plants, are in incidental storage, or in use in unit operations. This includes availability of portable fire extinguishers, precautions being taken to prevent ignition, and use of maintenance and operating practices to control leakage and prevent accidental escape of flammable/combustible liquids (29 CFR 1910.106(e)(2) through 1910.106(e)(9)).
- Flammable Combustible Liquid Storage Tanks - Storage tanks are to be built of steel except in certain circumstances. Outside aboveground tanks for flammable liquids are to meet requirements for distance between tanks, firefighting access, and containment. When flammable vapor may be present from storage tanks, heat sources will be kept from the tanks. Tanks are required to have been strength-tested before being used (29 CFR 1910.106(b)).

- Compressed Gases - Regardless of where the cylinders are stored, NO SMOKING signs should be posted and actions taken to prevent fire. Compressed gases are required to be stored according to the Compressed Gas Association Pamphlet P-1-1965 (29 CFR 1910.101).
- Acid Storage - Bulk storage of acids should be done in buildings that are one story in height with ventilation. Safety equipment must be available along with fire protection. The building is to be labeled NO SMOKING and heated to prevent freezing (MP).
- Hazardous Materials Transportation - The regulations in Title 49, Subchapter C of the CFR, detail requirements for the transportation of hazardous materials. 49 CFR 171.1(c) stipulates that these requirements apply when materials are being transported in commerce. According to a representative from the Department of Transportation (DOT), commerce is defined in terms of making a profit in this instance, therefore, Subchapter C does not apply to Federal agencies.
- Recordkeeping - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### F. Key Compliance Definitions

- *Aerosol* - a material that is dispensed from its container as a mist, spray, or foam by a propellant under pressure (29 CFR 1910.106(a)(1)).
- *Approved* - listed or approved by Underwriters Laboratories, Inc., Factory Mutual Engineering Corporation, The Bureau of Mines, National Institute of Occupational Safety and Health (NIOSH), The American National Standards Institute (ANSI), NFPA, or other nationally recognized agencies which list, approve, test or develop specifications for equipment to meet fire protection, health, or safety requirements (29 CFR 1910.106(a)(35)).
- *Atmospheric Tank* - a storage tank which has been designed to operate at pressures from atmospheric through 0.5 psig (29 CFR 1910.106(a)(2)).
- *Awards and plaques* - free-standing statues and boardlike products generally used as wall-hangings(40 CFR 247.3) [Added July 2000].
- *Barrel* - a volume of 42 U.S. gallons (29 CFR 1910.106(a)(33)).
- *Basement* - a story of a building or structure having one-half or more of its height below ground level and to which access for fire fighting purposes is unduly restricted (29 CFR 1910.106(a)(4)).
- *Blanket Insulation* - relatively flat and flexible insulation in coherent sheet form, furnished in units of substantial area. Batt insulation is included in this term (40 CFR 247.3) [Added July 1999].
- *Board Insulation* - Semi-rigid insulation preformed into rectangular units having a degree of suppleness, particularly related to their geometrical dimensions (40 CFR 247.3) [Added July 1999].
- *Boiling Point* - the temperature at which a liquid starts to boil when at atmospheric pressure (14.7 psia), as determined by ASTM test D-86-72 (29 CFR 1910.106(a)(5)).
- *Building Insulation* - a material, primarily designed to resist heat flow, which is installed between the conditioned volume of a building and adjacent unconditioned volumes or the outside. This term

includes but is not limited to insulation products such as blanket, board, spray-in-place, and loose-fill that are used as ceiling, floor, foundation, and wall insulation (40 CFR 247.3) [Added July 1999].

- *Bulk Plant* - that portion of the property where flammable or combustible liquids are received by tank vessel, pipelines, tank car, or tank vehicle, and are stored or blended in bulk for the purpose of distributing such liquids by tank vessel pipeline, car, tank vehicle, or container (29 CFR 1910.106(a)(7)).
- *Carpet Cushion* - also known as carpet underlay, is padding placed beneath carpet to reduce carpet wear caused by foot traffic or furniture indentation, enhance comfort, and prolong appearance (40 CFR 247.3) [Added July 2000].
- *Cellulose Fiber Loose-Fill* - a basic material of recycled wood-based cellulosic fiber made from selected paper, paperboard stock, or ground wood stock, excluding contaminated materials which may reasonably be expected to be retained in the finished product, with suitable chemicals introduced to provide properties such as flame resistance, processing and handling characteristics. The basic cellulosic material may be processed into a form suitable for installation by pneumatic or pouring methods (40 CFR 247.3) [Added July 1999].
- *Channelizers* - highly visible barrels or drums that can be positioned to direct traffic through detours (40 CFR 247.3) [Added July 1999].
- *Class A Explosives* - possessing, detonating, or otherwise maximum hazard; such as dynamite, nitroglycerin, picric acid, lead azide, fulminate of mercury, black powder, blasting caps, and detonating primers (29 CFR 1910.109(a)) [Added July 1999].
- *Class B Explosives* - possessing flammable hazard, such as propellant explosives (including some smokeless propellant), photographic flash powders, and some special fireworks (29 CFR 1910.109(a)) [Added July 1999].
- *Class C Explosives* - includes certain types of manufactured articles which contain Class A or Class B explosives, or both, as components but in restricted quantities (29 CFR 1910.109(a)) [Added August 1999].
- *Closed Container* - a container so sealed with a lid or other closing device that neither liquid and/or vapor will escape from it at ordinary temperatures (29 CFR 1910.106(a)(9)).
- *Combustible Liquid* - a liquid having a flashpoint at or above 100 °F (37.8 °C). Combustible liquids are categorized as Class II or Class III liquids and are further subdivided as follows (29 CFR 1910.106(a)(18)):
  1. Class II liquids are those having a flashpoint at or above 100 °F (37.8 °C), and below 140 °F (60 °C) except any mixture having components with flashpoints of 200 °F (93.3 °C) or higher, the volume of which makes up 99 percent or more of the total volume of the mixture.
  2. Class III A liquids are those having flashpoints at or above 140 °F (60 °C), and below 200 °F (93.3 °C) except any mixture having components with flashpoints of 200 °F (93.3 °C) or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.
  3. Class III B liquids are those having flashpoints at or above 200 °F (93.3 °C).

- *Commission* - the emergency response commission for the State in which the facility is located except where the facility is located in Indian Country, in which case, commission means the emergency response commission for the tribe under whose jurisdiction the facility is located. In absence of an emergency response commission, the Governor and the chief executive officer, respectively, shall be the commission. Where there is a cooperative agreement between a State and a Tribe, the commission shall be the entity identified in the agreement (40 CFR 355.20 and 370.2) **[Added April 1999]**.
- *Committee or Local Emergency Planning Committee* - the local emergency planning committee appointed by the emergency response commission (40 CFR 355.20 and 370.2) **[Added April 1999]**.
- *Compost Made From Yard Trimmings, Leaves, Grass Clippings, and/or Food Wastes* - a thermophilic converted product with high humus content. Compost can be used as a soil amendment and can also be used to prevent or remediate pollutants in soil, air, and stormwater run-off (40 CFR 247.3) **[Added July 2000]**.
- *Continuous* - continuous release is a release that occurs without interruption or abatement or that is routine, anticipated, and intermittent and incidental to normal operations or treatment processes (40 CFR 302.8(b)) **[Added April 1999]**.
- *Delineator* - a highly visible pavement marker that can be positioned to direct traffic or define boundaries (40 CFR 247.3) **[Added July 1999]**.
- *Employee Exposure* - the exposure to airborne formaldehyde which would occur without corrections for protection provided by any respirator that is in use (29 CFR 1910.1048(b)) **[Added September 2000]**.
- *Engine Lubricating Oils* - petroleum-based oils used for reducing friction in engine parts (40 CFR 247.3) **[Added July 1999]**.
- *Explosive-Actuated Power Devices* - any tool or special mechanized device which is actuated by explosives, but not including propellant-actuated power devices. (Examples are jet trappers and jet perforators) (29 CFR 1910.109(a)) **[Added August 1999]**.
- *Explosive* - any chemical compound, mixture, or device, the primary or common purpose of which is to function by explosion, i.e., with substantially instantaneous release of gas and heat, unless such compound, mixture, or device is otherwise specifically classified by the U.S. Department of Transportation; see 49 CFR Chapter I. The term explosive shall include all material which is classified as Class A, Class B, and Class C explosives by the U.S. Department of Transportation, and includes, but is not limited to, dynamite, black powder, pellet powders, initiating explosives, blasting caps, electric blasting caps, safety fuse, fuse lighters, fuse igniters, squibs, cordeau detonant fuse, instantaneous fuse, igniter cord, igniters, small arms ammunition, small arms ammunition primers, smokeless propellant, cartridges for propellant-actuated power devices, and cartridges for industrial guns. Commercial explosives are those explosives which are intended to be used in commercial or industrial operations (29 CFR 1910.109(a)) **[Added August 1999]**.
- *Extremely Hazardous Substances* - all substances listed in Appendices A and B in 40 CFR 355 (see the column labeled in Appendix 3-1) (40 CFR 355.20).

- *Fire Area* - that portion of a building separated from the remainder by construction having a rated fire resistance of at least 1 h and having all communicating openings properly protected by an assembly having a fire resistance rating of at least 1 h (29 CFR 1910.106(a)(12)).
- *Flammable Aerosol* - an aerosol that is required to be labeled FLAMMABLE under the *Federal Hazardous Substance Labeling Act* (15 USC 1261). These aerosols are considered Class IA liquids (29 CFR 1910.106(a)(19)).
- *Flammable Liquid* - a liquid with a flashpoint below 100 °F (37.8 °C) except any mixture having components with flashpoints of 100 °F (37.8 °C) or higher, the total of which make up 99 percent or more of the total volume of the mixture. Flammable liquids are categorized as Class I liquids, and are further subdivided as follows (29 CFR 1910.106(a)(19)):
  1. Class IA are those that have a flashpoint below 73 °F (22.8 °C) and boiling point below 100 °F (37.8 °C)
  2. Class IB are those that have flashpoints below 73 °F (22.8 °C) and boiling points at or above 100 °F (37.8 °C)
  3. Class IC are those that have flashpoints at or above 73 °F (22.8 °C) and below 100 °F (37.8 °C).
- *Flowable Fill* - a low strength material that is mixed to a wet, flowable slurry and used as an economical fill or backfill material in place of concrete, compacted soils, or sand (40 CFR 247.3) **[Added July 2000]**.
- *Federal Agency* - any department, agency, or other instrumentality of the Federal government; any independent agency or establishment of the Federal government including any government corporation; and the Government Printing Office (40 CFR 247.3) **[Added July 1999]**.
- *Fiberglass Insulation* - insulation which is composed principally of glass fibers, with or without binders (40 CFR 247.3) **[Added July 1999]**.
- *Flashpoint* - the minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. Flashpoints are established using several standard closed cup test methods (29 CFR 1910.106(a)(14)).
- *Flexible Delineator* - a highly visible marker that can be positioned to direct traffic or define boundaries and that will flex if struck by a vehicle to prevent damage to the vehicle or the delineator (40 CFR 247.3) **[Added July 1999]**.
- *Foam-in-place Insulation* - this is rigid cellular foam produced by catalyzed chemical reactions that hardens at the site of the work. The term includes spray-applied and injected applications such as spray-in-place foam and pour-in-place (40 CFR 247.3) **[Added July 1999]**.
- *Forbidden or Not Acceptable Explosives* - explosives which are forbidden or not acceptable for transportation by common carriers by rail freight, rail express, highway, or water in accordance with the regulations of the U.S. Department of Transportation, 49 CFR Chapter I (29 CFR 1910.109(a)) **[Added August 1999]**.
- *Formaldehyde* - the chemical substance, HCHO, Chemical Abstract Service Registry No. 50-00-0 (29 CFR 1910.1048(b)) **[Added September 2000]**.
- *Garden Hose* - a flexible tubing that conducts water to a specific location (40 CFR 247.3) **[Added July 1999]**.



- *Gear Oils* - petroleum-based oils used for lubricating machinery gears (40 CFR 247.3) [Added July 1999].
- *Hazard Category* - any of the following (40 CFR 370.2) [Added April 1999]:
  1. immediate (acute) health hazard, including highly toxic, toxic, irritant, sensitizer, corrosive, (as defined under 29 CFR 1910.1200) and other hazardous chemicals that cause an adverse effect to a target organ and which effect usually occurs rapidly as a result of short term exposure and is of short duration
  2. delayed (chronic) health hazard, including carcinogens (as defined under 29 CFR 1910.1200) and other hazardous chemicals that cause an adverse effect to a target organ and which effect generally occurs as a result of long term exposure and is of long duration
  3. fire hazard, including flammable, combustible liquid, pyrophoric, and oxidizer (as defined under 29 CFR 1910.1200)
  4. sudden release of pressure, including explosive and compressed gas (as defined under 29 CFR 1910.1200)
  5. reactive, including unstable reactive, organic peroxide, and water reactive (as defined under 29 CFR 1910.1200).
- *Hazardous Chemical* - in relationship to laboratories, a chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees (29 CFR 1910.1450(b)).
- *Hazardous Substance* - any substance designated pursuant to 40 CFR 302 (see the column titled Hazardous Substance Reportable Quantity (RQ) in Appendix 3-1) (40 CFR 302.3).
- *Hydraulic Fluids* - petroleum-based hydraulic fluids (40 CFR 247.3) [Added July 1999].
- *Hydraulic Mulch* - a mulch that is a cellulose-based (paper or wood) protective covering that is mixed with water and applied through mechanical spraying in order to aid the germination of seeds and to prevent soil erosion (40 CFR 247.3) [Added July 1999].
- *Hydroseeding* - the process of spraying seeds mixed with water through a mechanical sprayer (hydroseeder). Hydraulic mulch, fertilizer, a tacking agent, or a wetting agent can also be added to the water/seed mix for enhanced performance (40 CFR 247.3) [Added July 1999].
- *Industrial Drums* - cylindrical containers used for shipping and storing liquid or solid materials (40 CFR 247.3) [Added July 2000].
- *Institutional Occupancy* - the occupancy or use of a building or structure or any portion thereof by persons harbored or detained to receive medical, charitable or other care or treatment or by persons involuntarily detained (29 CFR 1910.106(a)(16)).
- *Inventory Form* - the Tier I and Tier II emergency and hazardous chemical inventory forms set forth in subpart D of this part (40 CFR 370.2) [Added April 1999].
- *Laboratory* - a facility where the laboratory use of hazardous chemicals occurs. It is a workplace where relatively small quantities of hazardous chemicals are used on a nonproduction basis (29 CFR 1910.1450(b)).

- *Laboratory Scale* - work with substances in which the containers used for reactions, transfers, and other handling of substances are designed to be easily and safely manipulated by one person (29 CFR 1910.1450(b)).
- *Laboratory Use of a Hazardous Chemical* - handling or use of such chemicals in which all of the following conditions are met (29 CFR 1910.1450(b)):
  1. chemical manipulations are carried out on a laboratory scale
  2. multiple chemical procedures or chemicals are used
  3. the procedures involved are not part of a production process, nor in any way simulate a production process
  4. protective laboratory practices and equipment are available and in common use to minimize the potential for employee exposure to hazardous chemicals.
- *Laminated Paperboard* - board made from one or more plies of kraft paper bonded together, with or without facers, that is used for decorative, structural, or insulating purposes (40 CFR 247.3) [Added July 1999].
- *Land Disturbance Incidental to Extraction* - this includes: land clearing; overburden removal and stockpiling; excavating, handling, transporting, and storing ores and other raw materials; and replacing materials in mined-out areas as long as such materials have not been beneficiated or processed and do not contain elevated radionuclide concentrations (greater than 7.6 picocuries per gram or pCi/g of Uranium-238, 6.8 pCi/g of Thorium-232, or 8.4 pCi/g of Radium-226) (40 CFR 355.40) [Added April 1999].
- *Latex Paint* - a water-based decorative or protective covering having a latex binder (40 CFR 247.3) [Added July 1999].
- *Lawn Edging* - a barrier used between lawns and landscaped areas or garden beds to prevent grass roots or weeds from spreading to the landscaped areas (40 CFR 247.3) [Added July 1999].
- *Loose-fill Insulation* - insulation in granular, nodular, fibrous, powdery, or similar form, designed to be installed by pouring, blowing, or hand placement (40 CFR 247.3) [Added July 1999].
- *Liquid* - any material with a fluidity greater than that of 300 penetration asphalt when tested in accordance with ASTM Test D-5-73. When not otherwise identified, the term liquid will include both flammable and combustible liquid (29 CFR 1910.106(a)(17)).
- *Low Pressure Tank* - a storage tank which has been designed to operate at pressures above 0.5 psig but not more than 15 psig (29 CFR 1910.106(a)(21)).
- *Magazine* - any building or structure, other than an explosives manufacturing building, used for the storage of explosives (29 CFR 1910.109(a)) [Added August 1999].
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *Manual-grade Strapping* - straps of material used with transport packaging to hold products in place on pallets or in other methods of commercial, bulk shipment. Strapping can also prevent tampering and pilferage during shipping (40 CFR 247.3) [Added July 2000].

- *Mat* - temporary or semipermanent protective floor coverings used for numerous applications, including home and office carpet protection, car and truck floor board protection, traction on slippery surfaces, cushion from floor hardness, and reduction of injury risk during athletic events (40 CFR 247.3) **[Added July 2000]**.
- *Material Safety Data Sheet (MSDS)* - written or printed material which contains information on hazardous chemicals such as common name, physical hazards, health hazards (29 CFR 1910.1200(c)).
- *Mineral Fiber Insulation* - insulation (rock wool or fiberglass) which is composed principally of fibers manufactured from rock, slag, or glass, with or without binders (40 CFR 247.3) **[Added July 1999]**.
- *Mixture* - a heterogenous association of substances where the various individual substances retain their identities and can usually be separated by mechanical means. Includes solutions or compounds but does not include alloys or amalgams (40 CFR 355.20) **[Added April 1999]**.
- *Normal Range* - the normal range of a release is all releases (in pounds or kilograms) of a hazardous substance reported or occurring over any 24-hour period under normal operating conditions during the preceding year. Only releases that are both continuous and stable in quantity and rate may be included in the normal range (40 CFR 302.8(b)) **[Added April 1999]**.
- *Office Occupancy* - the occupancy or use of a building or structure or any portion thereof for the transaction of business, or the rendering or receiving of professional services (29 CFR 1910.106(a)(24)).
- *Pallet* - a portable platform for storing or moving cargo or freight (40 CFR 247.3) **[Added July 1999]**.
- *Paper* - one of two broad subdivisions of paper products, the other being paperboard. Paper is generally lighter in basis weight, thinner, and more flexible than paperboard. Sheets 0.012 in. or less in thickness are generally classified as paper. Its primary uses are for printing, writing, wrapping, and sanitary purposes. However, in this guideline, the term paper is also used as a generic term that includes both paper and paperboard (40 CFR 247.3) **[Added July 1999]**.
- *Paper Product* - any item manufactured from paper or paperboard. The term paper product is used in this guideline to distinguish such items as boxes, doilies, and paper towels from printing and writing papers (40 CFR 247.3) **[Added July 1999]**.
- *Park Benches and Picnic Tables* - recreational furniture found in parks, outdoor recreational facilities, and the grounds of office buildings and other facilities (40 CFR 247.3) **[Added July 2000]**.
- *Parking Stop* - a barrier used to mark parking spaces and keep parked vehicles from rolling beyond a designated parking area (40 CFR 247.3) **[Added July 1999]**.
- *Perlite Composite Board* - insulation board composed of expanded perlite and fibers formed into rigid, flat, rectangular units with a suitable sizing material incorporated in the product. It may have on one or both surfaces a facing or coating to prevent excessive hot bitumen strike-in during roofing installation (40 CFR 247.3) **[Added July 1999]**.

- *Person* - an individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, Federal agency, State, municipality, commission, political subdivision of a State, or any interstate body (40 CFR 247.3) **[Added July 1999]**.
- *Phenolic Insulation* - insulation made with phenolic plastics, which are plastics based on resins made by the condensation of phenols, such as phenol or cresol, with aldehydes (40 CFR 247.3) **[Added July 1999]**.
- *Plastic Fencing* - a barrier with an open-weave pattern that can be used to control drifting snow or sand by restricting the force of wind and to provide a warning or barrier in construction and other areas (40 CFR 247.3) **[Added July 1999]**.
- *Plastic Lumber Landscaping Timbers and Posts* - used to enhance the appearance of and control erosion in parks, highways, housing developments, urban plazas, zoos, and the exteriors of office buildings, military facilities, schools, and other public use areas (40 CFR 247.3) **[Added July 2000]**.
- *Playground Equipment* - includes many components, like slides, merry-go-rounds, hand rails, etc., and is found in parks, schools, child care facilities, institutions, multiple family dwellings, restaurants, resort and recreational developments, and other public use areas (40 CFR 247.3) **[Added July 2000]**.
- *Polyisocyanurate Insulation* - insulation produced principally by the polymerization of polymeric polyisocyanates, usually in the presence of polyhydroxyl compounds with the addition of cell stabilizers, blowing agents, and appropriate catalyst to produce a polyisocyanurate chemical structure (40 CFR 247.3) **[Added July 1999]**.
- *Polystyrene Insulation* - an organic foam composed principally of polymerized styrene resin processed to form a homogenous rigid mass of cells (40 CFR 247.3) **[Added July 1999]**.
- *Polyurethane Insulation* - insulation composed principally of the catalyzed reaction product of polyisocyanates and polyhydroxyl compounds, processed usually with a blowing agent to form a rigid foam having a predominantly closed cell structure (40 CFR 247.3) **[Added July 1999]**.
- *Portable Tank* - a closed container having a liquid capacity over 60 gal and not intended for fixed installation (29 CFR 1910.106(a)(25)).
- *Postconsumer Material* - a material or finished product that has served its intended use and has been diverted or recovered from waste destined for disposal, having completed its life as a consumer item. Postconsumer material is a part of the broader category of recovered materials (40 CFR 247.3) **[Added July 1999]**.
- *Postconsumer Recovered Paper* - this includes (40 CFR 247.3) **[Added July 1999]**:
  1. Paper, paperboard and fibrous wastes from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item including: Used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards and used cordage.
  2. All paper, paperboard, and fibrous wastes that enter and are collected from municipal solid waste.

- *Practicable* - capable of being used consistent with: Performance in accordance with applicable specifications, availability at a reasonable price, availability within a reasonable period of time, and maintenance of a satisfactory level of competition (40 CFR 247.3) **[Added July 1999]**.
- *Present In The Same Form and Concentration As a Product Packaged For Distribution and Use By The General Public* - a substance packaged in a similar manner and present in the same concentration as the substance when packaged for use by the general public, whether or not it is intended for distribution to the general public or used for the same purpose as when it is packaged for use by the general public (40 CFR 370.2) **[Added April 1999]**.
- *Pressure Vessel* - a storage tank or container designed to operate at pressures above 15 psig (29 CFR 1910.106(a)(29)).
- *Printer Ribbon* - a nylon fabric designed to hold ink and used in dot matrix and other types of impact printers (40 CFR 247.3) **[Added July 1999]**.
- *Procurement Actions* - this includes (40 CFR 247.2(b) **[Added July 1999]**):
  1. Purchases made directly by a procuring agency and purchases made directly by any person (e.g., a contractor) in support of work being performed for a procuring agency.
  2. Any purchases of designated items made "indirectly" by a procuring agency, as in the case of procurements resulting from grants, loans, funds, and similar forms of disbursements of monies.
- *Procurement Item* - any device, good, substance, material, product, or other item, whether real or personal property, which is the subject of any purchase, barter, or other exchange made to procure such item (40 CFR 247.3) **[Added July 1999]**.
- *Procuring Agency* - any Federal agency, or any State agency or agency of a political subdivision of a State, which is using appropriated Federal funds for such procurement, or any person contracting with any such agency with respect to work performed under such contract (40 CFR 247.3) **[Added July 1999]**.
- *Propellant-Actuated Power Device* - any tool or special mechanized device or gas generator system which is actuated by a smokeless propellant or which releases and directs work through a smokeless propellant charge (29 CFR 1910.109(a)) **[Added August 1999]**.
- *Protection for Exposure* - adequate fire protection for structures on property adjacent to tanks, where there are employees of the establishment (29 CFR 1910.106(a)(27)).
- *Purchasing* - the act of and the function of responsibility for the acquisition of equipment, materials, supplies, and services, including: Buying, determining the need, selecting the supplier, arriving at a fair and reasonable price and terms and conditions, preparing the contract or purchase order, and follow-up (40 CFR 247.3) **[Added July 1999]**.
- *Railroad Grade Crossing Surfaces* - materials placed between railroad tracks, and between the track and the road at highway and street railroad crossings, to enhance automobile and pedestrian safety (40 CFR 247.3) **[Added July 2000]**.
- *Recovered Materials* - waste materials and byproducts which have been recovered or diverted from solid waste, but such term does not include those materials and byproducts generated from, and commonly reused within, an original manufacturing process (40 CFR 247.3) **[Added July 1999]**.

- *Recovered Materials, For Purposes of Purchasing Paper and Paper Products* - waste material and byproducts that have been recovered or diverted from solid waste, but such term does not include those materials and byproducts generated from, and commonly reused within, an original manufacturing process. In the case of paper and paper products, the term recovered materials includes (40 CFR 247.3) **[Added July 1999]**:
  1. Postconsumer materials such as--
    - a. Paper, paperboard, and fibrous wastes from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item, including: Used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards; and used cordage.
    - b. All paper, paperboard, and fibrous wastes that enter and are collected from municipal solid waste.
  2. Manufacturing, forest residues, and other wastes such as--
    - a. Dry paper and paperboard waste generated after completion of the papermaking process (that is, those manufacturing operations up to and including the cutting and trimming of the paper machine reel in smaller rolls of rough sheets) including: Envelope cuttings, bindery trimmings, and other paper and paperboard waste, resulting from printing, cutting, forming, and other converting operations; bag, box, and carton manufacturing wastes; and butt rolls, mill wrappers, and rejected unused stock.
    - b. Finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others.
    - c. Fibrous byproducts of harvesting, manufacturing, extractive, or wood-cutting processes, flax, straw, linters, bagasse, slash, and other forest residues.
    - d. Wastes generated by the conversion of goods made from fibrous material (that is, waste rope from cordage manufacture, textile mill waste, and cuttings).
    - e. Fibers recovered from wastewater which otherwise would enter the waste stream.
- *Release* - any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles) of any hazardous chemical, extremely hazardous substance, or CERCLA hazardous substance (40 CFR 355.20) **[Added April 1999]**.
- *Reportable Quantity* - for any CERCLA hazardous substance, the reportable quantity established in table 302.4 of 40 CFR part 302, for such substance, for any other substance, the reportable quantity is 1 lb (40 CFR 355.20) **[Added April 1999]**.
- *Re-refined Oils* - used oils from which the physical and chemical contaminants acquired through previous use have been removed through a refining process (40 CFR 247.3) **[Added July 1999]**.
- *Restroom Divider/Partition* - a barrier used to provide privacy in public restroom facilities (40 CFR 247.3) **[Added July 1999]**.
- *Retread Tire* - a worn automobile, truck, or other motor vehicle tire whose tread has been replaced (40 CFR 247.3) **[Added July 1999]**.
- *Rock Wool Insulation* - insulation which is composed principally from fibers manufactured from slag or natural rock, with or without binders (40 CFR 247.3) **[Added July 1999]**.
- *Routine* - routine release is a release that occurs during normal operating procedures or processes (40 CFR 302.8(b)) **[Added April 1999]**.

- *Safety Can* - an approved container of not more than 5 gal capacity, having a spring-closing lid, spout cover and so designed that it will safely relieve internal pressure when subjected to fire exposure (29 CFR 1910.106(a)(29)).
- *Select Carcinogens* - any substance that meets one of the following criteria (29 CFR 1910.1450(b)):
  1. It is regulated by OSHA as a carcinogen.
  2. It is listed under the category "known to be carcinogens" and the Annual Report on Carcinogens published by the National Toxicology Program (NTP).
  3. It is listed under Group 1 (carcinogenic to humans) by the International Agency for Research on Cancer Monographs (IARC).
  4. It is listed in either Group 2A or 2B by IARC or under the category "reasonably anticipated to be carcinogens" by NTP, and causes statistically significant tumor incidences in experimental animals under specific situations.
- *Shower Divider/Partition* - a water-proof barrier used to provide privacy in public shower facilities (40 CFR 247.3) [Added July 1999].
- *Signage* - (including sign posts and supports) is used for identification and directional purposes for public roads and highways, and inside and outside office buildings, museums, parks, and other public places (40 CFR 247.3) [Added July 2000].
- *Small Arms Ammunition* - any shotgun, rifle, pistol, or revolver cartridge, and cartridges for propellant-actuated power devices and industrial guns. Military-type ammunition containing explosive-bursting charges, incendiary, tracer, spotting, or pyrotechnic projectiles is excluded from this definition (29 CFR 1910.109(a)) [Added August 1999].
- *Small Arms Ammunition Primers* - small percussion-sensitive explosive charges, encased in a cup, used to ignite propellant powder (29 CFR 1910.109(a)) [Added August 1999].
- *Smokeless Propellant* - solid propellants, commonly called smokeless powders in the trade, used in small arms ammunition, cannon, rockets, propellant-actuated power devices (29 CFR 1910.109(a)) [Added August 1999].
- *Soaker Hose* - a perforated flexible tubing that is used to deliver gentle irrigation to plants (40 CFR 247.3) [Added July 1999].
- *Sorbents (i.e., absorbents and adsorbents)* - materials used to retain liquids and gases in a diverse number of environmental, industrial, agricultural, medical, and scientific applications. Absorbents incorporate a substance while adsorbents gather substances on their surfaces (40 CFR 247.3) [Added July 2000].
- *Specification* - a description of the technical requirements for a material, product, or service that includes the criteria for determining whether these requirements are met. In general, specifications are in the form of written commercial designations, industry standards, and other descriptive references (40 CFR 247.3) [Added July 1999].
- *Spray-in-place Foam* - rigid cellular polyurethane or polyisocyanurate foam produced by catalyzed chemical reactions that hardens at the site of the work. The term includes spray-applied and injected applications (40 CFR 247.3) [Added July 1999].

- *Spray-in-place Insulation* - insulation material that is sprayed onto a surface or into cavities and includes cellulose fiber spray-on as well as plastic rigid foam products (40 CFR 247.3) [Added July 1999].
- *Stable In Quantity and Rate* - a release that is stable in quantity and rate is a release that is predictable and regular in amount and rate of emission (40 CFR 302.8(b)) [Added April 1999].
- *Statistically Significant Increase* - a statistically significant increase in a release is an increase in the quantity of the hazardous substance released above the upper bound of the reported normal range of the release (40 CFR 302.8(b)) [Added April 1999].
- *Structural Fiberboard* - a fibrous-felted, homogenous panel made from lignocellulosic fibers (usually wood, cane, or paper) and having a density of less than 31 lb/ft<sup>3</sup> but more than 10 lb/ft<sup>3</sup>. It is characterized by an integral bond which is produced by interfelting of the fibers, but which has not been consolidated under heat or pressure as a separate stage of manufacture (40 CFR 247.3) [Added July 1999].
- *Tire* - the following types of tires: Passenger car tires, light- and heavy-duty truck tires, high-speed industrial tires, bus tires, and special service tires (including military, agricultural, off-the-road, and slow-speed industrial) (40 CFR 247.3) [Added July 1999].
- *Toxic Chemical* - a chemical or chemical category listed in 40 CFR 372.65 (see the column titled Toxic Chemicals in Appendix 3-1) (40 CFR 372.3).
- *Unlisted Hazardous Substances* - a solid waste, as defined in 40 CFR 261.2, which is not excluded from regulation as a hazardous waste under 40 CFR 261.4(b), is a hazardous substance under section 101(14) of CERCLA if it exhibits any of the characteristics identified in 40 CFR 261.20 through 261.24 (40 CFR 302.4(b)) [Added April 1999].
- *Vapor Pressure* - the pressure, measured in psia, exerted by a volatile liquid (29 CFR 1910.106(a)(30)).



## HAZARDOUS MATERIALS MANAGEMENT

### GUIDANCE FOR CHECKLIST USERS

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	<b>REFER TO CHECKLIST ITEMS:</b>
All Facilities	HM.1.1 through HM.1.11
Personnel Training	HM.10.1 through HM.10.3
Pollution Prevention	HM.12.1 through HM.12.6
Hazardous Materials in Laboratories	HM.15.1 through HM.15.4
Releases	HM.20.1 through HM.20.5
Emergency Planning	HM.25.1
Right-To-Know	HM.30.1 through HM.30.3
Flammable/Combustible Liquids Storage	
General	HM.35.1 through HM.35.10
Industrial Areas	HM.40.1 through HM.40.3
Tanks	HM.42.1 through HM.42.5
Compressed Gases Storage	HM.45.1 and HM.45.2
Acid Storage	HM.47.1
Transportation	HM.50.1 through HM.50.12
Ammunition Storage	HM.55.1 through HM.55.11

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## HAZARDOUS MATERIALS MANAGEMENT

### Records To Review

- Spill records
- Emergency plan documents (Tier I or Tier II reports)
- MSDSs
- Inventory records
- Hazardous substance release reports
- Training records
- Hazard Communication Program
- Chemical Hygiene Plan (labs)

### Physical Features To Inspect

- Hazardous material storage areas
- Shop activities
- Shipping and receiving area



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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>HM.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>HM.1.2.</b> FWS facilities are required to comply with state and local regulations (EO 12088, Section 1-1).</p> <p><b>HM.1.3.</b> Facilities are required to meet regulatory requirements issued since the finalization of this handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:          – transportation of hazardous materials          – notification requirements          – response plan requirements          – spill response requirements.)</p> <p>Determine if any new regulations concerning hazardous materials have been issued since the finalization of this handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.1.4.</b> FWS facilities should report all NOV's to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p>	<p>Determine if the facility has received an NOV relating to hazardous materials.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p>
<p><b>HM.1.5.</b> A master listing of all hazardous materials storage sites should be maintained at the facility (MP).</p>	<p>Determine the locations of all hazardous materials storage areas on the facility by interviewing staff.</p> <p>(NOTE: Hazardous constituents of expired materials discovered during the inventory process, or at any other time, should be identified prior to disposal, see appropriate checklist item in Hazardous Waste Management.)</p>
<p><b>HM.1.6.</b> Facilities should be receiving specific information from tenant operations (MP).</p>	<p>Verify that FWS facilities with tenant operations receive the following information from their tenants:</p> <ul style="list-style-type: none"> <li>- information on spills</li> <li>- pesticide application information</li> <li>- copies of permits</li> <li>- EPCRA reports</li> <li>- hazardous waste disposal amounts and destinations</li> <li>- notices of violations</li> <li>- location of hazardous material and hazardous waste storage areas.</li> </ul>
<p><b>HM.1.7.</b> Facilities should coordinate with the local fire department concerning the types of hazardous chemicals used at the facility, the areas where they are used, what they are used for, and the quantities which are used in a given operation (MP).</p>	<p>Determine if the facility has coordinated efforts with the local fire department.</p> <p>Determine if the department is aware of areas that are at high risk for chemical incidents.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.1.8.</b> Specific persons should be designated responsible for hazardous materials storage areas, and the precise nature of their responsibilities should be specified (MP).</p> <p><b>HM.1.9.</b> Facilities are required to have on file an MSDS for each hazardous chemical stored and used at the facility (29 CFR 1910.1200(b)(3)(ii), 1910.1200(b)(4)(ii), 1910.1200(b)(6), 1910.1200(g)(1) and 1910.1200(g)(8)).</p>	<p>Verify that specific individuals have been designated responsible for hazardous materials storage areas.</p> <p>Verify that the individuals designated responsible for hazardous materials storage areas are aware of the precise nature of their responsibilities.</p> <p>Verify that an MSDS is on file and readily accessible to workers on all shifts in the workplace for each hazardous material stored or used.</p> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> <li>- hazardous waste</li> <li>- tobacco or tobacco products</li> <li>- wood or wood products</li> <li>- articles which are defined as a manufactured item other than a fluid or particle which under normal conditions of use does not release more than very small amounts of a hazardous chemical and does not pose a physical hazard or health risk to personnel and that: <ul style="list-style-type: none"> <li>- is formed to a specific shape or design during manufacture</li> <li>- has end use functions dependent in whole or in part upon its shape or design during end use</li> </ul> </li> <li>- food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel</li> <li>- any drug as that term is defined in the <i>Federal Food, Drug, and Cosmetic Act</i> when it is in its solid, final form for direct administration</li> <li>- cosmetics which are packaged for sale or intended for personal use</li> <li>- any consumer product or hazardous substance as defined in the <i>Consumer Product Safety Act</i> and the <i>Federal Hazardous Substances Act</i> where the facility can demonstrate that it is used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposure experienced by consumers</li> <li>- ionizing and nonionizing radiation</li> <li>- biological hazards.)</li> </ul> <p>(NOTE: This requirement also applies to work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>HM.1.10.</b> Containers of hazardous chemicals in the workplace are required to be labeled, tagged, or marked with specific information (29 CFR 1910.1200(b)(3)(i), 1910.1200(b)(4)(i), 1910.1200(b)(5), and 1910.1200(f)(5) through 1910.1200(f)(7)).</p>	<p>Verify that all containers of hazardous chemicals in the workplace are labeled with the following information:</p> <ul style="list-style-type: none"> <li>- identity of the hazardous chemical (same as on MSDS)</li> <li>- appropriate hazard warnings.</li> </ul> <p>(NOTE: The facility may use signs, placards, process sheets, batch tickets, operating procedures, or other written materials instead of attaching labels to individual stationary process containers as long as the alternate method identifies the containers to which it is applicable.)</p> <p>(NOTE: Portable containers into which hazardous chemicals are transferred from labeled containers and which are intended only for the immediate use of the employee who performs the transfer are not required to be marked.)</p> <p>(NOTE: This requirement also applies to work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions.)</p> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> <li>- hazardous waste</li> <li>- tobacco or tobacco products</li> <li>- wood or wood products</li> <li>- articles which are defined as a manufactured item other than a fluid or particle which, under normal conditions of use, does not release more than very small amounts of a hazardous chemical and does not pose a physical hazard or health risk to personnel and that: <ul style="list-style-type: none"> <li>- is formed to a specific shape or design during manufacture</li> <li>- has end use functions dependent in whole or in part upon its shape or design during end use</li> </ul> </li> <li>- food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel</li> <li>- any drug as that term is defined in the <i>Federal Food, Drug, and Cosmetic Act</i> when it is in its solid, final form for direct administration</li> <li>- cosmetics which are packaged for sale or intended for personal use</li> <li>- any consumer product or hazardous substance as defined in the <i>Consumer Product Safety Act</i> and the <i>Federal Hazardous Substances Act</i> where the facility can demonstrate that it is used</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.1.11.</b> Specific housekeeping requirements must be met in areas where hazardous materials are stored (29 CFR 1910.176(c)).</p>	<ul style="list-style-type: none"> <li>- in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposure experienced by consumers</li> <li>- ionizing and nonionizing radiation</li> <li>- biological hazards.)</li> </ul> <p>Verify that areas where hazardous materials are stored and/or used around the facility are free from accumulations of materials that create a hazard from tripping, fire, explosion, or pest harborage.</p> <p>(NOTE: The following are suggested housekeeping practices:</p> <ul style="list-style-type: none"> <li>- drums/containers are not leaking and are tightly sealed</li> <li>- drip pans and/or absorbent material are placed under containers</li> <li>- dispensing areas are located away from catch basins and storm drains.)</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.10</b></p> <p><b>PERSONNEL TRAINING</b></p> <p><b>HM.10.1.</b> Facilities are required to have a written hazard communication program that is designed to provide all employees with information about the hazardous chemicals to which they are exposed (29 CFR 1910.1200 (b)(1) and 1910.1200 (e)(1)).</p>	<p>Verify that there is a written hazard communication program that contains the following:</p> <ul style="list-style-type: none"> <li>- how general training will be done to inform employees of issues such as MSDSs and hazardous material labels and other warning signs</li> <li>- a list of the hazardous chemicals known to be present (can be done for the entire workplace or individual work areas)</li> <li>- the methods the facility will use to inform the employees of the hazards associated with nonroutine tasks and the hazards associated with chemicals contained in unlabeled pipes in their work areas:               <ul style="list-style-type: none"> <li>- identity of the hazardous chemicals contained</li> <li>- appropriate hazard warning</li> </ul> </li> <li>- details of employee training.</li> </ul> <p>Verify that, if the facility is operated such that employees from more than one employer may be exposed (for example, employees of a construction contractor working onsite), the hazard communication program also addresses what the facility will do to:</p> <ul style="list-style-type: none"> <li>- provide the other employees onsite with access to MSDSs for each hazardous chemical the other employer's employees may be exposed to while working</li> <li>- inform the other employers of the labeling system used in the workplace</li> <li>- inform the other employers of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies.</li> </ul> <p>(NOTE: This requirement also applies to work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions.)</p> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> <li>- hazardous waste</li> <li>- tobacco or tobacco products</li> <li>- wood or wood products</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.10.2.</b> Personnel working with hazardous materials are required to be trained in their proper use and potential hazards (29 CFR 1910.1200(b)(3)(iii), 1910.1200(b)(4)(iii), 1910.1200(b)(6), and 1910.1200(h)).</p>	<ul style="list-style-type: none"> <li>- articles which are defined as a manufactured item other than a fluid or particle which under normal conditions of use does not release more than very small amounts of a hazardous chemical and does not pose a physical hazard or health risk to personnel and that:               <ul style="list-style-type: none"> <li>- is formed to a specific shape or design during manufacture</li> <li>- has end use functions dependent in whole or in part upon its shape or design during end use</li> </ul> </li> <li>- food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel</li> <li>- any drug as that term is defined in the <i>Federal Food, Drug, and Cosmetic Act</i> when it is in its solid, final form for direct administration</li> <li>- cosmetics which are packaged for sale or intended for personal use</li> <li>- any consumer product or hazardous substance as defined in the <i>Consumer Product Safety Act</i> and the <i>Federal Hazardous Substances Act</i> where the facility can demonstrate that it is used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposure experienced by consumers</li> <li>- ionizing and nonionizing radiation</li> <li>- biological hazards.)</li> </ul> <p>Verify that employees are provided with information and trained on hazardous chemicals in their workplace at the time of initial assignment and when ever a new hazard is introduced into the workplace.</p> <p>Verify that employees are informed of the following:</p> <ul style="list-style-type: none"> <li>- any operations in their work areas where hazardous chemicals are present</li> <li>- the location and availability of the written hazard communication program, including the required lists of hazardous chemicals, and material safety data sheets.</li> </ul> <p>Verify that training includes:</p> <ul style="list-style-type: none"> <li>- methods and observations to use to detect a release</li> <li>- the physical and health hazards of the chemicals in the work areas</li> <li>- protective measures and procedures to use</li> </ul>

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	<p>- the details of the hazard communication program developed by the facility, including an explanation of the labeling system, MSDSs, and how employees can obtain and use the appropriate hazard information.</p> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> <li>- hazardous waste</li> <li>- tobacco or tobacco products</li> <li>- wood or wood products</li> <li>- articles which are defined as a manufactured item other than a fluid or particle which, under normal conditions of use, does not release more than very small amounts of a hazardous chemical and does not pose a physical hazard or health risk to personnel and that: <ul style="list-style-type: none"> <li>- is formed to a specific shape or design during manufacture</li> <li>- has end use functions dependent in whole or in part upon its shape or design during end use</li> </ul> </li> <li>- food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel</li> <li>- any drug as that term is defined in the <i>Federal Food, Drug, and Cosmetic Act</i> when it is in its solid, final form for direct administration</li> <li>- cosmetics which are packaged for sale or intended for personal use</li> <li>- any consumer product or hazardous substance as defined in the <i>Consumer Product Safety Act</i> and the <i>Federal Hazardous Substances Act</i> where the facility can demonstrate that it is used in the workplace in the same manner as normal consumer use, and which use results in a duration and frequency of exposure which is not greater than exposure experienced by consumers</li> <li>- ionizing and nonionizing radiation</li> <li>- biological hazards.)</li> </ul> <p>(NOTE: These requirements also apply, as necessary, for protection in event of a spill or leak, to work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.10.3.</b> Facilities should designate a HAZCOM Program Coordinator at each station (MP) [Added July 1999].</p> <p><b>HM.10.4.</b> Facilities using formaldehyde must meet workplace requirements (29 CFR 1910.1048 (d)(1)) [Added September 2000].</p> <p><b>HM.10.5.</b> Facilities using formaldehyde must provide personal protective equipment (29 CFR 1910.1048(h)(1)) [Added September 2000].</p>	<p>Verify that a HAZCOM Program Coordinator is designated as a point of contact at each station.</p> <p>(NOTE: Employee exposure to formaldehyde must be kept below 0.5 ppm for an 8-hour weighted average and below 2.0 ppm for any one 15-minute exposure during an 8-hour period.)</p> <p>Verify that the facility monitors its employees to determine their exposure to formaldehyde.</p> <p>(EXCEPTION: Where the employer documents, using objective data, that the presence of formaldehyde or formaldehyde-releasing products in the workplace cannot result in airborne concentrations of formaldehyde that would cause any employee to be exposed at or above the action level of the STEL under foreseeable conditions of use, the employer will not be required to measure employee exposure to formaldehyde.)</p> <p>(NOTE: Employee exposure to formaldehyde must be kept below 0.5 ppm for an 8-hour weighted average and below 2.0 ppm for any one 15-minute exposure during an 8-hour period.)</p> <p>Verify that employees are provided with personal protective equipment or clothing.</p> <p>Verify that the facility assures that the employee wears the personal protective equipment or clothing.</p> <p>Verify that the facility selects protective clothing and equipment based upon the form of formaldehyde used, the conditions of use, and the hazard to be prevented.</p> <p>Verify that all contact of the eyes and skin with liquids containing 1 percent or more formaldehyde are prevented by the use of chemical protective clothing made of material impervious to formaldehyde and the use of other personal protective equipment, i.e., goggles, face shields, as appropriate to the operation.</p>

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<p><b>HM.12</b></p> <p><b>POLLUTION PREVENTION</b></p> <p><b>HM.12.1</b> [Deleted September 2000]</p> <p><b>HM.12.2.</b> [Moved to <b>GR.25.4</b> September 2000].</p> <p><b>HM.12.3</b> [Moved to <b>GR.12.2</b> September 2000].</p> <p><b>HM.12.4.</b> [Moved to <b>GR.12.3</b> September 2000].</p>	<p>Checklist item deleted due to the revocation of EO 12856 by EO 13148, 21 April 2000. The requirement for a P2 plan has been encompassed in the scope of a broader plan required under EO 13148. See Greening, Chapter 11, GR.12.1.</p> <p>(NOTE: See Chapter 11, Greening, GR.25.4.)</p> <p>(NOTE: See Chapter 11, Greening, GR.12.2.)</p> <p>(NOTE: See Chapter 11, Greening, GR.12.3.)</p>





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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.15</b></p> <p><b>HAZARDOUS MATERIALS IN LABORATORIES</b></p>          <p><b>HM.15.1.</b> Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to have a Chemical Hygiene Plan (29 CFR 1910.1450(e)).</p>	<p>(NOTE: The requirements for hazardous materials in laboratories do not apply to:</p> <ul style="list-style-type: none"> <li>-uses of hazardous chemicals that do not meet the definition of laboratory use</li> <li>-laboratory uses of hazardous chemicals which provide no potential for exposure such as:               <ul style="list-style-type: none"> <li>-commercially prepared kits such as pregnancy tests in which all the reagents needed to conduct the test are contained in the kit</li> <li>-procedures using chemically-impregnated test media such as Dip- and Read tests.)</li> </ul> </li> </ul> <p>Verify that a written Chemical Hygiene plan exists and is:</p> <ul style="list-style-type: none"> <li>-capable of protecting employees from health hazards associated with hazardous chemicals in the laboratory</li> <li>-capable of keeping exposure to regulated substances below required limits.</li> </ul> <p>Verify that the plan is readily available to employees and employee representatives.</p> <p>Verify that the plan includes the following elements and indicates specific measures to be taken when laboratory work involves the use of hazardous chemicals:</p> <ul style="list-style-type: none"> <li>-standard operating procedures relevant to safety and health considerations to be followed</li> <li>-criteria that will be used to determine and implement control measures to reduce employee exposure to hazardous chemicals including the engineering controls, the use of personal protective equipment and hygiene practices</li> <li>-a requirement that fume hoods and other protective equipment are functioning properly and specific measures taken to ensure proper and adequate performance of the equipment</li> <li>-provisions for employee information and training</li> <li>-circumstances and situations which require prior approval from a designated individual</li> <li>-provisions for medical consultations and medical exams</li> <li>-designation of individuals responsible for the implementation of the plan</li> <li>-assignment of a Chemical Hygiene Officer and, if appropriate, establishment of a Chemical Hygiene Committee</li> </ul>

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<p><b>HM.15.2.</b> Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to provide employees with information and training concerning the hazards of the chemicals in their work areas (29 CFR 1910.1450(f)).</p>	<ul style="list-style-type: none"> <li>- provisions for additional employee protection when working with particularly hazardous substances, including, select carcinogens, reproductive toxins and substances which have a high degree of acute toxicity. Provisions might include:               <ul style="list-style-type: none"> <li>- establishment of a designated area</li> <li>- use of containment devices such as fume hoods or glove boxes</li> <li>- procedures for safe removal of contaminated waste</li> <li>- decontamination procedures.</li> </ul> </li> </ul> <p>Verify that the plan is reviewed annually and updated as needed.</p> <p>Verify that information about the hazards of the chemicals in the work area is provided at the time of initial employment and prior to assignment involving new exposure risks.</p> <p>(NOTE: The frequency of refresher training is to be determined by the facility.)</p> <p>Verify that employees are informed of:</p> <ul style="list-style-type: none"> <li>- the requirements to be trained and informed</li> <li>- the location and availability of the Chemical Hygiene Plan</li> <li>- the permissible exposure limits for OSHA regulated substances or recommended exposure levels for other hazardous chemicals where there is no OSHA limit</li> <li>- signs and symptoms associated with exposure</li> <li>- the location and known availability of known reference material such as MSDSs.</li> </ul> <p>Verify that training includes:</p> <ul style="list-style-type: none"> <li>- methods and observations that may be used to detect the presence of or release of a hazardous chemical</li> <li>- the physical and health hazards of chemicals in the work area</li> <li>- the measures employees can take to protect themselves</li> <li>- applicable details of the Chemical Hygiene Plan.</li> </ul>

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<p><b>HM.15.3.</b> Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to follow specific handling and operating procedures (29 CFR 1910.1450(h)).</p>	<p>Verify that labels on incoming containers of hazardous chemicals are not removed or defaced.</p> <p>Verify that MSDSs are maintained and readily accessible to lab employees.</p> <p>Verify that, if the facility is developing chemical substances, a determination is made as to whether or not it is a hazardous chemical if the composition of the chemical is known and the chemical is produced only for use by the laboratory.</p> <p>Verify that, if the facility is developing chemical substances as a byproduct and the composition is not known, it is assumed to be hazardous.</p> <p>Verify that, if the chemical substance is produced for another user outside of the lab, the lab meets the standards outlined in 29 CFR 1910.1200 (checklist items HM.1.9, HM.1.10, HM.10.1, and HM.10.2).</p>
<p><b>HM.15.4.</b> Facilities engaged in the laboratory use of hazardous chemicals (see definitions) are required to maintain specific records (29 CFR 1910.1450(j)).</p>	<p>Verify that records of monitoring for employee exposure are maintained along with any medical records or test results.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.20</b></p> <p><b>RELEASES</b></p> <p><b>HM.20.1.</b> Absorbent materials should be available for spill and/or release cleanup in areas where hazardous materials are used or stored (MP).</p> <p><b>HM.20.2.</b> Releases in excess or equal to RQs of hazardous substances shall be reported to the NRC immediately (40 CFR 302.1 through 302.6) [Revised April 1999].</p>	<p>Verify that absorbent materials are available for spill cleanup.</p> <p>Verify that a release (other than a federally permitted release or application of a pesticide) of a hazardous substance from a vessel or an offshore or an onshore facility is reported to the NRC immediately after the release is identified.</p> <p>(NOTE: See Appendix 3-1 for the RQ of listed hazardous substances. The RQ of an unlisted hazardous substance (see definitions) is 100 lb, except for those unlisted hazardous wastes which exhibit extraction procedure (EP) toxicity identified in 40 CFR 261.24. Unlisted hazardous wastes which exhibit EP toxicity have the RQs listed in Appendix 3-1 for the contaminant on which the characteristic of EP toxicity is based. The RQ applies to the waste itself, not merely to the toxic contaminant. If an unlisted hazardous waste exhibits EP toxicity on the basis of more than one contaminant, the RQ for that waste shall be the lowest of the RQ listed in Appendix 3-1 for those contaminants. If an unlisted hazardous waste exhibits the characteristic of EP toxicity and one or more of the other characteristics referenced in 40 CFR 302.4(b), the RQ for that waste is the lowest of the applicable reportable quantities.)</p> <p>Verify that, if mixtures or solutions of hazardous substances are released, except for radionuclides, it is reported when either of the following occur:</p> <ul style="list-style-type: none"> <li>- the quantity of all hazardous constituents of the mixture or solution is known and a reportable quantity or more of any hazardous constituent is released</li> <li>- the quantity of one or more of the hazardous constituents of the mixture or solution is unknown and the total amount of the mixture or solution released equals or exceeds the reportable quantity for the hazardous constituent with the lowest reportable quantity.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>(NOTE: Radionuclides are subject to these notification requirements only in the following circumstances:</p> <ul style="list-style-type: none"> <li>-if the identity and quantity (in curies) of each radionuclide in a released mixture or solution is known, the ratio between the quantity released (in curies) and the RQ for the radionuclide must be determined for each radionuclide. The only such releases notification requirements are those in which the sum of the ratios for the radionuclides in the mixture or solution released is <math>\geq 1</math></li> <li>-if the identity of each radionuclide in a released mixture or solution is known but the quantity released (in curies) of one or more of the radionuclides is unknown, the only such releases subject to notification requirements are those in which the total quantity (in curies) of the mixture or solution released is <math>\geq</math> the lowest RQ of any individual radionuclide in the mixture or solution</li> <li>-if the identity of one or more radionuclides in a released mixture or solution is unknown (or if the identity of a radionuclide released by itself is unknown), the only such releases subject to notification requirements are those in which the total quantity (in curies) released is equal to or greater than either one curie or the lowest RQ of any known individual radionuclide in the mixture or solution, whichever is lower.)</li> </ul> <p>(NOTE: The following categories of releases are exempt from the notification requirements:</p> <ul style="list-style-type: none"> <li>- releases of those radionuclides that occur naturally in the soil from land holdings such as parks, golf courses, or other large tracts of land</li> <li>- releases of naturally occurring radionuclides from land disturbance activities, including farming, construction, and land disturbance incidental to extraction during mining activities, except that which occurs at uranium, phosphate, tin, zircon, hafnium, vanadium, monazite, and rare earth mines. Land disturbance incidental to extraction includes: land clearing; overburden removal and stockpiling; excavating, handling, transporting, and storing ores and other raw</li> <li>- materials; and replacing materials in mined-out areas as long as such materials have not been beneficiated or processed and do not contain elevated radionuclide concentrations (greater than 7.6 pCi/g of Uranium-238, 6.8 pCi/g of Thorium-232, or 8.4 pCi/g of Radium-226)</li> <li>- releases of radionuclides from the dumping and transportation of coal and coal ash (including fly ash, bottom ash, and boiler slags), including the dumping and land spreading operations that occur during coal ash uses</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.20.3.</b> Releases of an RQ or greater should be reported to the Region and Environmental and Facility Compliance (EFC) (MP)[<b>Revised June 1998</b>].</p> <p><b>HM.20.4.</b> Specific notification requirements are required to be met for releases of hazardous substances that are continuous and stable in quantity and rate (40 CFR 302.8) [<b>Revised April 1999</b>].</p>	<p align="center">– releases of radionuclides from piles of coal and coal ash, including fly ash, bottom ash, and boiler slags.)</p> <p>(NOTE: Except for releases of radionuclides, notification of the release of an RQ of solid particles of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver, thallium, or zinc is not required if the mean diameter of the particles released is larger than 100 micrometers (0.004 in.).</p> <p>Verify that spills in excess of the RQs listed in Appendix 3-1 have been reported.</p> <p>Verify that a procedure is in place for the notification of the NRC immediately after becoming aware of the release.</p> <p>Verify that, if mixtures or solutions of hazardous substances are released, except for radionuclides, it is reported when:</p> <ul style="list-style-type: none"> <li>– the quantity of all hazardous constituents of the mixture or solution is known and an RQ or more of any hazardous constituent is released</li> <li>– the quantity of one or more of the hazardous constituents of the mixture or solution is unknown and the total amount of the mixture or solution released equals or exceeds the RQ for the hazardous constituent with the lowest RQ.</li> </ul> <p>(NOTE: Notification requirements for radionuclide releases are not included in this protocol.)</p> <p>Verify that releases of an RQ or greater are reported to the Region and the EFC.</p> <p>Determine if there are any releases that are continuous and stable in quantity and rate.</p> <p>Verify that the following notifications have been given:</p> <ul style="list-style-type: none"> <li>– initial telephone notification</li> <li>– initial written notification within 30 days of the initial telephone notification</li> <li>– follow-up notification within 30 days of the first anniversary date of the initial written notification</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- notification of changes in:               <ul style="list-style-type: none"> <li>- the composition or source of the release</li> <li>- information submitted in the initial written notification</li> <li>- the follow-up notification required on the first anniversary date of the initial written</li> </ul> </li> <li>- notification of when there is an increase in the quantity of the hazardous substances in any 24-h period that represents a statistically significant increase.</li> </ul> <p>Verify that, prior to making an initial telephone notification of a continuous release, the person in charge of a facility or vessel establishes a sound basis for qualifying the release for reporting by one of the following:</p> <ul style="list-style-type: none"> <li>- using release data, engineering estimates, knowledge of operating procedures, or best professional judgment to establish the continuity and stability of the release</li> <li>- reporting the release to the NRC for a period sufficient to establish the continuity and stability of the release.</li> </ul> <p>Verify that when a basis has been established to qualify the release for reduced reporting, initial notification to the NRC is made by telephone.</p> <p>Verify that the notification is identified as an initial continuous release notification report and includes the following information:</p> <ul style="list-style-type: none"> <li>- the name and location of the facility or vessel</li> <li>- the name and identity of the hazardous substance being released.</li> </ul> <p>Verify that initial written notification of a continuous release is made to the appropriate EPA Regional Office for the geographical area where the releasing facility or vessel is located and occurs within 30 days of the initial telephone notification to the NRC.</p> <p>Verify that the initial written notification includes, for each release for which reduced reporting as a continuous release is claimed, the following information:</p> <ul style="list-style-type: none"> <li>- the name of the facility or vessel; the location, including the latitude and longitude; the case number assigned by the NRC or the EPA; the Dun and Bradstreet number of the facility, if available; the port of registration of the vessel; the name and telephone number of the person in charge of the facility or vessel</li> </ul>



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	<ul style="list-style-type: none"> <li>-the population density within a one-mile radius of the facility or vessel, described in terms of the following ranges: 0-50 persons, 51-100 persons, 101-500 persons, 501-1,000 persons, more than 1,000 persons</li> <li>-the identity and location of sensitive populations and ecosystems within a one-mile radius of the facility or vessel (e.g., elementary schools, hospitals, retirement communities, or wetlands)</li> <li>-for each hazardous substance release claimed to qualify for reporting under CERCLA section 103(f)(2), the following information:               <ul style="list-style-type: none"> <li>-the name/identity of the hazardous substance; the CAS Registry Number for the substance (if available); and if the substance being released is a mixture, the components of the mixture and their approximate concentrations and quantities, by weight</li> <li>-the upper and lower bounds of the normal range of the release (in pounds or kilograms) over the previous year</li> <li>-the source(s) of the release (e.g., valves, pump seals, storage tank vents, stacks). If the release is from a stack, the stack height (in feet or meters)</li> <li>-the frequency of the release and the fraction of the release from each release source and the specific period over which it occurs</li> <li>-a brief statement describing the basis for stating that the release is continuous and stable in quantity and rate</li> <li>-an estimate of the total annual amount that was released in the previous year (in pounds or kilograms)</li> <li>-the environmental medium(a) affected by the release, such as the name of the surface water body; the stream order or average flowrate (in cubic feet/second) and designated use; the surface area (in acres) and average depth (in feet or meters) of the lake; the location of public water supply wells within 2 mi if on or underground.</li> </ul> </li> <li>-a signed statement that the hazardous substance release described is continuous and stable in quantity and rate and that all reported information is accurate and current to the best knowledge of the person in charge.</li> </ul> <p>Verify that, within 30 days of the first anniversary date of the initial written notification, each hazardous substance release reported is evaluated to verify and update the information submitted in the initial written notification.</p>

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	<p>Verify that the followup notification contains all the information required in the initial notification, plus notification of changes in the release.</p> <p>(NOTE: Instead of the initial written report or follow-up report, a copy of the Toxic Release Inventory (TRI) form submitted under SARA Title III section 313 for the previous 1 July may be used if the following information is added:</p> <ul style="list-style-type: none"> <li>-the population density within a 1 mi radius of the Federal facility or vessel</li> <li>-the identify and location of sensitive populations and ecosystems within a 1-mi radius of the Federal facility or vessel (e.g., elementary schools, hospitals, retirement communities, or wetlands)</li> <li>-the following for each hazardous substance release that qualifies for reporting under CERCLA section 103(f)(2): <ul style="list-style-type: none"> <li>-the upper and lower bounds of the normal range of the release over the previous year</li> <li>-the frequency of the release and the fraction of the release from each release source and the specific period over which it occurs</li> <li>-a brief statement describing the basis for stating that the release is continuous and stable in quantity and rate</li> <li>-a signed statement that the release is continuous and stable in quantity and rate and that all reported information is accurate and current to the best knowledge of the person in charge.)</li> </ul> </li> </ul> <p>(NOTE: If there is a change in any information submitted in the initial written notification or the followup notification other than a change in the source, composition, or quantity of the release, the person in charge of the facility or vessel shall provide written notification of the change to the EPA Region for the geographical area where the facility or vessel is located, within 30 days of determining that the information submitted previously is no longer valid. Notification shall include the reason for the change, and the basis for stating that the release is continuous and stable under the changed conditions. Notification of changes shall include the case number assigned by the NRC or the EPA and also the signed certification statement.)</p> <p>Verify that notification of a statistically significant increase in a release is made to the NRC as soon as there is knowledge of the release.</p>

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(NOTE: A determination of whether an increase is a "statistically significant increase" shall be made based upon calculations or estimation procedures that will identify releases that exceed the upper bound of the reported normal range.)

Verify that each hazardous substance release is evaluated annually to determine if changes have occurred in the information submitted in the initial written notification, the followup notification, and/or in a previous change notification.

(NOTE: Where necessary to satisfy the requirements of this section, the person in charge may rely on recent release data, engineering estimates, the operating history of the facility or vessel, or other relevant information to support notification. All supporting documents, materials, and other information shall be kept on file at the facility, or in the case of a vessel, at an office within the United States in either a port of call, a place of regular berthing, or the headquarters of the business operating the vessel.)

Verify that supporting materials are kept on file for a period of 1 yr and substantiate the reported normal range of releases, the basis for stating that the release is continuous and stable in quantity and rate, and the other information in the initial written report, the followup report, and the annual evaluations.

(NOTE: Multiple concurrent releases of the same substance occurring at various locations with respect to contiguous plants or installations upon contiguous grounds that are under common ownership or control may be considered separately or added together in determining whether such releases constitute a continuous release or a statistically significant; whichever approach is elected for purposes of determining whether a release is continuous also must be used to determine a statistically significant increase in the release.)

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<p><b>HM.20.5.</b> When there is a release of an RQ of any extremely hazardous substance or CERCLA hazardous substance emergency release notification is required (EO 13148, Sec 501, 40 CFR 355.40 and 355 Appendix A) [Revised September 2000].</p>	<p>(NOTE: Federal agencies are required to comply with these provisions without regard to the Standard Industrial Classification (SIC) or North American Industrial Classification System (NAICS) delineations.)</p> <p>Determine if there has been a release of an extremely hazardous substance or CERCLA hazardous substance in excess of the RQ.</p> <p>Verify that, if a release has occurred in excess of the reportable quantity, the following are immediately notified:</p> <ul style="list-style-type: none"> <li>- community emergency coordinator for the local emergency planning committee of any area likely to be affected by the release</li> <li>- state emergency response commission of any state likely to be affected by the release</li> <li>- local emergency response personnel if there is no local emergency planning committee.</li> </ul> <p>Verify that the notice contains the following, to the extent known at the time of notice, so long as no delay in notice or emergency response results:</p> <ul style="list-style-type: none"> <li>- the chemical name or identity of any substance involved in the release</li> <li>- an indication of whether the substance is an extremely hazardous substance</li> <li>- an estimate of the quantity of any such substance that was released into the environment</li> <li>- the time and duration of the release</li> <li>- the medium or media into which the release occurred</li> <li>- any known or anticipated acute or chronic health risks associated with the emergency, and, where appropriate, advice regarding medical attention necessary for exposed individuals</li> <li>- proper precautions to take as a result of the release, including evacuation (unless such information is readily available to the community emergency coordination because of the local emergency plan)</li> <li>- the names and telephone numbers of the person or persons to be contacted for further information.</li> </ul> <p>Verify that, after the immediate verbal notification, a written follow-up emergency notification is produced which contains the same information detailed in the verbal notice plus:</p> <ul style="list-style-type: none"> <li>- actions taken to respond to and contain the release</li> </ul>

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	<ul style="list-style-type: none"> <li>- any known or anticipated acute or chronic health risks associated with the risk</li> <li>- advice regarding medical attention necessary for exposed individuals as necessary.</li> </ul> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> <li>- any release that results in exposure to persons solely within the boundaries of the facility</li> <li>- any release that is a Federally permitted release as defined in section 101 (10) of CERCLA</li> <li>- any release that is continuous and stable in quantity and rate under the definitions in 40 CFR 302.8(b) (see checklist item HM.20.4)</li> <li>- any release of a pesticide product exempt from CERCLA section 103(a) reporting under section 103(e) of CERCLA</li> <li>- any release not meeting the definition of release under Section 101(22) of CERCLA, and therefore exempt from Section 103(a) reporting</li> <li>- any radionuclide release which occurs:               <ul style="list-style-type: none"> <li>- naturally in soil from land holdings such as parks, golf courses, or other large tracts of land naturally from land disturbance activities, including farming, construction, and land disturbance incidental to extraction during mining activities, except that which occurs at uranium, phosphate, tin, zircon, hafnium, vanadium, monazite, and rare earth mines</li> <li>- from the dumping and transportation of coal and coal ash (including fly ash, bottom ash, and boiler slags), including the dumping and land spreading operations that occur during coal ash uses</li> <li>- from piles of coal and coal ash, including fly ash, bottom ash, and boiler slags.)</li> </ul> </li> </ul> <p>(NOTE: Exemption from these notification requirements does not include exemption from requirements for:</p> <ul style="list-style-type: none"> <li>- initial notifications as defined in 40 CFR 302.8(d) and (e) (see checklist item HM.20.4)</li> <li>- notification of a "statistically significant increase"</li> <li>- notification of a "new release"</li> <li>- notification of a change in the normal range of the release as required under 40 CFR 302.8(g)(2) (see checklist item HM.20.4).)</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.25</b></p> <p><b>EMERGENCY PLANNING</b></p> <p><b>HM.25.1.</b> Facilities where there are extremely hazardous substances present in amounts equal to or greater than the thresh old limits found in Appendix 3-1 are required to follow specific emergency planning procedures (EO 13148, Sec 501; 40 CFR 355.30, and 355 Appendix A) [Revised September 2000].</p>	<p>(NOTE: Federal agencies are required to comply with these provisions without regard to the Standard Industrial Classification (SIC) or North American Industrial Classification System (NAICS) delineations.)</p> <p>Determine if any of the items listed in Appendix 3-1 as extremely hazardous substances are in amounts equal to or greater than those listed in Appendix 3-1.</p> <p>(NOTE: The requirements of this section also apply to any facility at which there is present an amount of any extremely hazardous substance designated, after public notice and opportunity for comment, by the Commission or the Governor for the state in which the facility is located. )</p> <p>(NOTE: For purposes of this section, an amount of any extremely hazardous substance means the total amount of an extremely hazardous substance present at any one time at a facility at concentrations greater than one percent by weight, regardless of location, number of containers, or method of storage.)</p> <p>Verify that the facility has notified the Commission (see definitions) that it is subject to the emergency planning requirements within 60 days after the facility first becomes subject to these requirements.</p> <p>Verify that the facility has a designated representative who participates in the local emergency planning process as a facility emergency response coordinator.</p> <p>Verify that the facility has notified the local emergency planning committee, or governor if there is no committee, of the facility representative within 30 days after establishment of a local emergency planning committee.</p> <p>Verify that the local emergency planning committee is informed of any changes occurring at the facility which may be relevant to emergency planning.</p>

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Verify that, upon request of the local emergency planning committee, the facility promptly provides to the committee any information necessary for development or implementation of the local emergency plan.

(NOTE: If a container or storage vessel holds a mixture or solution of an extremely hazardous substance, then the concentration of extremely hazardous substance, in weight percent (greater than 1 percent sign), shall be multiplied by the mass (in pounds) in the vessel to determine the actual quantity of extremely hazardous substance therein. Extremely hazardous substances that are solids are subject to either of two threshold planning quantities (i.e., 500/10,000 lb). The lower quantity applies only if the solid exists in powdered form and has a particle size less than 100 microns; or is handled in solution or in molten form; or meets the criteria for a NFPA rating of 2, 3, or 4 for reactivity. If the solid does not meet any of these criteria, it is subject to the upper (10,000 lb) TPQ. The 100 micron level may be determined by multiplying the weight percent of solid with a particle size less than 100 microns in a particular container by the quantity of solid in the container. The amount of solid in solution may be determined by multiplying the weight percent of solid in the solution in a particular container by the quantity of solution in the container. The amount of solid in molten form must be multiplied by 0.3 to determine whether the lower threshold planning quantity is met.)



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.30</b></p> <p><b>RIGHT-TO-KNOW</b></p> <p><b>HM.30.1.</b> Federal facilities that are required to prepare or have available an MSDS for a hazardous chemical under OSHA, are required to meet specific MSDS reporting requirements for planning purposes (EO 13148, Sec 501; 40 CFR 370.20(a) through 370.20(c), 370.21, and 370.28) [Revised September 2000].</p>	<p>(NOTE: This section contains what are commonly referred to as SARA III Requirements.)</p> <p>(NOTE: Federal agencies are required to comply with these provisions without regard to the Standard Industrial Classification (SIC) or North American Industrial Classification System (NAICS) delineations.)</p> <p>(NOTE: The emergency response commission consists of the State Emergency Response Commission and the local Emergency Planning Committee. Some states have only one of these.)</p> <p>Verify that MSDSs (or listing as appropriate) are submitted to the emergency response commission and the fire department with jurisdictions for each hazardous chemical present according to the following thresholds:</p> <ul style="list-style-type: none"> <li>- for all extremely hazardous substances present in amounts greater than or equal to 500 lb (227 kg, approximately 55 gal) or the threshold planning quantity (see Appendix 3-1), whichever is lower</li> <li>- for gasoline (all grades combined) in amounts greater than or equal to 75,000 gal (or approximately 283,900 L) when the gasoline is in tanks entirely underground at a retail gas station that was in compliance during the preceding CY with all applicable UST regulations</li> <li>- for diesel fuel (all grades combined) in amounts greater than or equal to 100,000 gal (or approximately 378,500 L) when the diesel is in tanks entirely underground at a retail gas station that was in compliance during the preceding CY with all applicable UST regulations</li> <li>- for all other hazardous chemicals present at any one time in amounts equal to or greater than 10,000 lb (4540 kg) (not all hazardous chemicals requiring an MSDS are listed in Appendix 3-1).</li> </ul> <p>(NOTE: For the purposes of these threshold values, a retail gas station is a retail facility engaged in selling gasoline and/or diesel fuel principally to the public, for motor vehicle use on land.)</p> <p>(NOTE: Commonly overlooked substances requiring an MSDS are propane and petroleum-based fuels. For diesel and unleaded gasoline, 10,000 lb equals approximately 1379 gal using the weight of 7.25 lb/gal.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.30.2.</b> Federal facilities, that are required to prepare or have available a MSDS sheet for a hazardous chemical under OSHA, are required to meet specific inventory reporting requirements for planning purposes (EO 13148, Sec 501; 40 CFR 370.20(a), 370.20(b), 370.20(d), 370.25, and 370.28) <b>[Revised September 2000].</b></p>	<p>Verify that, if MSDSs have not been submitted, the following have been submitted:</p> <ul style="list-style-type: none"> <li>- a list of hazardous chemicals for which the MSDS is required, grouped by hazard category</li> <li>- the chemical or common name of each hazardous chemical</li> <li>- any hazardous component of each hazardous chemical, except when reporting a mixture.</li> </ul> <p>Verify that revised MSDSs are provided within 3 mo after the discovery of significant new information concerning the hazardous chemical.</p> <p>(NOTE: These reporting requirements for a hazardous chemical that is a mixture of hazardous chemicals can be fulfilled by doing one of the following:</p> <ul style="list-style-type: none"> <li>- providing the required information on each component in the mixture that is a hazardous chemical</li> <li>- providing the required information on the mixture itself.)</li> </ul> <p>(NOTE: Federal agencies are required to comply with these provisions without regard to the Standard Industrial Classification (SIC) or North American Industrial Classification System (NAICS) delineations.)</p> <p>Verify that the Tier I (or Tier II), Hazardous Chemical Inventory forms, are submitted to the emergency response commission and the fire department with jurisdiction for each hazardous chemical present according to the following thresholds:</p> <ul style="list-style-type: none"> <li>- for all extremely hazardous substances present in amounts greater than or equal to 500 lb (227 kg, approximately 55 gal) or the threshold planning quantity (see Appendix 3-1), whichever is lower</li> <li>- for gasoline (all grades combined) in amounts greater than or equal to 75,000 gal (or approximately 283,900 L) when the gasoline is in tanks entirely underground at a retail gas station that was in compliance during the preceding CY with all applicable UST regulations</li> <li>- for diesel fuel (all grades combined) in amounts greater than or equal to 100,000 gal (or approximately 378,500 L) when the diesel is in tanks entirely underground at a retail gas station that was in compliance during the preceding CY with all applicable UST regulations</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.30.3.</b> Activities that manufacture, process, or otherwise use a toxic chemical (see Appendix 3-1) in excess of applicable threshold quantities and that have 10 or more employees are subject to certain reporting and recordkeeping requirements (EO 13148, Sec 501; 40 CFR 372.10(a), 372.10(c), 372.10(d), 372.22 through 372.38) [Revised September 2000].</p>	<p>– for all other hazardous chemicals present at any one time in amounts equal to or greater than 10,000 lb (4540 kg) (not all hazardous chemicals requiring an MSDS are listed in Appendix 3-1).</p> <p>(NOTE: For the purposes of these threshold values, a retail gas station is a retail facility engaged in selling gasoline and/or diesel fuel principally to the public, for motor vehicle use on land.)</p> <p>(NOTE: Commonly overlooked substances requiring a MSDS are propane and petroleum based fuels.)</p> <p>Verify that reports are submitted annually.</p> <p>(NOTE: These reporting requirements for a hazardous chemical that is a mixture of hazardous chemicals may be fulfilled by doing one of the following:</p> <ul style="list-style-type: none"> <li>– providing the required information on each component in the mixture that is a hazardous chemical</li> <li>– providing the required information on the mixture itself.)</li> </ul> <p>(NOTE: Federal agencies are required to comply with these provisions without regard to the Standard Industrial Classification (SIC) or North American Industrial Classification System (NAICS) delineations.)</p> <p>(NOTE: These reporting and recordkeeping requirements apply to facilities that meet all of the following criteria for a calendar year:</p> <ul style="list-style-type: none"> <li>– the facility has 10 or more full-time employees</li> <li>– the facility is in Standard Industrial Classification (SIC) (as in effect on 1 January 1987) major group codes 10 (except 1011, 1081, and 1094), 12 (except 1241), or 20 through 39; industry codes 4911, 4931, or 4939 (limited to facilities that combust coal and/or oil for the purpose of generating power for distribution in commerce); or 4953 (limited to facilities regulated under the RCRA, subtitle C, 42 U.S.C. section 6921 et seq.), or 5169, or 5171, or 7389 (limited to facilities primarily engaged in solvent recovery services on a contract or fee basis) by virtue of the fact that it meets one of the following criteria: <ul style="list-style-type: none"> <li>– the facility is an establishment with a primary SIC major group or industry code in the above list</li> <li>– the facility is a multi-establishment complex where all establishments have primary SIC major group or industry codes in the above list</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- the facility is a multi-establishment complex in which one of the following is true:               <ul style="list-style-type: none"> <li>- the sum of the value of services provided and/or products shipped and/or produced from those establishments that have primary SIC major group or industry codes in the above list is greater than 50 percent of the total value of all services provided and/or products shipped from and/or produced by all establishments at the facility</li> <li>- one establishment having a primary SIC major group or industry code in the above list contributes more in terms of value of services provided and/or products shipped from and/or produced at the facility than any other establishment within the facility.</li> </ul> </li> <li>- the facility manufactured (including imported), processed, or otherwise used a toxic chemical in excess of an applicable threshold quantity of that chemical.)</li> </ul> <p>(NOTE: The following are the threshold levels for a facility that is manufacturing (including importing), processing, or otherwise using a toxic chemical:</p> <ul style="list-style-type: none"> <li>- has manufactured or processed 25,000 lb/yr of toxic chemicals</li> <li>- has used 10,000 lb of toxic chemicals in other ways during the year</li> <li>- for the chemicals listed in Appendix 3-1a, the amounts indicated in the appendix.)</li> </ul> <p>(NOTE: Articles containing toxic chemicals are not included in calculations of total toxic chemical present. See 40 CFR 372.30(b)(3) for procedure to determine whether an excess has occurred.)</p> <p>Verify that a completed USEPA Form R, Toxic Chemical Release Form is submitted annually, for each toxic chemical exceeding threshold levels in 1 calendar year to the USEPA and state on or before 1 July of the next year.</p> <p>(NOTE: A facility may apply an alternate threshold of 1 million lb/yr to a chemical if it is calculated that the facility would have an annual reportable amount of that toxic chemical not exceeding 500 lb for the combined total quantities released at the facility, disposed within the facility, treated at the facility (as represented by amounts destroyed or converted by treatment processes), recovered at the facility as a result of recycle operations, combusted for the purpose of energy recovery at the facility, and amounts transferred from the facility to offsite locations for the purpose of recycle, energy recovery, treatment, and/or</p>

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	<p>disposal. The alternate threshold provisions do not apply to the chemicals listed in Appendix 3-1a.)</p> <p>Verify that, if a facility uses the alternate reporting threshold, they submit the required certification instead of the EPA Form R.</p> <p>Verify that, when more than one threshold applies to facility activities, the facility reports if it exceeds any applicable threshold and reports on all activities at the facility involving the chemical unless otherwise exempted.</p> <p>Verify that, when a facility manufactures, processes, or otherwise uses more than one member of a chemical category listed in 40 CFR 372.65(c), the facility reports if it exceeds any applicable threshold for the total volume of all the members of the category involved in the applicable activity.</p> <p>(NOTE: A facility may process or otherwise use a toxic chemical in a recycle/reuse operation. To determine whether the facility has processed or used more than an applicable threshold of the chemical, the owner or operator of the facility counts the amount of the chemical added to the recycle/reuse operation during the calendar year. In particular, if the facility starts up such an operation during a calendar year, or in the event that the contents of the whole recycle/reuse operation are replaced in a calendar year, the facility also counts the amount of the chemical placed into the system at these times.)</p> <p>Verify that the following records are kept 3 yr from the date of the submission of USEPA Form R:</p> <ul style="list-style-type: none"> <li>- a copy of each report submitted</li> <li>- all supporting materials and documentation used by the person to make the compliance determination that the facility or establishments is a covered facility</li> <li>- documentation supporting the submitted report, including: <ul style="list-style-type: none"> <li>- documentation supporting any determination that a claimed allowable exemption under 40 CFR 372.38 applies</li> <li>- data supporting the determination of whether a threshold applies for each toxic chemical</li> <li>- documentation supporting the calculations of the quantity of each toxic chemical released to the environment or transferred to an offsite location</li> <li>- documentation supporting the use indications and quantity onsite reporting for each toxic chemical, including dates of manufacturing, processing, or use</li> </ul> </li> </ul>

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- documentation supporting the basis of estimate used in developing any release or offsite transfer estimates for each toxic chemical
- receipts or manifests associated with the transfer of each toxic chemical in waste to offsite locations
- documentation supporting reported waste treatment methods, estimates of treatment efficiencies, ranges of influent concentration to such treatment, the sequential nature of treatment steps, if applicable, and the actual operating data, if applicable, to support the waste treatment efficiency estimate for each toxic chemical.

Verify that records are maintained at the facility to which the report applies or from which a notification was provided.

Verify that, if it has been determined the alternate threshold may be applied, the following records are kept for 3 yr from the date of submission of the required certification statement:

- a copy of each certification statement submitted
- all supporting materials and documentation used to make the compliance determination that the facility or establishment is eligible to apply the alternate threshold
- documentation supporting the certification statement submitted, including:
  - data supporting the determination of whether the alternate threshold applies for each toxic chemical
  - documentation supporting the calculation of annual reportable amount, for each toxic chemical, including documentation supporting the calculations and the calculations of each data element combined for the annual reportable amount
  - receipts or manifests associated with the transfer of each chemical in waste to offsite locations.

(NOTE: The following exemptions apply:

- if a toxic chemical is present in a mixture of chemicals at a covered facility and the toxic chemical is in a concentration in the mixture which is below 1 percent of the mixture, or 0.1 percent of the mixture in the case of a toxic chemical which is a carcinogen, the quantity of the toxic chemical present in such mixture does not have to be considered when determining whether an applicable threshold has been met or determining the amount of release to be reported under. This exemption applies whether the person received the mixture from another person or the person produced the mixture, either by mixing the chemicals involved or by causing

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	<p>a chemical reaction which resulted in the creation of the toxic chemical in the mixture. However, this exemption applies only to the quantity of the toxic chemical present in the mixture. If the toxic chemical is also manufactured (including imported), processed, or otherwise used at the covered facility other than as part of the mixture or in a mixture at higher concentrations, in excess of an applicable threshold quantity, the facility is required to report. This exemption does not apply to the chemicals listed in Appendix 3-1a</p> <ul style="list-style-type: none"> <li>-if a toxic chemical is present in an article at a covered facility, the quantity of the toxic chemical present in such article does not have to be considered when determining whether an applicable threshold has been met or determining the amount of release to be reported. This exemption applies whether the facility received the article from another facility or produced the article. However, this exemption applies only to the quantity of the toxic chemical present in the article. If the toxic chemical is manufactured (including imported), processed, or otherwise used at the covered facility other than as part of the article, in excess of an applicable threshold quantity, reporting is required. If a release of a toxic chemical occurs as a result of the processing or use of an item at the facility, that item does not meet the definition of article.</li> <li>-if a toxic chemical is used at a covered facility for one of the following purposes, it is not required to consider the quantity of the toxic chemical used for such purpose when determining whether an applicable threshold has been met under or determining the amount of releases to be reported. However, this exemption only applies to the quantity of the toxic chemical used for the purpose described in the following list. If the toxic chemical is also manufactured (including imported), processed, or otherwise used at the covered facility other than as listed, in excess of an applicable threshold quantity, reporting is required. The list includes: <ul style="list-style-type: none"> <li>-use as a structural component of the facility</li> <li>-use of products for routine janitorial or facility grounds maintenance</li> <li>-personal use by employees or other persons at the facility of foods, drugs, cosmetics, or other personal items containing toxic chemicals, including supplies of such products within the facility such as in a facility operated cafeteria, store, or infirmary</li> <li>-use of products containing toxic chemicals for the purpose of maintaining motor vehicles operated by the facility</li> </ul> </li> </ul>

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	<ul style="list-style-type: none"><li>- use of toxic chemicals present in process water and non-contact cooling water as drawn from the environment or from municipal sources</li><li>- toxic chemicals present in air used either as compressed air or as part of combustion.</li><li>- if a toxic chemical is manufactured, processed, or used in a laboratory at a covered facility under the supervision of a technically qualified individual, it is not required to consider the quantity so manufactured, processed, or used when determining whether an applicable threshold has been met or determining the amount of release to be reported.</li></ul>



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<p><b>FLAMMABLE/ COMBUSTIBLE LIQUIDS STORAGE</b></p> <p><b>HM.35 General</b></p> <p><b>HM.35.1.</b> Specific MPs should be considered when storing and handling flammable/ combustible materials (MP) [Revised August 1999].</p>	<p>(NOTE: The requirements pertaining to the handling, storage, and use of flammable/combustible liquids with a flashpoint below 200 °F outlined through 29 CFR 1910.106 (checklist items HM.35.2 through HM.35.9) do not apply to the following (29 CFR 1910.106(j)):</p> <ul style="list-style-type: none"> <li>- bulk transportation of flammable/combustible liquids</li> <li>- storage, handling, and use of fuel oil tanks and containers connected with oil burning equipment</li> <li>- storage of flammable and combustible liquids on farms</li> <li>- liquids without a flashpoint that may be flammable under some conditions, such as halogenated hydrocarbons and mixtures containing halogenated hydrocarbons</li> <li>- mists, sprays, or foams, except in flammable aerosols</li> <li>- the following facilities when they meet NFPA Standards: <ul style="list-style-type: none"> <li>- drycleaning plants</li> <li>- manufacture of organic coatings</li> <li>- solvent extraction plants</li> <li>- stationary combustion engines and gas turbines.)</li> </ul> </li> </ul> <p>Verify that the following MPs are followed:</p> <ul style="list-style-type: none"> <li>- there are no positive sources of ignition (open flames, welding, radial heat, mechanical sparks) in the immediate area</li> <li>- items are not stored against pipes or coils producing heat</li> <li>- paint drums that are stored horizontally are rolled a half turn every 90 days</li> <li>- containers of paint are palletized prior to storage</li> <li>- incompatible materials are not stored together (see Appendix 3-5)</li> </ul> <p><b>[Also refer to HM.35.9, 29 CFR 1910.106, for incompatibility issues]</b></p> <ul style="list-style-type: none"> <li>- aerosol containers are stored in well-ventilated areas.</li> </ul> <p>Verify that containers are stored and handled such that:</p> <ul style="list-style-type: none"> <li>- open flame devices are not in use in the storage area</li> <li>- combustible materials, other than wood pallets used in the storage of flammable/combustibles, are not stored in the storage facility</li> <li>- handling is done so as to avoid damaging the label</li> <li>- materials received without a date of manufacture label are marked with the shipping document date</li> <li>- leaking containers are removed from the storage area immediately</li> <li>- containers are stored so that they are issued or used in the order of dates of manufacture, with the material being the oldest used first</li> </ul>

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<p><b>HM.35.2.</b> Drums and other containers of less than 60 gal individual capacity and portable tanks less than 660 gal individual capacity used to store flammable or combustible materials are required to meet specific standards (29 CFR 1910.106(d)(1) and 1910.106(d)(2)).</p> <p><b>HM.35.3.</b> Flammable or combustible liquids shall not be stored in ways that limit the use of exits, stairways, or areas normally used for the safe egress of people (29 CFR 1910.106 (d)(5)(i)).</p>	<ul style="list-style-type: none"> <li>- there are no open containers</li> <li>- they are grounded.</li> </ul> <p>Verify that flammable and combustible liquid containers meet the constraints outlined in Appendix 3-2 except that glass or plastic containers of no more than 1 gal capacity may be used for a Class IA or IB flammable liquid if:</p> <ul style="list-style-type: none"> <li>- the liquid would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container</li> <li>- the user's process either would require more than 1 pt of a Class IA liquid or more than 1 qt of a Class IB liquid of a single assay lot to be used at one time, or would require the maintenance of an analytical standard liquid of a quality which is not met by the specified standards of the liquids available, and the quantity of the analytical standard liquid required to be used in any one control process exceeds one-sixteenth the capacity of the container allowed under Appendix 3-2 for the class of liquid.</li> </ul> <p>Verify that each portable tank has one or more devices installed in the top with sufficient emergency venting capacity to limit internal pressure under fire exposure conditions to 10 psig or 30 percent of the bursting pressure of the tank, whichever is greater.</p> <p>(NOTE: These standards do not apply to:</p> <ul style="list-style-type: none"> <li>- storage of containers in service stations</li> <li>- Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine</li> <li>- flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days</li> <li>- beverages when packaged in individual containers not greater than 1 gal.)</li> </ul> <p>Verify that exits or common traffic routes are not blocked.</p> <p>(NOTE: These standards do not apply to:</p> <ul style="list-style-type: none"> <li>- storage of containers in service stations</li> <li>- Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine</li> <li>- flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days</li> <li>- beverages when packaged in individual containers not greater than 1 gal.)</li> </ul>

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<p><b>HM.35.4.</b> Storage cabinets used for the storage of flammable/combustible liquids must meet specific requirements (29 CFR 1910.106(d)(3)).</p>	<p>Verify that storage cabinets meet the following:</p> <ul style="list-style-type: none"> <li>- no more than 60 gal of Class I or Class II liquids nor any more than 120 gal of Class III liquids are stored in the cabinet</li> <li>- the cabinets are fire-resistant</li> <li>- cabinets are conspicuously labeled <b>FLAMMABLE--KEEP FIRE AWAY.</b></li> </ul> <p>(NOTE: The following are definitions of Class I and Class II Liquids:</p> <ul style="list-style-type: none"> <li>- Class IA are those that have a flashpoint below 73 °F (22.8 °C) and boiling point below 100 °F (37.8 °C)</li> <li>- Class IB are those that have flashpoints below 73 °F (22.8 °C) and boiling points at or above 100 °F (37.8 °C)</li> <li>- Class IC are those that have flashpoints at or above 73 °F (22.8 °C) and below 100°F (37.8 °C)</li> <li>- Class II liquids are those having a flashpoint at or above 100 °F (37.8 °C), and below 140 °F (60 °C) except any mixture having components with flashpoints of 200 °F (93.3 °C) or higher, the volume of which makes up 99 percent or more of the total volume of the mixture.)</li> </ul> <p>Verify that metal cabinets are constructed as follows:</p> <ul style="list-style-type: none"> <li>- the bottom, top, door, and sides are at least number 18 gage sheet iron and double walled with 1.5 in. air space</li> <li>- joints are riveted, welded, or made tight by an equally effective means</li> <li>- the door has a three point lock</li> <li>- the door sill is raised at least 2-in. above the bottom of the cabinet.</li> </ul> <p>Verify that wooden cabinets are constructed as follows:</p> <ul style="list-style-type: none"> <li>- the bottoms, sides, and top are an approved grade of plywood at least 1-in. thick which will not break down or delaminate under fire conditions</li> <li>- all joints are rabbeted and fastened in two directions with flathead wood screws</li> <li>- there is a rabbeted overlap of at least 1 in. if more than one door is used</li> <li>- hinges are mounted so that they will not lose their holding capacity due to loosening or burning out of the screws when subjected to the fire test.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.35.5.</b> Storage cabinets used for the storage of flammable/combustible liquids should meet specific requirements (MP).</p>	<p>Verify that storage cabinets meet the following:</p> <ul style="list-style-type: none"> <li>- materials within the cabinet are orderly</li> <li>- there are no open containers within the cabinet.</li> </ul>
<p><b>HM.35.6.</b> Inside flammable/combustible storage rooms must meet certain specifications (29 CFR 1910.106(d)(4)).</p>	<p>Verify that the facility's flammable/combustible storage facility meets the following:</p> <ul style="list-style-type: none"> <li>- the walls meet fire resistance test NFPA 251-1969</li> <li>- a 4 in. raised sill or ramp is provided to adjacent rooms or buildings, or the floor of the storage area is 4 in. lower than the surrounding floors</li> <li>- wooden shelving is at least 1-in. thick</li> <li>- an open grated trench that drains to a safe area is in the building if a sill or ramp is not present</li> <li>- liquid tight wall/ floor joints exist</li> <li>- self-closing fire doors exist (NFPA 80)</li> <li>- the electrical wiring and equipment meet NFPA 70 requirements</li> <li>- the storage in the rooms meet the requirements in Appendix 3-3</li> <li>- there is either gravity or mechanical exhaust ventilation systems</li> <li>- the exhaust system provides for six changes of air in the room per hour</li> <li>- mechanical exhaust systems are controlled by a switch</li> <li>- for gravity ventilation, the fresh air intake and exhaust outlet are on exterior walls</li> <li>- there is one clear aisle at least 3-ft wide</li> <li>- containers over 30 gal capacity are not stacked one upon the other</li> <li>- dispensing is done by an approved pump or self-closing faucet.</li> </ul>
<p><b>HM.35.7.</b> The storage of flammable or combustible liquids in warehouses or storage buildings shall meet specific requirements (29 CFR 1910.106(d) (5)(vi)).</p>	<p>Verify that the following requirements are met:</p> <ul style="list-style-type: none"> <li>- if the storage facility is located 50 ft or less from a building or line of adjoining property that may be built upon, the exposing wall is a blank wall having a fire-resistance rating of at least 2 h</li> <li>- any quantity of liquids may be stored as long as the storage arrangements outlined in Appendix 3-4 are met</li> <li>- containers are separated by pallets or dunnage when necessary to provide stability and prevent excess stress on container walls</li> <li>- portable tanks which are stored over one tier high are designed to nest securely</li> <li>- no pile is closer than 3-ft to the nearest beam, chord, girder, or other obstruction</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.35.8.</b> Flammable/combustible materials stored outside of buildings must meet certain storage and handling criteria (29 CFR 1910.106(d)(6)).</p> <p><b>HM.35.9.</b> Areas where flammable/combustibles are stored must meet certain fire protection standards (29 CFR 1910.106(d)(7)) [Revised August 1999].</p>	<ul style="list-style-type: none"> <li>- piles are 3-ft below sprinkler deflectors or discharge points of water spray</li> <li>- all wood shelving is at least 1-in. thick</li> <li>- aisles are at least 3-ft wide when necessary for access to doors, windows, or standpipe connections.</li> </ul> <p>Verify that outdoor flammable/combustible storage meets the following:</p> <ul style="list-style-type: none"> <li>- no more than 1100 gal of flammable/combustible liquids is stored adjacent to buildings located on the same premises unless 10 ft or more exists between buildings and the nearest flammable container</li> <li>- the storage area is graded to divert spills or is surrounded by a curb at least 6-in. high</li> <li>- when curbs are used there is a provision for draining of accumulated water and the drains terminate in a safe location which are accessible to operate during fire conditions</li> <li>- the storage area is protected against tampering and kept free of waste and other combustible materials</li> <li>- total quantity and arrangement of liquids outside a building complies with the requirements in Appendix 3-4.</li> </ul> <p>(NOTE: These standards do not apply to:</p> <ul style="list-style-type: none"> <li>- storage of containers in service stations</li> <li>- Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engines</li> <li>- flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days</li> <li>- beverages when packaged in individual containers not greater than 1 gal.)</li> </ul> <p>Verify that all flammable/combustible storage locations meet the following:</p> <ul style="list-style-type: none"> <li>- there is a suitable fire control device at locations where flammable or combustible materials are stored</li> <li>- there is at least one 12-B rated portable fire extinguisher located outside and within 10 ft of a door opening into any room for storage</li> <li>- there is at least one 12-B rated portable fire extinguisher located within 10 to 25 ft of any Class I or Class II liquid storage area outside of a storage room, but inside a building</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.35.10.</b> Facilities with personnel exposed to injurious corrosive materials must have emergency use facilities available (29 CFR 1910.151(c)) [Added July 1999].</p>	<ul style="list-style-type: none"> <li>- fire extinguishing sprinklers or systems meet the standards in 29 CFR 1910.159</li> <li>- incompatible materials are not stored together (see Appendix 3-5)</li> <li>- no smoking or open flame is permitted within 50 ft and signs are posted</li> <li>- no water reactive materials are stored in the same room with flammable/ combustible liquids.</li> </ul> <p>(NOTE: These standards do not apply to:</p> <ul style="list-style-type: none"> <li>- storage of containers in service stations</li> <li>- Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engines</li> <li>- flammable or combustible paints, oils, varnishes, or similar mixtures used for painting or maintenance when not kept for a period in excess of 30 days.)</li> </ul> <p>Verify that, where the eyes and body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body are provided within the work area for immediate emergency use.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>FLAMMABLE/ COMBUSTIBLE LIQUIDS STORAGE</b></p> <p><b>HM.40 Industrial Areas</b></p> <p><b>HM.40.1.</b> Areas where flammable/combustible materials are stored, dispensed, or used in industrial plants shall meet specific guide lines (29 CFR 1910.106 (e)(4) through 1910.106(e)(9)).</p>	<p>(NOTE: Checklist items HM.40.1 through HM.40.3 pertain to industrial areas where the use of flammable or combustible liquid is incidental to the principal business or where flammable or combustible liquids are handled or used only in unit physical operations such as drying, evaporating, filtering, distillation, and similar operations which do not involve chemical reactions.)</p> <p>Verify that the following provisions are met:</p> <ul style="list-style-type: none"> <li>- portable fire extinguishers and fire control equipment shall be in place in quantity and type as needed for the hazards of operation and storage at the site</li> <li>- water is available in a volume and adequate pressure to supply fire protection systems as needed depending on the hazards of the operation, dispensing, and storage</li> <li>- when indicated by special hazards of operation, flammable or combustible liquids processing equipment, major piping, or supporting steel is protected by a water spray system, deluge system, approved fire resistant coatings, insulation, or a combination of these</li> <li>- adequate precautions shall be taken to prevent sources of ignition at the site</li> <li>- Class I liquids shall not be dispensed into containers unless nozzles and containers are electrically interconnected</li> <li>- operations such as welding and cutting for repairs to equipment shall be done under the supervision of an individual in responsible charge</li> <li>- maintenance and operating practices shall control leakage and prevent the accidental escape of flammable or combustible liquids: <ul style="list-style-type: none"> <li>- adequate aisles shall be maintained</li> <li>- combustible waste material and residues shall be kept to a minimum, stored in covered metal containers, and disposed of daily</li> <li>- the grounds area around the buildings and unit operating areas shall be kept free of weeds, trash, or other unnecessary combustibles</li> </ul> </li> <li>- tank vehicle and tank car loading or unloading facilities are separated from aboveground tanks, warehouses, and other plant buildings or nearest line of adjoining property by a distance of 25 ft for Class I liquids and 15 ft for Class II and III liquids.</li> </ul> <p>Verify that plant fire facilities are maintained and periodically inspected and tested to ensure they are in satisfactory working condition.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.40.2.</b> Incidental storage of flammable/combustible liquids in industrial areas must conform to certain requirements (29 CFR 1910.106(e)(2)).</p>	<p>Verify that flammable and combustible liquids are stored in closed containers.</p> <p>Verify that the storage areas meet the requirements outlined in 29 CFR 1910.106(d)(3) through 1910.106(d)(4) as listed in checklist items HM.35.4 and HM.35.6 except that:</p> <ul style="list-style-type: none"> <li>- the quantity of liquid that can be located outside of an inside storage room or storage cabinet in a building or in any one fire area of a building shall not exceed:               <ul style="list-style-type: none"> <li>- 25 gal of Class IA liquids in containers</li> <li>- 120 gal of Class IB, IC, II, or III liquids in containers</li> <li>- 660 gal of Class IB, IC, II, or III liquids in a single portable tank</li> </ul> </li> <li>- where large quantities of flammable or combustible liquids are needed, storage may be in tanks.</li> </ul> <p>Verify that areas where flammable/combustible liquids are transferred from one container to another container are separated from other operations in the building by an adequate distance or by construction having fire resistance.</p> <p>Verify that drainage or other means is provided to contain spills and adequate natural or mechanical ventilation is present.</p> <p>Verify that the following practices are observed at the point of final use:</p> <ul style="list-style-type: none"> <li>- flammable liquids are kept in covered containers when not actually in use</li> <li>- where flammable/combustible liquids are used or handled means are provided to dispose of promptly and safely spills and leaks</li> <li>- Class I liquids are only used where there are no open flames or other sources of ignition</li> <li>- flammable/combustible liquids are drawn from or transferred into vessels, containers, or portable tanks within a building only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container or portable tanks, by gravity through an approved self closing valve. Transferring by means of air pressure on the container or portable tanks is prohibited.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.40.3.</b> Those areas where flammable/combustible liquids are used in unit operations such as mixing, drying, evaporating, filtering, or distillation are required to meet specific operating standards (29 CFR 1910.106(e)(3)).</p>	<p>Verify that the following parameters are met:</p> <ul style="list-style-type: none"> <li>- these areas are located so that each building or unit of equipment is accessible from at least one side for fire fighting</li> <li>- areas where unstable liquids are handled or small scale unit chemical processes are carried on shall be separated from the remainder of the area by a fire wall of a 2 h minimum fire resistance rating</li> <li>- emergency drainage systems direct leakage and fire protection water to a safe location</li> <li>- emergency drainage systems, if connected to public sewers or discharged into public waterways, are equipped with traps or a separator</li> <li>- when Class I liquids are being used, ventilation is provided at a rate of not less than 1 ft<sup>3</sup>/min/ft<sup>2</sup> of solid floor area through either natural or mechanical means</li> <li>- equipment is designed to limit flammable vapor-air mixtures.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>FLAMMABLE/ COMBUSTIBLE LIQUID STORAGE</b></p> <p><b>HM.42 Tanks</b></p> <p><b>HM.42.1.</b> Tanks used for the storage of flammable/combustible liquids are required to meet specific design and construction standards (29 CFR 1910.106(b)(1)).</p>	<p>Verify that tanks are built of steel unless:</p> <ul style="list-style-type: none"> <li>- the tank is installed underground</li> <li>- the properties of the liquid being stored requires materials other than steel be used</li> <li>- the tank is designed according to specifications embodying principles recognized as good engineering design for the materials used</li> <li>- it is an unlined concrete tank that stores flammable or combustible liquids having a gravity of 40 degrees American Petroleum Institute (API) or heavier.</li> </ul> <p>(NOTE: API gravity is a scale adopted by the American Petroleum Institute for measuring the density of oils.)</p> <p>Verify that tanks located above ground or inside buildings are of noncombustible construction.</p> <p>(NOTE: Tanks designed for underground service not exceeding 2500 gal capacity may be used above ground and low-pressure tanks and pressure vessels may be used as atmospheric tanks.)</p> <p>Verify that atmospheric tanks are not used for the storage of a flammable or combustible liquid at a temperature at or above its boiling point.</p> <p>Verify that the normal operating pressure of a low pressure tank does not exceed the design pressure of the tank.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.42.2.</b> Outside aboveground tanks used for the storage of flammable/combustible liquids are required to be installed according to specific parameters (29 CFR 1910.106(b) (2)(i) through 1910.106(b)(2)(ii)).</p>	<p>Verify that there is a minimum distance of 3 ft between any two tanks.</p> <p>Verify that the distance between any two adjacent tanks is not less than one-sixth the sum of their diameters.</p> <p>(NOTE: When the diameter of one tank is less than half the diameter of the adjacent tank, the distance between the two tanks shall not be less than one-half the diameter of the smaller tank.)</p> <p>Verify that, where unstable flammable or combustible liquids are stored, the distance between the tanks is not less than one-half the sum of their diameters.</p> <p>Verify that, when tanks are compacted in three or more rows or in an irregular pattern, greater spacing or other means is provided for firefighting access.</p> <p>Verify that there is a minimum distance of 20 ft between a liquefied petroleum gas (LPG) container and a flammable or combustible liquid storage tank.</p> <p>(NOTE: In the case of flammable or combustible liquid tanks operating at pressure exceeding 2.5 psig or equipped with emergency venting which will permit pressures to exceed 2.5 psig spacing of 3 ft or the use of the formula concerning one-sixth of diameters may be used.)</p> <p>Verify that means such as diversion curbs or grading are provided to prevent the accumulation of flammable or combustible liquids under adjacent LPG containers.</p> <p>Verify that, if flammable combustible liquid storage tanks are within a diked area, LPG containers are outside the diked area and at least 10 ft away from the centerline of the wall of the diked area.</p> <p>(NOTE: The requirement concerning LPG containers and diked areas does not apply if LPG containers of 125 gal or less capacity are installed adjacent to fuel oil supply of 550 gal or less capacity.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.42.3.</b> Tanks for the storage of flammable/combustible liquids are required to meet specific containment requirements (29 CFR 1910.106 (b)(2)(vii)).</p> <p><b>HM.42.4.</b> In locations where flammable vapors may be present from storage tanks, precautions are required to be taken to prevent ignition (29 CFR 1910.106(b)(6)).</p> <p><b>HM.42.5.</b> Tanks used for the storage of flammable/combustible liquids are required to be strength tested before being placed into service (29 CFR 1910.106 (b)(7)).</p>	<p>Verify that the area surrounding a tank or a group of tanks is either provided with drainage or diked as follows:</p> <ul style="list-style-type: none"> <li>- drainage systems terminate in vacant land or other area or in an impounding basin having a capacity not smaller than that of the largest tank served</li> <li>- diked areas have a volumetric capacity of not less than the greatest amount of liquid that can be released from the largest tank within the diked area, assuming a fuel tank.</li> </ul> <p>Verify that walls of diked areas are of earth, concrete, steel, or solid masonry designed to be liquid tight.</p> <p>Verify that earthen walls 3 ft or more in height have a top that is no less than 2-ft wide.</p> <p>Verify that the walls of the diked area are restricted to an average height of 6 ft above interior grade.</p> <p>Verify that there are no loose combustible materials or empty or full drums or barrels within the diked area.</p> <p>Verify that sources of ignition such as open flames, smoking, welding and cutting, hot surfaces, sparks, and radiant heat are avoided.</p> <p>Verify that the tank has been strength tested.</p> <p>(NOTE: It is common for a tank that has been strength tested to be marked with a American Society of Mechanical Engineers (ASME) code stamp, API monogram, or the label of the Underwriters Laboratory.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.45</b></p> <p><b>COMPRESSED GASES STORAGE</b></p> <p><b>HM.45.1.</b> The in-plant storage, handling, and utilization of all compressed gases in cylinders, portable tanks, rail tankers, or motor vehicles must be done according to the Compressed Gas Association Pamphlet P-1-1 (29 CFR 1910.101).</p>	<p>Verify that the markings on the container are legible and none removed or defaced.</p> <p>Verify that no part of the cylinder has been modified, tampered with, obstructed, removed, or repaired by the user.</p> <p>Verify that the color of the container is not the only means of identifying the contents of the container</p> <p>Verify that containers are not:</p> <ul style="list-style-type: none"> <li>- placed anywhere that they might become part of an electrical current</li> <li>- grounded or used for grounding</li> <li>- exposed to temperature extremes</li> <li>- rolled in the horizontal position or dragged.</li> </ul> <p>Verify that compressed gas storage areas meet the following:</p> <ul style="list-style-type: none"> <li>- they are posted NO SMOKING</li> <li>- there is adequate spacing or segregation by partition so that containers are grouped together by the hazard class of the gas</li> <li>- it is designed so that temperatures will not exceed 125 °F (51.7 °C)</li> <li>- cylinders are secured to prevent falling.</li> </ul> <p>Verify that storage areas for flammable compressed gases meet the following:</p> <ul style="list-style-type: none"> <li>- acetylene containers are stored valve end up (the container may be stored as much as 45 degrees from the vertical)</li> <li>- portable fire extinguishers are available that are either of the CO<sub>2</sub> type or dry chemical type</li> <li>- the area is well ventilated</li> <li>- heat is by indirect means such as steam or hot water.</li> </ul> <p>Verify that flammable compressed gas cylinders stored inside a building with other occupancy are kept at least 20 ft from flammable liquids, highly combustible materials, and oxidizers.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.45.2.</b> Compressed gases should be handled according to specific procedures and practices (MP).</p>	<p>Verify that, when flammable compressed gases are stored in a separate room without other occupancy:</p> <ul style="list-style-type: none"> <li>- the walls, partitions, and ceiling are continuous from floor to ceiling and securely anchored</li> <li>- at least one wall is an exterior wall</li> <li>- windows in partitions are wired glass in metal frames with a fixed sash</li> <li>- openings to other parts of the building are protected by a self closing fire door with a resistance of at least 1 h.</li> </ul> <p>(NOTE: The most common storage problem is that acetylene (a flammable) and oxygen (an oxidizer) are stored side by side.)</p> <p>(NOTE: Instead of 20 ft, the facility can use a noncombustible barrier at least 5-ft high having a fire resistance rating of at least 1/2 h.)</p> <p>(NOTE: Flammable compressed gases include the following: acetylene; allene; butadiene; butane; 1-butene; 2-butene; 1-chloro-1,1-difluoroethane; chlorotrifluoroethylene; cyclopropane; deuterium; 1,1-difluoroethane; dimethylether; ethane; ethylacetylene; ethylene; hydrogen; liquid hydrogen; isobutane; isobutylene; liquefied petroleum gas; methane; methylacetylene; methyl acetylene-propadiene mix (MAPP); methyl chloride; methyl fluoride; methyl vinyl ether; natural gas; propane; propylene; trifluoroethane; vinyl bromide; vinyl chloride; vinyl fluoride.)</p> <p>(NOTE: Oxidizing gases include the following: compressed air, fluorine, nitrous oxide, liquid nitrous oxide, oxygen, liquid oxygen.)</p> <p>Verify that the following practices and procedures are followed:</p> <ul style="list-style-type: none"> <li>- oxygen cylinders are free from grease or oil</li> <li>- numbers or markings that are stamped on the cylinders are not altered or defaced</li> <li>- additional markings are not applied to cylinders without approval</li> <li>- empty cylinders are stored separately but in the same manner as full cylinders</li> <li>- valves on empty cylinders are closed</li> <li>- NO SMOKING signs are posted in and around compressed gas storage sheds.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.47</b></p> <p><b>ACID STORAGE</b></p> <p><b>HM.47.1.</b> Bulk storage of acids should meet certain storage and handling criteria (MP).</p>	<p>Verify that bulk acid storage sites meet the following:</p> <ul style="list-style-type: none"> <li>-buildings are one story in height, preferably of nonflammable construction</li> <li>-there are permanent louvered openings at floor and ceiling levels or other gravity ventilation method</li> <li>-there is safety equipment available and operating (eye wash, deluge shower, self-contained breathing apparatus, protective clothing)</li> <li>-the building is heated to prevent freezing (if applicable)</li> <li>-different acids are stored in separate spaces or noncombustible sealed barriers at least 3-ft high between acids</li> <li>-NO SMOKING signs are posted</li> <li>-automatic sprinkler protection is provided</li> <li>-workers are provided with protective safety equipment and a copious, flowing supply of fresh, clean water for first aid.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.50</b></p> <p><b>TRANSPORTATION</b></p> <p><b>HM.50.1.</b> Shipping papers for hazardous materials are required to indicate the proper shipping name, hazard class, identification number, packing group, and quantities of materials (49 CFR 172.202).</p> <p><b>HM.50.2.</b> Each package or container shall be marked in accordance with specific marking requirements (49 CFR 172.301 and 172.302).</p>	<p>(NOTE: The regulations found in Title 49, Subchapter C of the CFR, detail requirements for the transportation of hazardous materials. 49 CFR 171.1(c) stipulates that these requirements apply when materials are being transported in commerce. According to a representative from the Department of Transportation, commerce is defined in terms of making a profit in this instance, therefore Subchapter C does not apply to Federal agencies when Government personnel are transporting hazardous materials in Government vehicles. But, the regulations do apply when transport is occurring in non-Government vehicles.)</p> <p>Verify that the proper information is displayed on the shipping papers for the hazardous material.</p> <p>Verify that for nonbulk packaging the following markings are on the package:</p> <ul style="list-style-type: none"> <li>- proper shipping name and identification number</li> <li>- technical names</li> <li>- exemption markings</li> <li>- consignee's or consignor's name and address except when the package is: <ul style="list-style-type: none"> <li>- transported by highway only and will not be transferred from one motor vehicle to another</li> <li>- part of a carload lot, truckload lot, or freight container load and the entire contents are shipped from one consignee to one consignor.</li> </ul> </li> </ul> <p>Verify that bulk packaging is marked with identification numbers as follows:</p> <ul style="list-style-type: none"> <li>- on each side and each end if the packaging has a capacity of 3785 L (1000 gal) or more</li> <li>- on two opposing sides if the packaging has a capacity of less than 3785 L (1000 gal)</li> <li>- on each side and end of the motor vehicles for cylinders permanently installed on a tube trailer motor vehicle.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.50.3.</b> The facility is responsible for providing proper placarding to vehicles transporting hazardous materials off the facility (49 CFR 172.500).</p> <p><b>HM.50.4.</b> The facility should ensure that transportation of hazardous materials between buildings is accomplished in accordance with MPs to help ensure against spills, releases, and accidents (MP).</p> <p><b>HM.50.5.</b> A facility that offers for transport, accepts for transport, transfers, or otherwise handles a hazardous material, must have emergency response information available (49 CFR 172.600 through 172.604).</p>	<p>Determine if facility vehicles are used to transport hazardous materials off the facility.</p> <p>Determine if proper DOT placards, as described in 49 CFR 172.504 through 172.558, are affixed to vehicles being used to transport hazardous materials offsite.</p> <p>Determine if transportation has proper DOT placards for vehicles which are being used for transport of hazardous materials.</p> <p>(NOTE: Observe, if practical, the placarding of vehicles used to transport hazardous materials.)</p> <p>(NOTE: See Appendix 3-6 for sample wording of placards.)</p> <p>(NOTE: This requirement does not apply to:</p> <ul style="list-style-type: none"> <li>- infectious substances</li> <li>- hazardous materials classed as ORM-D</li> <li>- hazardous materials authorized to be offered for transportation as limited quantities when identified as such on shipping papers</li> <li>- hazardous materials which are packaged as small quantities</li> <li>- combustible liquids in nonbulk packaging.)</li> </ul> <p>Determine if procedures exist to manage movement of hazardous materials throughout the facility.</p> <p>Determine if drivers are trained in spill control procedures.</p> <p>Determine if provisions have been made for securing hazardous materials in vehicles when transporting.</p> <p>Verify that emergency response information includes:</p> <ul style="list-style-type: none"> <li>- the description of the hazardous material required by 49 CFR 172.202-203</li> <li>- immediate hazards to health</li> <li>- risks of fire or explosion</li> <li>- immediate precautions to take in the event of an accident or incident</li> <li>- immediate methods for handling small or large fires</li> <li>- immediate methods for handling spills or leaks in the absence of fire</li> <li>- preliminary first aid measures.</li> </ul>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>HM.50.6.</b> Spills, leaks, and other incidents occurring during hazardous material transportation require immediate notification in specific circumstances (49 CFR 171.15) [May 1997].</p>	<p>(NOTE: Shipping papers must contain an emergency response telephone number for the hazardous material being shipped.)</p> <p>Verify that each carrier and facility operator maintains this emergency response information.</p> <p>Verify that immediate notification is done for those incidents in which:</p> <ul style="list-style-type: none"> <li>- as a direct result of hazardous materials:               <ul style="list-style-type: none"> <li>- a person is killed</li> <li>- a person is injured and requires hospitalization</li> <li>- estimated carrier or other property damage exceeds \$50,000</li> <li>- an evacuation of the general public occurs lasting 1 or more hours</li> <li>- one or more major transportation arteries or facilities are closed or shut down for 1 or more hours</li> <li>- the operational flight pattern of an aircraft is altered</li> </ul> </li> <li>- fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive materials</li> <li>- fire, breakage, spillage, or suspected contamination occurs involving shipment of etiologic agents</li> <li>- the carrier feels the situation merits reporting, even though it does not meet the above requirements</li> <li>- a release of a marine pollutant in excess of 119 gal or 882 lb.</li> </ul> <p>Verify that, except for transportation by airplane the immediate notification is given to the DOT by telephone.</p> <p>(NOTE: If the notice involves etiologic agents, it may be given to the Centers for Disease Control and Prevention (CDC).)</p>
<p><b>HM.50.7.</b> Written hazardous materials incident reports are required to be submitted to the DOT of each hazardous material incident within 30 days of the incident (49 CFR 171.16) [June 1997].</p>	<p>Verify that detailed hazardous materials incident reports (DHMIR) are submitted to the DOT within 30 days if:</p> <ul style="list-style-type: none"> <li>- any of the circumstances of 49 CFR 171.15 are met</li> <li>- there has been an unintentional release of hazardous materials from a package</li> <li>- any quantity of hazardous materials has been discharged during transportation.</li> </ul> <p>(NOTE: Guidelines for assistance in completing a DHMIR may be obtained free of charge from the Office of Hazardous Materials Transportation, DHM-51, U.S. Department of Transportation, Washington DC 20590.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.50.8.</b> Facilities are required to train each of its employees involved in the transportation of hazardous materials according to specific requirements (49 CFR 172.704(a), 172.704(b), 172.704(c)(3), 172.704(c)(4), 172.704(e), and 173.1(b)).</p>	<p>Verify that a copy of the report is retained on site for 2 yr (unless written permission has been obtained from the DOT to maintain records elsewhere).</p> <p>(NOTE: This does not apply to incidents involving the unintentional release of a hazardous materials:</p> <ul style="list-style-type: none"> <li>- transported under one of the following shipping names: Consumer commodity; Battery, electric storage, wet, filled with acid or alkali; paint and paint related material when shipped in a packaging of 5 gal or less</li> <li>- prepared and transported as a limited quantity shipment.)</li> </ul> <p>(NOTE: Training conducted by facilities to comply with the hazard communication programs required by the Occupational Safety and Health Administration (OSHA) of the Department of Labor (29 CFR 1910.120) or the USEPA (40 CFR 311.1) may be used to satisfy these requirements to the extent that the training addresses the requirements.)</p> <p>(NOTE: Relevant training received by the employee from a previous employer or other source may be used to satisfy these requirements, provided a current record of the training is obtained from the employee's previous employer.)</p> <p>Verify that each employee is provided with general awareness/familiarization training designed to do the following:</p> <ul style="list-style-type: none"> <li>- provide familiarity with the requirements of 49 CFR 171 through 177</li> <li>- enable each employee to recognize and identify hazardous materials consistent with the hazard communication standards of 49 CFR 171 through 177.</li> </ul> <p>Verify that each employee is provided with function-specific training concerning those requirements of 49 CFR 171 through 177 that are specifically applicable to the functions the employee performs.</p> <p>(NOTE: Training related to the requirements of the ICAO Technical Instructions and the IMDG Code may be provided as an alternative to function-specific training on the requirements of 49 CFR 171 through 177 to the extent such training addresses functions authorized by 49 CFR 171.11 and 171.12.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.50.9.</b> Facility employees that operate motor vehicles transporting hazardous materials must be appropriately trained (49 CFR 177.816(a) and 177.816(c)).</p>	<p>Verify that each employee is provided with function-specific training concerning exemptions issued under 49 CFR 106, 107, and 110 that are specifically applicable to the functions the employee performs.</p> <p>Verify that each employee is provided with safety training concerning the following:</p> <ul style="list-style-type: none"> <li>- emergency response information</li> <li>- methods and procedures for avoiding accidents, such as the proper procedures for handling packages containing hazardous materials</li> <li>- measures to protect the employee from the hazards associated with hazardous materials to which they may be exposed to in the workplace, including specific measures the employer has implemented to protect employees from exposure.</li> </ul> <p>(NOTE: This requirement does not apply to an employee who repairs, modifies, reconditions, or tests packaging as qualified for use in the transportation of hazardous materials, and who does not perform any other function subject to the requirements of 49 CFR 171 through 177.)</p> <p>(NOTE: This requirement may be met by compliance with the current requirements for a Commercial Driver's License (CDL) with a tank vehicle or hazardous materials endorsement.)</p> <p>Verify that the motor carrier does not transport (or cause to be transported) a hazardous material unless each hazardous material employee who will operate a motor vehicle has been trained in the following:</p> <ul style="list-style-type: none"> <li>- the applicable requirements prescribed in 49 CFR 390 through 397</li> <li>- the procedures necessary for the safe operation of that vehicle.</li> </ul> <p>Verify that each driver receives driver training that includes the following subjects:</p> <ul style="list-style-type: none"> <li>- pretrip safety inspection</li> <li>- use of vehicle controls and equipment, including operation of emergency equipment</li> <li>- procedures for maneuvering tunnels, bridges, and railroad crossings</li> <li>- requirements pertaining to attendance of vehicles, parking, smoking, routing, and incident reports</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.50.10.</b> Facility employees that operate cargo tanks or vehicles with portable tanks having a capacity of 1000 gal or more of hazardous materials must be appropriately trained (49 CFR 177.816(b) through 177.816(d)).</p>	<ul style="list-style-type: none"> <li>- loading and unloading of materials, including load securement, package handling methods, and compatibility and segregation of cargo in a mixed load</li> <li>- operation of the vehicle, including turning, backing, braking, parking, and handling</li> <li>- vehicle characteristics, including those that affect vehicle stability, such as the following:               <ul style="list-style-type: none"> <li>- effects of braking and curves</li> <li>- effects of speed on vehicle control</li> <li>- dangers associated with maneuvering through curves</li> <li>- dangers associated with weather or road conditions that a driver may experience</li> <li>- high center of gravity.</li> </ul> </li> </ul> <p>(NOTE: This requirement may be met by compliance with the current requirements for a CDL with a tank vehicle or hazardous materials endorsements.)</p> <p>Verify that each HAZMAT employee who operates a cargo tank or vehicle with a portable tank with a capacity of 1000 gal or more receives training applicable to the requirements of 49 CFR 171 through 177.</p> <p>Verify that each employee has the appropriate state-issued CDL.</p> <p>Verify that each employee receives specialized training that includes the following subjects:</p> <ul style="list-style-type: none"> <li>- operation of emergency control features of the cargo tank and portable tank</li> <li>- retest and inspection requirements for cargo tanks</li> <li>- loading and unloading procedures</li> <li>- the properties and hazards of the material transported</li> <li>- special vehicle handling characteristics, including the following:               <ul style="list-style-type: none"> <li>- high center of gravity</li> <li>- fluid load subject to surge</li> <li>- effects of fluid-load surge on braking</li> <li>- characteristic differences in stability among baffled, unbaffled, and multi-compartmented tanks</li> <li>- effects of partial loads on vehicle stability.</li> </ul> </li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.50.11.</b> Facilities must meet specific requirements regarding training schedules (49 CFR 172.704(c)(1) through 172.704(c)(3)) [June 1997].</p> <p><b>HM.50.12.</b> Facilities are required to maintain training records (49 CFR 172.704(d)) [June 1997].</p>	<p>Verify that training for an employee hired on or before 2 July 1993 is completed prior to 1 October 1993.</p> <p>Verify that training for an employee employed after 2 July 1993 is completed within 90 days after employment.</p> <p>Verify that an employee who changes hazardous materials job functions completes training in the new job function(s) within 90 days after the change.</p> <p>(NOTE: An employee may perform new hazardous materials job functions prior to the completion of training provided that the employee performs those functions under the supervision of a properly trained and knowledgeable employee.)</p> <p>Verify that the employee receives the required training at least once every 3 yr.</p> <p>Verify that a record of current training, inclusive of the preceding 3 yr, is created and retained by the facility for each employee for as long as that employee is employed by the facility as an employee and for 90 days thereafter.</p> <p>Verify that the record includes the following:</p> <ul style="list-style-type: none"> <li>- the employee's name</li> <li>- the most recent training completion date of the employee's training</li> <li>- a description, copy, or the location of the training materials used</li> <li>- the name and address of the person providing the training</li> <li>- certification that the employee has been trained and tested.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.55</b></p> <p><b>AMMUNITION STORAGE</b></p> <p><b>HM.55.1.</b> Small arms ammunition is required to be separated from flammable liquids, flammable solids, and oxidizing materials (29 CFR 1910.109(j)(2)) [June 1997].</p> <p><b>HM.55.2.</b> Facilities with Class A, Class B, Class C explosives, and special industrial explosives, and any newly developed and unclassified explosives must meet magazine requirements (29 CFR 1910.109(c)(1)). [Added August 1999].</p>	<p>(NOTE: This section applies to the manufacture, keeping, having, storage, sale, transportation, and use of explosives, blasting agents, and pyrotechnics [Added August 1999].)</p> <p>(NOTE: This section <u>does not</u> apply to the sale and use (public display) of pyrotechnics, commonly known as fire works, nor the use of explosives in the form prescribed by the official U.S. Pharmacopeia [Added August 1999].)</p> <p>Verify that small arms ammunition is separated from flammable liquids, flammable solids, and from oxidizing materials by a 1 h fire resistant wall or by 25 ft.</p> <p>Verify that small arms ammunition is not stored together with Class A or Class B explosives unless the storage facility is designed for such explosives.</p> <p>(NOTE: No quantity limitations are imposed on the storage of small arms ammunition in warehouses, retail stores, and other general occupancy facilities except those imposed by the limitations the storage facilities.)</p> <p>(NOTE: Small arms ammunition is defined as any shotgun, rifle, pistol, or revolver cartridge, and cartridges for propellant-actuated power devices and industrial guns. Military-type ammunition containing explosive-bursting charges, incendiary, tracer, spotting, or pyrotechnic projectiles is excluded from this definitions (29 CFR 1910.109(a)).</p> <p>(NOTE: This section does not apply to::</p> <ul style="list-style-type: none"> <li>- stocks of small arms ammunition, propellant-actuated power cartridges, small arms ammunition primers in quantities of less than 750,000 or of smokeless propellant in quantities less than 750 lb</li> <li>- explosive-actuated power devices when in quantities less than 50 lb net weight of explosives</li> <li>- fuse lighter and fuse igniters</li> <li>- safety fuses other than cordeau detonant fuses.)</li> </ul> <p>Verify that Class A, Class B, Class C explosives, and special industrial explosives and newly developed and unclassified explosives are kept in magazines meeting the following requirements:</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.55.3.</b> Facilities must construct magazines according to specific requirements (29 CFR 1910.109(c)(2)(ii) [Added August 1999].</p>	<ul style="list-style-type: none"> <li>- blasting caps, electric blasting caps, detonating primers, and primer cartridges are not stored in the same magazine with other explosives</li> <li>- ground around magazines is sloped away from drainage</li> <li>- land surrounding magazines is kept clear of brush, dried grass, leaves, and other materials for a distance of at least 25 ft.</li> </ul> <p>Verify that magazines are either Class I or Class II magazines (see HM.55.5. for physical requirements):</p> <ul style="list-style-type: none"> <li>- <u>Class I Magazines</u>: required where the quantity of explosives stored is more than 50 lb.</li> <li>- <u>Class II Magazines</u>: required where the quantity of explosives stored is 50 lb or less.</li> </ul> <p>Verify that Class I magazines are located away from other magazines in conformity with Appendix 307, Table H-21.</p> <p>Verify that, when used for temporary storage at a site for blasting operations, Class II magazines are located away from other magazines.</p> <p>Verify that a distance of at least 150 ft is maintained between Class II magazines and the work in progress when the quantity of explosives kept is in excess of 25 lb, and at least 50 ft when the quantity of explosives is 25 lb or less.</p> <p>(NOTE: Except as mentioned above, Class II magazine must not be located in conformity with Table H-21, but may be permitted in warehouses and in wholesale and retail establishments when located on a floor which has an entrance at outside grade level and the magazine is located not more than 10 ft from such an entrance. Two Class II magazines may be located in the same building when one is used only for blasting caps in quantities not in excess of 5000 caps and a distance of 10 ft is maintained between magazines.)</p> <p>Verify that magazines for the storage of explosives, other than black powder, Class B and Class C explosives are bullet resistant, weather resistant, fire resistant, and ventilated sufficiently to protect the explosives in the specific location.</p> <p>Verify that magazines used only for the storage of black powder, Class B and Class C explosives are weather resistant, fire resistant, and ventilated.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.55.4.</b> Facilities with magazines must meet signage requirements (29 CFR 1910.109(c)(2)(iii)) [Added August 1999].</p> <p><b>HM.55.5.</b> Facilities must construct Class I magazines according to specific guidelines (29 CFR 1910.109(c)(3)) [Added August 1999].</p>	<p>Verify that magazines for the storage of blasting and electric blasting caps are weather resistant, fire resistant, and ventilated.</p> <p>Verify that property upon which Class I magazines are located and property where Class II magazines are located outside of buildings is posted with signs reading EXPLOSIVES - KEEP OFF.</p> <p>Verify that Class I magazines are masonry construction or of wood or metal construction, or a combination of these types.</p> <p>Verify that masonry units are not less than 8 in. thick.</p> <p>Verify that hollow masonry units used in construction, required to be bullet resistant, have all hollow spaces filled with weak cement or well-tamped sand.</p> <p>Verify that wood construction walls, required to be bullet resistant, have at least a 6-in. space between interior and exterior sheathing and the space between sheathing is filled with well-tamped sand.</p> <p>Verify that metal wall construction, required to be bullet resistant, is lined with brick at least 4-in. thick or has at least a 6-in. sandfill between interior and exterior walls.</p> <p>Verify that, if floor and roofs of masonry magazines are made of wood, floors are tongue and grooved lumber with a nominal thickness of 1 in.</p> <p>Verify that roofs required to be bullet resistant are protected by a sand tray located at the line of eaves and covering the entire area except that necessary for ventilation.</p> <p>Verify that sand in the sand tray is maintained at a depth of not less than 4 in.</p> <p>Verify that all wood at the exterior of magazines, including eaves, are protected by being covered with black or galvanized steel or aluminum metal of thickness of not less than No. 26 gage.</p> <p>Verify that all nails exposed to the interior of magazines are well countersunk.</p> <p>Verify that foundations for magazines are of substantial construction and arranged to provide good cross ventilation.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.55.6</b> Facilities must construct Class II magazines according to specific guidelines (29 CFR 1910.109(c)(4)) [Added August 1999].</p>	<p>Verify that magazines are ventilated sufficiently to prevent dampness and heating of stored explosives.</p> <p>Verify that ventilating openings are screened to prevent the entrance of sparks.</p> <p>Verify that openings to magazines are restricted to that necessary for the placement and removal of stocks of explosives.</p> <p>Verify that doors for openings in magazines for Class A explosives are bullet resistant.</p> <p>(NOTE: Doors for magazines not required to be bullet resistant shall be designed to prevent unauthorized entrance to the magazine.)</p> <p>Verify that provisions are made to prevent the piling of stocks of explosives directly against masonry walls, brick-lined or sand-filled metal walls, and single-thickness metal walls.</p> <p>Verify that provisions above do not interfere with proper ventilation at the interior of side and end walls.</p> <p>Verify that Class II magazines are made of wood or metal construction, or a combination of wood and metal.</p> <p>Verify that Class II wood magazines have sides, bottom, and cover constructed of 2-in. hardwood boards well braced at corners and protected by being entirely covered with sheet metal of not less than No. 20 gage.</p> <p>Verify that all nails exposed to the interior of the magazine are well countersunk.</p> <p>Verify that Class II metal magazines have sides, bottom, and cover constructed of sheet metal and are lined with 3/8 in. plywood or equivalent.</p> <p>Verify that edges of metal covers overlap sides at least 1 in.</p> <p>Verify that Class II magazine covers for both wood and metal construction have strap hinges and a means for locking.</p> <p>Verify that Class II magazines are painted red and bear lettering in white, on all sides and top, at least 3-in. high EXPLOSIVE - KEEP FIRE AWAY.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.55.7.</b> Facilities must meet proper storage requirements within magazines (29 CFR 1910.109(c)(5)(i) through (iii) [Added August 1999].</p>	<p>Verify that Class II magazines, when located in a warehouse, and in wholesale and retail establishments have substantial wheels or casters to facilitate easy removal in case of fire.</p> <p>(NOTE: Where necessary, due to climatic conditions, Class II magazines should be ventilated.)</p> <p>Verify that packages of explosives are laid flat with top side up.</p> <p>Verify that black powder, when stored in magazines with other explosives, is stored separately.</p> <p>Verify that black powder stored in kegs is stored on ends, bungs down, or on side, seams down.</p> <p>Verify that corresponding grades and brands are stored together in such a manner that brands and grade marks show.</p> <p>Verify that all stocks are stored so as to be easily counted and checked.</p> <p>Verify that packages of explosives are piled in a stable manner.</p> <p>Verify that, when any kind of explosive is removed from a magazine for use, the oldest explosive of that particular kind is always taken first.</p> <p>Verify that explosives are not unpacked or repacked in a magazine <b>not</b> within 50 feet of a magazine or in close proximity to other explosives.</p> <p>Verify that tools used for opening packages of explosives are constructed of nonsparking materials, except that metal slitters may be used for opening fiberboard boxes.</p> <p>Verify that wood wedge and a fiber, rubber, or wood mallet is used for opening or closing wood packages of explosives.</p> <p>Verify that opened packages of explosives are securely closed before being returned to a magazine.</p> <p>Verify that magazines are not used for the storage of any metal tools nor any commodity except explosives.</p> <p>(NOTE: This restriction does not apply to the storage of blasting agents and blasting supplies.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HM.55.8.</b> Facilities must inspect magazines at regular intervals (241 FW 4.9(B)(1) through (3)) [Added August 1999].</p>	<p>Verify that magazine containing explosive materials are opened and inspected at regular intervals to determine whether there has been an unauthorized entry or attempted entry into the magazine and whether there has been unauthorized removal of the magazines or its contents.</p> <p>Verify that magazine doors are locked, except during the time of placement and removal of stocks of explosives and during inspections.</p> <p>Verify that a copy of the requirements covering the operation of magazines is posted on the magazine door.</p>
<p><b>HM.55.9.</b> Facilities must meet housekeeping requirements for magazines (29 CFR 1910.109(c)(5)(iv)) [Added August 1999].</p>	<p>Verify that magazine floors are regulatory swept, kept clean, dry, free of grit, paper, empty used packages, and rubbish.</p> <p>Verify that brooms and other cleaning utensils do not have any spark-producing metal parts.</p> <p>Verify that sweepings from floors of magazines is properly [not defined] disposed of.</p> <p>Verify that magazine floors stained with nitroglycerin is cleaned according to instructions by the manufacturer.</p>
<p><b>HM.55.10.</b> Facilities must designate responsible personnel for magazines (29 CFR 1910.109(c)(5)(viii)) [Added August 1999].</p>	<p>Verify that a competent person is in charge of magazines at all times and is held responsible for the enforcement of all safety precautions.</p>
<p><b>HM.55.11.</b> Facilities must meet small arms ammunition, small arms primers, and smokeless propellant storage requirements (29 CFR 1910.109(j)) [Added August 1999].</p>	<p>(NOTE: This does not apply to in-process storage and intraplant transportation during manufacture of small arms ammunition, small arms primers, and smokeless propellants.)</p> <p>Verify that, for small arms ammunition, no quantity limitation is imposed on the storage in warehouses, retail stores, and other general occupancy facilities except those imposed by limitations of storage facilities.</p> <p>Verify that small arms ammunition is separated from flammable liquids and flammable solids as classified in 49 CFR 172 and from oxidizing materials, by a fire-resistive wall of 1 h rating or by a distance of 25 ft.</p> <p>Verify that small arms ammunition are not stored together with Class A or Class B explosives unless the storage facility is adequate for this latter storage.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that all smokeless propellants are stored in shipping containers specified in 49 CFR 173.93 for smokeless propellants.</p> <p>Verify that commercial stocks of smokeless propellants over 20 lb and not more than 100 lb are stored in portable wooden boxes having walls of at least 1 in. nominal thickness.</p> <p>Verify that commercial stocks of smokeless propellants in quantities of 50 lb or less are stored in nonportable storage cabinets with wooden walls of at least 1 in. nominal thickness.</p> <p>Verify that no more than 400 lb is permitted in any one cabinet.</p> <p>Verify that commercial stocks of smokeless propellants in quantities in excess of 750 lb are stored in magazines in accordance with (c) above.</p> <p>Verify that small arms ammunition primers are not stored except in the original shipping container in accordance with 49 CFR 173.107 for small arms ammunition primers.</p> <p>Verify that small arms ammunition primers are separated from flammable liquids, flammable solids as classified in 49 CFR 172 and oxidizing materials by a fire-resistive wall of 1 h rating or by a distance of 25 ft.</p> <p>Verify that no more than 750,000 small arms ammunition primers are stored in any one building except as provided in (j)(4)(v) above.</p> <p>Verify that no more than 100,000 small arms ammunition primers are stored in any one pile.</p> <p>Verify that piles are at least 15 ft apart.</p> <p>Verify that quantities of small arms ammunition primers in excess of 750,000 are stored in magazines in accordance with (c) above.</p>



## Appendix 3-1

### Consolidated List of Chemicals Covered in Title III of SARA [Revised April 2000]

**(NOTE: This list is constantly changing and the Federal Register should be consulted for the most up-to-date information.)**

This consolidated chemical list includes chemicals subject to reporting requirements under Title III of SARA. This consolidated chemical list does not contain all chemicals that are subject to reporting requirements in Sections 311 and 312 of SARA Title III. These hazardous chemicals, for which MSDSs must be developed under the *Occupational Safety and Health Act*, Hazard Communication Standards, are identified by broad criteria rather than enumeration. There are over 50,000 such substances that meet the criteria. The consolidated list has been prepared to help determine whether there is a need to submit reports under Section 304 or 313 of Title III and, for a specific chemical, what reports need to be submitted.

The list includes chemicals under the four following Federal statutory provisions:

1. SARA Section 302 Extremely Hazardous Substances - the presence of which, in sufficient quantities, requires certain emergency planning activities to be conducted. Releases of these substances are also subject to reporting under Section 304 of Title III. The final rule listing the extremely hazardous substances and their threshold planning quantities (TPQ) is found in 40 CFR 355.
2. CERCLA Hazardous Substances (RQ) Chemicals - releases of which are subject to reporting under the CERCLA or Superfund of 1980. Such releases are also subject to reporting under Section 304 of Title III. CERCLA hazardous substances, and their RQs, are listed in 40 CFR 302, Table 302.4.
3. SARA Section 313 Toxic Chemicals - emissions or releases of which must be reported annually as part of SARA Title III's community right-to-know provisions. A list of these toxic chemicals is found in 40 CFR 372.65.
4. RCRA Hazardous Wastes - from the "P" and "U" lists (40 CFR 261.33) of specific chemicals. RCRA hazardous wastes from the "F" and "K" lists are not included here; such waste streams are also CERCLA hazardous substances. This listing is provided as an indicator that you may already have data on a specific chemical that can be used for Title III reporting purposes.

There are four columns in the consolidated list corresponding to these four statutory provisions. If a chemical is listed as an extremely hazardous substance under Section 302, its TPQ is given in the extremely hazardous substance column. Similarly, the CERCLA RQ is given for those chemicals that are listed as hazardous substances. A key to the symbols used in Section 302 and CERCLA columns precedes the list. An "X" in the column for 40 CFR 372.65(f) indicates that the chemical is subject to reporting under Section 313.

The letter-and-digit code in the column for 40 CFR 261.33 is the chemical's RCRA hazardous waste code. A blank in any of these columns indicates that the chemical is not subject to the corresponding statutory authorities.

The Chemical Abstract Service (CAS) registry number is provided for each chemical on the list.

#### Key to Symbols in the Consolidated Chemical List

# Indicates that the RQ is subject to change when an assessment of potential carcinogenicity and/or chronic toxicity is completed; until then, the statutory RQ applies.

## Indicates that an adjusted RQ has been proposed, but a final judgment has not been made.

+ USEPA has proposed to adjust the RQ for radionuclides by establishing RQs in units of Curies; until then, the 1 lb RQ applies.

\* Indicates that the chemical is proposed for deletion from the list of extremely hazardous substances.

\*\* Indicates that no RQ is assigned to this generic or broad class.

(NOTE: These abbreviations are used below: Haz Sub (hazardous substances), Mat (materials).)

### CONSOLIDATED CHEMICAL LIST

This is an alphabetical listing of the consolidated list of chemicals. Numbered chemicals are listed first.

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
1,Amino-2-methyl- anthraquinone			x		82-28-0
1-Butanamine,N-butyl- N- nitroso-		10	x	U172	924-16-3
1-Bromo-1- (bromomethyl)-1,3- propanedicarbonitril			x		35691-65-7
1-Chloro-1,1- difluoroethane (HCFC- 142(b))			x		75-68-3
1-Chloro-1,1,2,2- tetrafluoroethane (HCFC-124a)			x		354-25-6
1-Chloro-2,3- epoxypropane		100			106-89-8
1-Methylbutadiene		100		U186	504-60-9
1-Naphthalamine		100	x	U167	134-32-7
1-Propanamine		5000		U194	107-10-8
1-Propanol,2,3- dibromo- phosphate (3:1)		10	x	U235	126-72-7
1-Propene, 1,3-dichloro		100			542-76-6
(1,1'-Biphenyl)- 4,4'diamine, 3,3' dimethoxy-		100	x	U091	119-90-4
(1,1'-Biphenyl)- 4,4'diamine, 3,3' dimethyl-		10	x	U095	119-93-7
1,1-Dichloro-1-fluoro ethane (HCFC-141b)			x		1717-80-6
1,1-Dichloro-1,2,2-trif luoroethane (HCFC- 123b)			x		812-04-4
1,1-Dichloro-1,2,2,3,3- pentafluoropropane (HCFC-225cc)			x		13474-88-9
1,1-Dichloro-1,2,3,3,3- pentafluoropropane (HCFC-225ab)			x		111512-56- 2

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
1,1-Dichloroethane		1000		U076	75-34-3
1,1-Dichloroethylene		100	x	U078	75-35-4
1,1,-Dimethylhydrazine		10			57-14-7
1,1,1-Trichloroethane		1000			71-55-6
1,1,1,2-Tetrachloroethane			x		630-20-6
1,1,1,2-Tetrachloro-2-fluoroethane (HCFC-121a)			x		354-11-0
1,1,2-Trichloroethane		100			79-00-5
1,1,2,2-Tetrachloro-1-fluoroethane (HCFC 121)			x		354-14-3
1,1,2,2-Tetrachloroethane		100			79-34-5
1,2-Benzenedicarboxylic acid,[bis(2-ethylhexyl)]ester		100	x	U028	117-81-7
1,2-Benzenedicarboxylic acid, dibutyl ester		100			54-74-2
1,2-Benzenedicarboxylic acid, diethyl ester (diethyl phthalate)		5000	x	U088	84-66-2
1,2-Benzenediol,4-[1-hydroxy-2-(methylamino) ethyl]-		1000		P042	51-43-4
1,2-Benzisothiazolin-3(2H) one,1,1-dioxide		100	x	U202	81-07-2
1,2-Benzophenanthrene		100		U050	218-01-9
1,2-Butylene oxide			x		106-88-7
1,2-Dibromo-3-chloropropane		1	x	U066	96-12-8
1,2-Dichloro-1,1-difluoroethane (HCFC-132b)			x		1649-08-7
1,2-dichloro-1,1,2,3,3-pentafluoropropane (HCFC-225bb)			x		422-44-6
1,2-Dichloro-1,1,2-trifluoroethane (HCFC-123a)			x		354-23-4
1,2-Dichloro-1,1,3,3,3-pentafluoropropane (HCFC-225da)			x		431-86-7
1,2-Dichloroethane		100	x	U077	107-06-2
1,2-Dichloroethylene			x		540-59-0
1,2-Dichloropropane		1000	x	U083	78-87-5
1,2-Dimethylhydrazine		1		U099	540-73-8
1,2-Diphenylhydrazine		10	x	U109	122-66-7
1,2-Epoxybutane		100			106-88-7
1,2-Oxathiolane,2,2-dioxide		10	x	U193	1120-71-4
1,2-Phenylenediamine			x		95-54-5
1,2-Phenylenediamine dihydrochloride			x		615-28-1
1,2-Propylenimine		1			75-55-8
1,2-trans-Dichloroethylene		1000		U079	156-60-5
1,2,3-Trichloropropane			x		96-18-4
1,2,4-Trichlorobenzene		100			120-82-1

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
1,3-Benzenediol		5000		U201	108-46-3
1,3-Benzodioxole, 5- propyl		10		U090	94-58-6
1,3-Benzodioxole,5-1- propenyl	1	100	x	U141	120-58-1
1,3-Benzodioxole, 5-) 2,propenyl		100	x	U203	94-59-7
1,3-Butadiene			x		106-99-0
1-(3-Chloroallyl)-3,5,7- triaz-1-azoniaada mantane chloride			x		4080-31-3
1,3-Cyclopentadiene, 1,2,3,4,5,6- hexachloro		1			77-47-4
1,3-Dichloro-1,1,2,2,3- pentafluoropropane (HCFC-225cb)			x		507-55-1
1,3-Dichloro-1,1,2,3,3- pentafluoropropane (HCFC-225ea)			x		136013-79- 1
1,3,-Dichloropropene		100			542-75-6
1,3-Dichloropropylene		100	x	U084	542-75-6
1,3-Isobenzofurandione		5000	x	U190	85-44-9
1,3-Phenylenediamine			x		108-45-2
1,4-Dichloro-2-butene			x		764-41-0
1,4,-Dichlorobenzene		100			106-46-7
1,4-Diethylene dioxide (1,4-Dioxane)		100	x	U108	123-91-1
1,4-Diethyleneoxide		100			123-91-1
1,4,-Dioxane		100			123-91-1
1,4-Naphthalenedione		5000		U166	130-15-4
1,4-Phenylenediamine dihydrochloride			x		624-18-0
2-Acetylaminofluorene		1	x	U005	53-96-3
2-Aminoanthraquinone			x		117-79-3
2-Bromo-2-nitropro pane- 1,3-diol (Bro nopol)			x		52-51-7
2-Butanone peroxide		10		U160	1338-23-4
2-Butanone (Methyl ethyl ketone)		5000	x	U159	78-93-3
2-Butene,1,4-dichloro-		1		U074	764-41-0
2-Chloro-1,1,1-triflu oro- ethane (HCFC 133a)			x		75-88-7
2-Chloro-1,1,2,2-tet rafluoroethane (HCFC 124)			x		2837-89-0
2-Chloroacetophenone			x		532-27-4
2-Chloroethyl vinyl ether		1000		U042	110-75-8
2-Chlorophenol		100		U048	95-57-8
2-Cyclohexyl-4,6-dini trophenoll		100		P034	131-89-5
2-Ethoxyethanol		100	x		110-80-5
2-imidazolidinethione		10			96-45-7
2-Mercaptobenzothiaz ole			x		149-30-4
2-Methyl azidine		1			75-55-8
2-Furancarboxaldehyde		5000		U125	98-01-1
2-Methoxyethanol			x		109-86-4
2-Methylactonitrile			x		75-86-5
2-Methylpyridine			x		109-06-8
2-Naphthylamine		10	x	U168	91-59-8

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
2-Nitropropane		10	x	U171	79-46-9
2-Phenylphenol			x		90-43-7
2-Picoline		5000		U191	109-06-8
2-propenal		1			106-02-8
2-Propenamide		5000			79-06-1
2-Propenenitrile		100			107-13-1
2-Propenoic acid		5000			79-10-7
2-Propenoic acid, ethyl ester		1000			140-88-5
2-Propenoic acid, 2- methyl-, methyl ester		1000			80-62-6
2,2-Dibromo-3-nitrilo propionamide			x		10222-01-2
2,2-Dichloro-1,1,1-trif luoroethane (HCFC- 123)			x		306-83-2
2,2-Dichloro-1,1,1,3,3- pentafluoropropane (HCFC-225aa)			x		128903-21-9
2,2-Dichloropropionic acid		5000			75-99-0
2,3,4-Trimethylpentane		1000			540-64-1
2,3-Dichloro-1,1,1,2,3- pentafluoropropane (HCFC-225ba)			x		128903-21-9
2,3-Dichloropropene		100	x		78-88-6
2,3,4-Trichlorophenol		10	x		15950-66-0
2,3,5-Trichlorophenol		10			933-78-8
2,3,5-Trimethylphenyl methylcarbamate			x		2655-15-4
2,3,6-Trichlorophenol		10			933-75-5
2,3,7,8-Tetrachlorod ibenzo p-dioxin (TCDD)		1			1746-01-6
2,4-D 2-ethylhexyl ester			x		1928-43-4
2,4-D 2-ethyl-4-meth ylpentyl ester			x		53404-37-8
2,4,-D8			x		94-82-6
2,4-D acid		100	x	U240	94-75-7
2,4,-D Butoxyethyl ester			x		1929-73-3
2,4-D Butyl ester			x		94-80-4
2,4-D chlorocrotyl ester					2971-38-2
2,4-D esters		100	x		94-11-1
2,4-D esters		100			94-79-1
2,4-D esters		100			94-80-4
2,4-D esters		100			1320-18-9
2,4-D esters		100			1928-38-7
2,4-D esters		100			2971-38-2
2,4-D esters		100			53467-11-1
2,4-D esters		100			1928-61-6
2,4-D esters		100			1929-73-3
2,4-D esters		100			25168-26-7
2,4-DP			x		120-36-5
2,4-D propylene glycol butyl ether ester			x		1320-18-9
2,4-D sodium salt			x		2702-72-9
2,4-Diaminoanisole sulfate			x		39156-41-7
2,4-Diaminosole			x		615-41-7
2,4-Diaminotoluene		10		U221	823-40-5
2,4-Dichlorophenol		100	x	U081	120-83-2
2,4-Dimethylphenol		100	x	U101	105-67-9

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
2,4-Dinitrophenol		10	x	P048	51-28-5
2,4-Dinitrotoluene		10			121-14-2
2,4-Dithiobiuret			x		541-53-7
2,4-Toluene diamine		10			95-80-7
2,4-Toluene diisocyanate		100			91-08-7
2,4,5-T esters		1000			25168-15-4
2,4,5-T salts		1000			13560-99-1
2,4,5-T amines		5000			1319-72-8
2,4,5-T amines		5000			3813-14-7
2,4,5-T amines		5000			6369-96-6
2,4,5-T amines		5000			6369-97-7
2,4,5-T amines		5000			2008-46-0
2,4,5-T esters		1000			93-79-8
2,4,5-T esters		1000			1928-47-8
2,4,5-T esters		1000			2545-59-7
2,4,5-T esters		1000			61792-07-2
2,4,5-T		1000		U232	93-76-5
2,4,5-TP acid esters		100			32534-95-5
2,4,5-Trichlorophenol		10			95-95-4
2,4,6-Trichlorophenol		10			88-06-2
2,4,6-Tribromophenol		100		U408	118-79-6
2,5-Cyclohexadiene- 1,4- dione		10			106-51-4
2,5-Furandione		5000	x	U147	108-31-6
2,6-Dichlorophenol		100		U082	87-65-0
2,6-Dimethylphenol			x		576-26-1
2,6-Xylidine			x		87-62-7
3-Chloro-1,1,1-trifluoro- propane (HCFC- 253fb)			x		460-35-5
3-Chloro-2-methyl-1- propene			x		563-47-3
3-chloroacetophenone		100			532-27-4
3-Chloropropionitrile			x		542-76-7
3-Iodo-2-propynyl butylcarbamate			x	U375	55406-53-6
3,3-dichloro-1,1,1,2,2- pentafluoropropane (HCFC-25ca)			x		422-56-0
3,3-Dichlorobenzidine			x		91-94-1
3,3-Dichlorobenzidine dihydrochloride			x		612-83-9
3,3-Dichlorobenzidine sulfate			x		64969-34-2
3,3-Dimethoxybenzidine		100			119-90-4
3,3-Dimethoxybenzidine dihydrochloride			x		20325-40-0
3,3-Dimethoxybenzidine hydrochloride			x		111984-09-9
3,3-Dimethoxybenzidine dihydrochloride			x		612-82-8
3,3-Dimethoxybenzidine dihydrofluoride			x		41756-75-0
3,3-Dimethylbenzidine		10			119-93-7
3,4-Diaminotoluene		10	x	U221	95-80-7
3,4-Dinitrotoluene		10			610-39-9
3,4,5-Trichlorophenol		10			609-19-8
3,5-Dichloro-N-(1,1- dimethyl-2-propyl) benzamide		5000		U192	23950-58-5



Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
4-Aminoazobenzene			x		60-09-3
4-Aminobiphenyl		1	x		92-67-1
4-Chloro-m-cresol		5000		U039	59-50-7
4-Chlorophenyl ether		5000			7005-72-3
4-Methyl-2-pentanone		5000			108-10-1
4-Nitrobiphenyl		10	x		92-93-3
4-Nitrophenol		100			100-02-7
4,4,-DDE		1			72-55-9
4,4'-Diaminodiphenyl ether			x		101-80-4
4,4'-Isopropylidene diphenol			x		80-05-7
4,4'-Methylene bis(N,N-di-methyl) benzenamine			x		101-61-1
4,4'-Methylenebis(2-chloroaniline)		10			101-14-4
4,4'-Methylenedi aniline		10	x		101-77-9
4,4'-Thiodianiline 6-dinitrophenoll			x		139-65-1
4,6-Dinitro-o-cresol and salts		10			534-52-1
4,7-Methano-1H- Indene, 1,4,5,6,7,8,8-tachloro-3a,4,7,7a-tetrahydro		1			57-75-9
4,7-Methano-1H- Indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro		5000			57-74-9
5-Nitro-o-anisidine			x		99-59-2
5-Nitro-o-toluidine			x		99-55-6
Abamectin (Avermectin B1)			x		71751-41-2
Acenaphthene		100			83-32-9
Acenaphthylene		5000			208-96-8
Acephate (Acetylphosphoramidothioic acid O,S-dimethyl ester			x		30560-19-1
Acetaldehyde		1000	x	U001	75-07-0
Acetaldehyde, trichloro-		5000		U034	75-87-6
Acetamide		100	x		60-35-5
Acetamide-N-(4-ethoxyphenyl)-		100		U187	62-44-2
Acetamide,N-(ami nothiomethyl)-		1000		P002	591-08-2
Acetamide, N-9H-fluoren-2-yl-		1			53-96-3
Acetic acid		5000			64-19-7
Acetic acid (2,4-dichlorophenoxy)- salts and esters		100			94-75-7
Acetic acid, ethyl ester		5000		U112	141-78-6
Acetic acid, fluoro, sodium salt	10/10,000	10		P058	62-74-8
Acetic acid, lead(2+) salt		10		U144	301-04-2
Acetic acid, thallium(1+) salt		100		U214	563-68-8

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Acetic anhydride		5000			108-24-7
Acetone		5000		U002	67-64-1
Acetone cyanohydrin	1000	10		P069	75-86-5
Acetone thiosemicarba zide	1000/ 10,000				1752-30-3
Acetonitrile		5000	x	U003	75-05-8
Acetophenone		5000	x	U004	98-86-2
Acetyl bromide		5000			506-96-7
Acetyl chloride		5000		U006	75-36-5
Acifluorfen, sodium salt			x		62476-59-9
Acrolein	500	1	x	P003	107-02-8
Acrylamide	1000/ 10,000	5000	x	U007	79-06-1
Acrylic acid		5000	x	U008	79-10-7
Acrylonitrile	10,000	100	x	U009	107-13-1
Acrylyl chloride	100				814-68-6
Adipic acid		5000			124-04-09
Adiponitrile	1000	1000			111-69-3
Alachlor			x		15972-60-8
Aldicarb	100/10,000	1	x	P070	116-06-3
Aldicarb sulfone		1##		P203	1646-88-4
Aldrin	500/10,000	1	x	P004	309-00-2
d-trans-Allethrin [d- trans- Chrysan themic aacid of d- allethroneO]			x		28057-48-9
Allyl alcohol	1000	100	x	P005	107-18-6
Allyl chloride		1000	x		107-05-1
Allylamine	500	500	x		107-11-9
alpha,alpha-Dimethyl phenethylamine		5000		P046	122-09-8
alpha-Endosulfan		1			959-98-8
alpha-BHC		10			319-84-6
alpha-Hexachlorocy clohexane			x		319-84-6
Aluminum (fume or dust)			x		7429-90-5
Aluminum oxide (fibrous forms)			x		1344-28-1
Aluminum phosphide	500	100	x	P006	20859-73-8
Aluminum sulfate		5000			10043-01-3
Ametryn			x		834-12-8
Aminopterin	500/10,000	500			54-62-6
Amiton	500	500			78-53-5
Amiton oxalate	100/10,000	100			3734-97-2
Amitraz			x		33689-61-1
Amitrole		10	x	U011	61-82-5
Ammonia	500	100	x		7664-41-7
Ammonium acetate		5000			631-61-8
Ammonium benzoate		5000			1863-63-4
Ammonium bicarbon ate		5000			1066-33-7
Ammonium bichromate		10			7789-09-5
Ammonium bifluoride		100			1341-49-7
Ammonium bisulfite		5000			10192-30-0
Ammonium carbamate		5000			1111-78-0
Ammonium carbonate		5000			506-87-6
Ammonium chloride		5000			12125-02-9
Ammonium chromate		10			7788-98-9
Ammonium cit rate,dibasic		5000			3012-65-5
Ammonium fluoborate		5000			13826-83-0
Ammonium fluoride		100			12125-01-8

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Ammonium hydroxide		1000			336-21-6
Ammonium oxalate		5000			5972-73-6
Ammonium oxalate		5000			6009-70-7
Ammonium oxalate		5000			14258-49-2
Ammonium picrate		10		P009	131-74-8
Ammonium silicofluo ride		1000			16919-19-0
Ammonium sulfamate		5000			7773-06-0
Ammonium sulfide		100			12135-76-1
Ammonium sulfite		5000			10196-04-0
Ammonium tartrate		5000			14307-43-8
Ammonium tartrate		5000			3164-29-2
Ammonium thiocyan ate		5000			1762-95-4
Ammonium vanadate		1000		P119	7803-55-6
Amphetamine	1000	1000			300-62-9
Amyl acetate		5000			628-63-7
iso-Amyl acetate		5000			123-92-2
sec-Amyl acetate		5000			626-38-0
tert-Amyl acetate		5000			625-16-1
Aniline,2,4,6-trime thyl-	500	500			88-05-1
Anilazine			x		101-05-3
Aniline	1000	5000	x	U012	62-53-3
Anthracene		5000	x		120-12-7
Antimony		5000	x		7440-36-0
Antimony pentachlo ride		1000			7647-18-9
Antimony pentafluoride	500	500			7783-70-2
Antimony potassium tartrate		100			28300-74-5
Antimony tribromide		1000			7789-61-9
Antimony trichloride		1000			10025-91-9
Antimony trifluoride		1000			7783-56-4
Antimony trioxide		1000			1309-64-4
Antimycin A	1000/ 10,000	1000			1397-94-0
ANTU	500/10,000	100			86-88-4
Aroclor 1016		1			12674-11-2
Aroclor 1221		1			11104-28-2
Aroclor 1232		1			11141-16-5
Aroclor 1242		1			53469-21-9
Aroclor 1248		1			12672-29-6
Aroclor 1254		1			11097-69-1
Aroclor 1260		1			11096-82-5
Arsenic		1	x		7440-38-2
Arsenic acid		1		P010	1327-52-2
Arsenic acid		1		P010	7778-39-4
Arsenic disulfide		1			1303-32-8
Arsenic pentoxide	100/10,000	1		P011	1303-28-2
Arsenic trisulfide		1			1303-33-9
Arsenic trioxide	100/10,000	1		P012	1327-53-3
Arsenous oxide	100/10,000	1			1327-53-3
Arsenous trichloride	500	1			7784-34-1
Arsine	100	100			7784-42-1
Arsine, diethyl-		1		P038	692-42-2
Asbestos		1	x		1332-21-4
Atrazine			x		1912-24-9
Azaserine		1		U015	115-02-6
Azinophos-ethyl	100/10,000	100			2642-71-9
Azinophos-methyl	10/10,000	1			86-50-0
Aziridine		1			151-56-4
Aziridine, 2-methyl		1			75-55-8
Barban		1##		U280	101-27-9
Barium and compounds			x		7440-39-3

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Barium cyanide		10		P013	542-62-1
Bendiocarb		1##	x	U278	22781-23-3
Bendiocarb phenol		1##		U364	22961-82-6
Benfluralin			x		1861-40-1
Benomyl		1##	x	U271	17804-35-2
Benzal chloride	500	5000	x	U017	98-87-3
Benzamide			x		55-21-0
Benz[a]anthracene		10		U018	56-55-3
Benanthracene,7,12- dimethyl-		1		U094	57-97-6
Benz[c]acridine		100		U016	225-51-4
Benzeneamine		5000			63-53-3
Benzenamine,2-methyl		100			95-53-4
Benzenamine,2-methyl 5- nitro-		100		U181	99-55-8
Benzenamine,2- methyl, hydrochlo ride		100	x	U222	636-21-5
Benzenamine,3-(triflu oro- methyl)-	500	500			98-16-8
Benzenamine-4-chloro		1000		P024	106-47-8
Benzenamine,4-chloro- 2- methyl-hydrochlo ride		100		U049	3165-93-3
Benzenamine, 4- methyl		100		U353	106-49-0
Benzenamine,4-nitro-		5000		P077	100-01-6
Benzenamine 4,4'- methylenebis-2- chloro		10	x	U158	101-14-4
Benzenamine,NN-dim ethyl-4-phenylazo		10	x	U093	60-11-7
Benzene		10	x	U019	71-43-2
Benzene,1-bromo-4- phenoxy-		100		U030	101-55-3
Benzene,1-(chlorome thyl)-4-nitro-	500/10,000	500			100-14-1
Benzene,1-methyl-2,4- dinitro-		10	x	U105	121-14-2
Benzene,1-methyl ethyl- (Cumene)		5000	x	U055	98-82-8
Bensene, 1,1-(2,2,2- trichloroethylidene) bis(4-methoxy		1			72-43-5
Benzene,1,2-dichloro		100	x	U070	95-50-1
Benzene,1,2,4,5-tetra chloro-		5000		U207	95-94-3
Benzene,1,3-dichloro		100	x	U071	541-73-1
Benzene,1,3-diisocy- anatomethyl		100	x	U223	26471-62-5
Benzene,1,3,5-trinitro-		10		U234	99-35-4
Benzene,1,4-dichloro		100	x	U072	106-46-7
Benzene,2-methyl-1,3- dinitro-		100	x	U106	606-20-2
Benzene, chloro-		100	x	U037	108-90-7
Benzene, chloromethyl-		100			100-44-7
Benzene, dimethyl-		100	x	U239	1330-20-7
Benzene, hexachloro-		10	x	U127	118-74-1
Benzene, hexahydro- (cyclohexane)		1000	x	U056	110-82-7
Bensene, hydroxy		1000			108-95-2
Benzene, m-dimethyl-		1000	x		108-38-3
Benzene, methyl-(tou		1000	x	U220	108-88-3

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lene)					
Benzene, nitro		1000			98-95-3
Benzene, o-dimethyl-		1000	x		95-47-6
Benzene, p-dimethyl-		100	x		106-42-3
Benzene, pentachloro-		10		U183	608-93-5
Benzene, pentachloron itro-		100	x	U185	82-68-8
Benzeneacetic acid, 4- chloro-a-(4-chlo rophenyl)-a- hydroxy-, ethyl ester		10			510-15-6
Benzenediamine, ar- methyl		10			95-80-7
Benzeneearsonic acid	10/10,000	10			98-05-5
Benzenesulfonyl chlo ride		100		U020	98-09-9
Benzidine		1	x	U021	92-87-5
Benzimidazole, 4,5- dichloro-2-(trifluo romethyl)	500/10,000	500			3615-21-2
Benz[j]aceanthrylene, 1,2-dihydro-3- methyl-		10		U157	56-49-5
Benzoic acid		5000			65-85-0
Benzo[a]pyrene		1		U022	50-32-8
Benzo[b]fluoranthene		1			205-99-2
Benzo[ghi]perylene		5000	x		191-24-2
Benzoic acid		5000			65-85-0
Benzo[jk]fluorene		100		U120	206-44-0
Benzo[k]fluoranthene		5000			207-08-9
Benzonitrile		5000			100-47-0
p-Benzoquinone		10			106-51-4
Benzotrichloride	100	10	x	U023	98-07-7
Benzoyl chloride	500	100	x		98-88-4
Benzoyl peroxide			x		94-36-0
Benzyl chloride	500	100	x	P028	100-44-7
Benzyl cyanide	500	500			140-29-4
Beryllium chloride		1			7787-47-5
Beryllium fluoride		1			7787-49-7
Beryllium nitrate		1			13597-99-4
Beryllium nitrate		1			7787-55-5
Beryllium powder		10	x	P015	7440-41-7
beta-Endosulfan		1			33213-65-9
beta-BHC		1			319-85-7
beta-Chloronaphtha lene		5000		U047	91-58-7
Bicyclo[2.2.1]heptane- 2- carbonitrile, 5- chloro- 6-(methyla)	500/10,000	500			15271-41-7
Bifenthrin			x		82657-04-3
Biphenyl		100	x		92-52-4
Bis(2-chloroethoxy) methane		1000	x	U024	111-91-1
Bis(2-chloroisopropyl) ether		1000	x	U027	108-60-1
Bis(2-ethylhexyl)adi pate			x		103-23-1
Bis(chlorome thyl)ketone	10/10,000	10			534-07-6
Bis(tributylin) oxide			x		56-35-9
Bitoscanate	500/10,000	500			4044-65-9
Boron trichloride	500	500	x		10294-34-5
Boron trifluoride com pound with methyl ether (1:1)	1000	1000			353-42-4

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Boron trifluoride	500	500	x		7637-07-2
Bromadiolone	100/10,000	100			18772-56-7
Bromacil			x		314-40-9
Bromacil, lithium salt			x		53404-19-6
Bromine	500	500	x		7726-95-6
Bromoacetone		1000		P017	598-31-2
Bromochlorodifluo romethan (Halon 1211)			x		353-59-3
Bromoform		100	x	U225	75-25-2
Bromotrifluorometh- ane (Halon 1301)			x		75-63-8
Bromoxynil			x		1689-84-5
Bromoxynil octanoate			x		1689-88-2
Brucine		100	x	P018	357-57-3
Butanoic acid,4-[bis(2- chloroethyl)amino] benzene-		10		U035	305-03-3
Butyl benzyl Phthalate		100			85-68-7
Butyl acetate		5000			123-86-4
iso-Butyl acetate		5000			110-19-0
sec-Butyl acetate		5000			105-46-4
tert-Butyl acetate		5000			540-88-5
sec-Butyl alcohol			x		78-92-2
tert-Butyl alcohol			x		75-65-0
sec-Butylamine		1000			13952-84-6
sec-Butylamine		1000			513-49-5
tert-Butylamine		1000			75-64-9
Butyl acrylate			x		141-32-2
Butylamine		1000			109-73-9
iso-Butylamine		1000			78-81-9
Butyraldehyde			x		123-72-8
Butyric acid		5000			107-92-6
iso-Butyric acid		5000			79-31-2
CI Acid Green 3			x		4680-78-8
CI Acid Red 114			x		6459-94-5
CI Basic Green 4			x		569-64-2
CI Basic Red 1			x		989-38-8
CI Direct Black 38			x		1937-37-7
CI Direct Blue 6			x		2602-46-2
CI Direct Blue 218			x		28407-37-6
CI Direct Brown 95			x		16071-86-6
CI Disperse Yellow 3			x		2832-40-8
CI Food Red 15			x		81-88-9
CI Food Red 5			x		3761-53-3
CI Solvent Orange 7			x		3118-97-6
CI Solvent Yellow 14			x		824-07-0
CI Solvent Yellow 34 (Auramine)		100	x	U014	492-80-8
CI Solvent Yellow 3			x		97-56-3
CI Vat Yellow 4			x		128-66-5
Cacodylic acid		1		U136	75-60-5
Cadmium		10	x		7440-43-9
Cadmium acetate		10			543-90-8
Cadmium bromide		10			7789-42-6
Cadmium chloride		10			10108-64-2
Cadmium oxide	100/10,000	100			1306-19-0
Cadmium stearate	1000/ 10,000	1000			2223-93-0
Calcium arsenate	500/10,000	1			7778-44-1
Calcium arsenite		1			52740-16-6

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Calcium carbide		10			75-20-7
Calcium chromate		10		U032	13765-19-0
Calcium cyanamide		1000	x		156-62-7
Calcium cyanide		10		P021	592-01-8
Calcium dodecylbenzene sulfonate		1000			26264-06-2
Calcium hypochlorite		10			7778-54-3
Camphochlor	500/10,000	1			8001-35-2
Cantharidin	100/10,000	100			56-25-7
Caprolactam		5000			105-60-2
Captan		10	x		133-06-2
Carbachol chloride	500/10,000	500			51-83-2
Carbamic acid, ethyl ester		100	x	U238	51-79-6
Carbamic acid, methyl- nitroso-,ethyl ester		1		U178	615-53-2
Carbamic acid, methyl- o- (((2,4-dimethyl- 1,3 dithiolan-2-y	100/10,000	1##		P185	26419-73-8
Carbamic chloride, dimethyl-		1	x	U097	79-44-7
Carbaryl		100	x		63-25-2
Carbendazim		1##		U372	10605-21-7
Carbofuran	10/10,000	10	x		1563-66-2
Carbofuran phenol		1##		U367	1563-38-8
Carbon disulfide	10,000	100	x	P022	75-15-0
Carbon oxyfluoride		1000		U033	353-50-4
Carbon tetrachloride		10	x	U211	56-23-5
Carbonic dichloride		10			75-44-5
Carbonyl sulfide		100	x		463-58-1
Carbophenothion	500	500			786-19-6
Carbosulfan		1##		P189	55285-14-8
Carboxin			x		5234-68-4
Catechol		100	x		120-80-9
Chinomethionat			x		2349-01-2
Chloramben		100	x		133-90-4
Chlordane	1000	1	x	U036	57-74-9
Chlorendic acid			x		115-28-6
Chlorfenvinfos	500	500			470-90-6
Chlorinuron ethyl			x		90982-32-4
Chlorinated camphene		1			8001-35-2
Chlorinated fluorocar bon(Freon 113)			x		76-13-1
Chlorine	100	10	x		7782-50-5
Chlorine cyanide		10		P033	506-77-4
Chlorine dioxide			x		10049-04-4
Chlormephos	500	500			24934-91-6
Chlormequat chloride	100/10,000	100			999-81-5
Chlornaphazine		100		U026	494-03-1
Chloroacetaldehyde		1000	P023		107-20-0
Chloroacetic acid	100/10,000	100	x		79-11-8
Chlorobenzene		100			108-90-7
Chlorobenzilate		10	x	U038	510-15-6
Chlorodibromomethane		100			124-48-1
Chlorodifluoromethane (HCFC-22)			x		75-45-6
Chloroethane		100	x		75-00-3
Chloroethanol	500	500			107-07-3
Chloroethyl chlorofo rate	1000	1000			627-11-2
Chloroform	10,000	10	x	U044	67-66-3

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Chloromethane		100			74-87-3
Chloromethyl ether	100	10			542-88-1
Chloromethyl methyl ether	100	10	x	U046	107-30-2
Chlorophacinone	100/10,000	100			3691-35-8
Chloropicrin			x		76-06-2
Chloroprene		100	x		126-99-8
Chlorotetrafluoroethane			x		63938-10-3
Chloroethalonil			x		1897-45-6
Chlorotrifluoromethane (CFC 13)			x		75-72-9
Chloroxuron	500/10,000	500			1982-47-4
Chlorpyrifos		1			2921-88-2
Chlorpyrifos methyl			x		5598-72-3
Chlorosulfonic acid		1000			7790-94-5
Chlorosulfuron			x		64902-72-3
Chlorothiophos	500	500			21923-23-9
Chromic acetate		1000			1066-30-4
Chromic acid		10			11115-74-5
Chromic acid		10			7738-94-5
Chromic chloride	1/10,000	1			10025-73-7
Chromic sulfate		1000			10101-53-8
Chromium		5000	x		7440-47-3
Chromous chloride		1000			10049-05-5
Cobalt			x		7440-50-8
Cobalt, ((2,2'-1,2-ethanediy)bis (nitri)l)bis(6)	100/10,000	100			62207-76-5
Cobalt carbonyl	10/10,000	10			10210-68-1
Cobaltous bromide		1000			7789-43-7
Cobaltous formate		1000			544-18-3
Cobaltous sulfamate		1000			14017-41-5
Colchicine	10/10,000	10			64-86-8
Copper		5000	x		7440-50-8
Copper cyanide		10		P029	544-92-3
Coumaphos	100/10,000	10			56-72-4
Coumatetralyl	500/10,000	500			5836-29-3
Cresol(s) (mixed isomers)		100	x	U052	1319-77-3
m-Cresol		100	x	U052	108-39-4
o-Cresol	1000/ 10,000	100	x	U052	95-48-7
p-Cresol		100	x	U052	106-44-5
Creosote		1	x	U051	8001-58-9
Cresylic acid (isomers and mixtures)		100			1319-77-3
m-Cresylic acid		100			108-39-4
o-Cresylic acid		100			95-48-7
p-Cresylic acid		100			106-44-5
Crimidine	100/10,000	100			535-89-7
Crotonaldehyde, (E)-	1000	100		U053	123-73-9
Crotonaldehyde	1000	100	x	U053	4170-30-3
Cumene		5000			98-82-8
Cumene hydroperoxide			x		80-15-9
Cupferron			x		135-20-6
Cupric acetate		100			142-71-2
Cupric chloride		10			7447-39-4
Cupric nitrate		100			3251-23-8
Cupric oxalate		100			5893-66-3
Cupric sulfate		10			7758-98-7
Cupric sulfate ammoni		100			10380-29-7



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ated					
Cupric tartrate		100			815-82-7
Cyanazine			x		21725-46-2
Cyanides (soluble cya nide salts)		10		P030	57-12-5
Cyanogen		100		P031	460-19-5
Cyanogen bromide	500/10,000	1000		U246	506-68-3
Cyanogen iodide	1000/ 10,000	1000			506-78-5
Cyanophos	1000	1000			2636-26-2
Cyanuric fluoride	100	100			675-14-9
Cycloate			x	U386	1134-23-2
Cyclohexane, 1,2,3,4,5,6- hexachloro-		1			58-89-9
Cyclohexanol			x		108-93-0
Cyclohexanone		5000		U057	108-94-1
Cycloheximide	100/10,000	100			66-81-9
Cyclohexylamine	10,000	10,000			108-91-8
Cyclophosphamide		10		U058	50-18-0
Cyfluthrin			x		68359-37-5
Cyhalothrin			x		68085-85-8
D-Glucopyranose,2- deoxy-2-(3-methyl- 3- ni-trosoureido)-		1		U206	18883-66-4
Daunomycin		10		U059	20830-81-3
Dazomet			x	U366	533-74-4
Dazomet, sodium salt			x		53404-60-7
DDD		1		U060	72-54-8
DDE	5000	1			72-55-9
DDT		1		U061	50-29-3
Decaborane(14)	500/10,000	500			17702-41-9
Decabromodiphenyl oxide			x		1163-19-5
DEHP		100			117-81-7
Delta-BHC		1			319-86-8
Demeton	500	500			8065-48-3
Demeton-S-methyl	500	500			919-86-8
Desmmedipham			x		13684-56-5
Di-(2-ethylhexyl)phth late (DEHP)			x		177-81-7
Di-n-butyl phthalate		10			84-74-2
Di-n-octyl phthalate		5000	x	U107	117-84-0
Di-n-propylnitro samine(N- Nitrosodi- n- propylamine)		10	x	U111	621-64-7
Dialifor	100/10,000	100			10311-84-9
Diallate		100	x	U062	2303-16-4
Diaminotoluene (mixed isomers)		10	x	U221	25376-45-8
Diaminotoluene(mixed isomers)		10			496-72-0
Diazinon		1	x		333-41-5
Diazomethane		100	x		334-88-3
Dibenz(a)lpyrene		10		U064	189-55-9
Dibenz[a,h] anthracene		1		U063	53-70-3
Dibenzofuran		100	x		132-64-9
Diborane	100	100			19287-45-7
Dibromotetrafluor- ethane (Halon 2402)			x		124-73-2
Dibutyl phthalate		10	x	U069	84-74-2
Dicamba		1000	x		1918-00-9

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Dichlone		1			117-80-6
Dichloran			x		99-30-9
Dichloro-1,1,2-trifluoroethane			x		90454-18-5
Dichlorobenzene (mixed isomers)		100	x		25321-22-6
p-Dichlorobenzene		100			106-46-7
Dichlorobromomethane		5000	x		75-27-4
Dichlorodifluoromethane(CFC-12)		5000	x	U075	75-71-8
Dichloroethyl ether	10,000	10	x	U025	111-44-4
Dichlorofluoromethane (HCFC-21)			x		75-43-4
Dichloromethane		1000			75-02-2
Dichloromethyl ether	100	10	x	P016	542-88-1
Dichloromethyl-nylsilane	1000	1000			149-74-6
Dichloropentafluoropropane			x		127564-92-5
Dichlorophene			x		97-23-4
Dichloropropane		1000			26638-19-7
Dichloropropane-		100			8003-19-8
Dichloropropene		100			26952-23-8
Dichlorotetrafluoroethane (CFC-114)			x		76-14-2
Dichlorotrifluoroethane			x		34077-87-7
Dichlorvos	1000	10	x		62-73-7
Dicholobenil		100			1194-65-6
Dicofol			x		115-32-2
Dicrotophos	100	100			141-66-2
Dicyclofop methyl			x		51338-27-3
Dicyclopentadiene			x		
Dieldrin		1		P037	60-57-1
Diepoxybutane	500	10	x	U085	1464-53-5
Diethanolamine		100	x		111-42-2
Diethyl ethyl			x		38727-55-8
Diethyl chlorophosphate	500	500			814-49-3
Diethyl-p-nitrophenylphosphate		100		P041	311-45-5
Diethyl sulfate		10	x		64-67-5
Diethylamine		100			109-89-7
N,N-Diethylaniline		1000			91-66-7
Diethylcarbamazine citrate	100/10,000				1642-54-2
Diethylhexylphthalate		100			
Diethylene glycol, dicarbamate		1##		U395	5952-26-1
Diethylstilbestrol		1		U089	56-53-1
Diflubenzuron			x		35367-38-5
Digitoxin	100/10,000	1000			71-63-6
Diglycidyl ether	1000	1000			2238-07-5
Diglycidyl resorcinol ether			x		101-90-6
Digoxin	10/10,000	10			20830-75-5
Dihydrosafrole			x		94-58-6
Diisopropylfluorophosphate	100	100		P043	55-91-4
Dimefox	500	599			115-26-4
Dimethipin			x		55290-64-7
Dimethoate	500/10,000	10	x	P044	60-51-5
Dimethyl aminoa		10			60-11-7

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
zobenzene					
Dimethyl chlorothio phosphate			x		2524-03-0
Dimethyl-p-phenylenediamine	10/10,000				99-98-9
Dimethyl phosphorochloridothioate	500	500			2524-03-0
Dimethyl phthalate		5000	x	U102	131-11-3
Dimethyl sulfate	500	100	x	U103	77-78-1
Dimethylamine		1000	x	U092	124-40-3
Dimethylamine dicamba			x		2330-66-5
N,N-Dimethylaniline		100			121-69-7
Dimethylcarbamoyl chloride		1			79-44-7
Dimethyldichlorosilane	500	500	x		75-78-5
Dimethylformamide		100			68-12-2
Dimethylhydrazine	1000	10	x	U098	57-14-7
Dimetilan	500/10,000	1		P191	644-64-4
Dinitrobenzene (mixed)		100			25154-54-5
Dinitrocresol	10/10,000	10			534-52-1
Dinitrophenol		10			25550-58-7
Dinitrotoulene	10/10,000	10	x	P047	534-52-1
Dinitrotoluene (mixed isomers)		10	x		25321-14-6
Dinocap			x		39300-45-3
Dinoseb	100/10,000	1000	x	P020	88-85-7
Dinoterb	500/10,000	500			1420-07-1
Dioxathion	500	500			78-34-2
Diphacinone	10/10,000	10			82-66-6
Diphenamid			x		957-51-7
Diphenylamine			x		122-39-4
Diphosphoramide, octamethyl-	100	100		P085	152-16-9
Dipotassium enfothal			x		2164-07-0
Dipropyl isocinchomer onate			x		136-45-8
Dipropylamine		5000		U110	142-84-7
Diquat		1000			85-00-7
Diquat		1000			2764-72-9
Disodium cyanodithioimidocarbonate			x		138-93-2
Disulfoton	500	1		P039	298-04-4
Dithiazinine iodide	500/10,000	500			514-73-8
Dithiobiuret	100/10,000	100		P049	541-53-7
Diuron		100	x		330-54-1
Dodecylbenzene sulfonic acid		1000			27176-87-0
Dodine			x		2439-10-3
Emetine, dihydrochloride	1/10,000	1			316-42-7
Endosulfan	10/10,000	1		P050	115-29-7
Endosulfan sulfate		1			1031-07-8
Endothall		1000		P088	145-73-3
Endothion	500/10,000	500			2778-04-3
Endrin	500/10,000	1		P051	72-20-8
Endrin aldehyde		1			7421-93-4
Epichlorohydrin	1000	100	x	U041	106-89-8
EPN	100/10,000	100			2104-64-5
ERGocaliferol	1000/ 10,000	1000			50-19-6
Ergotamine tartrate	500/10,000	500			379-79-3
Ethanal		1000			75-07-0

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Ethanamine,N-ethyl-N-nitroso-		1	x	U174	55-18-5
Ethanimidothioci acid		1##		U394	30558-43-1
Ethane, 1,1-dichloro		1000			75-34-3
Ethane,1,1'-oxybis-		100		U117	60-29-7
Ethane,1,1'-oxybis(2-chloro-		10			111-44-4
Ethane, 1,1,1-trichloro		1000			71-55-6
Ethane,1,2-dibromo-		1	x	U067	106-93-4
Ethane, 1,1,2-dichloro		100			107-06-2
Ethane,1,1,2-trichloro		100	x	U227	79-00-5
Ethane,1,1,1,2-tetra chloro-		100		U208	630-20-6
Ethane,1,1,2,2-tetra chloro-		100	x	U209	79-34-5
Ethane, hexachloro		100	x	U131	67-72-1
Ethanesulfonyl chlo ride, 2-chloro-	500	500			1622-32-8
Ethanethioamide		10	x	U218	62-55-5
Ethanol,1,2-dichloro-acetate	1000	1000			10140-87-1
Ethanol,2,2'-(nitroso imino) bis-		1		U173	1116-54-7
Ethanone, 1-phenyl		5000			98-86-2
Ethene, 1,1-dichloro		100			75-35-4
Ethene, chloro-		1	x	U043	75-01-4
Ethene, tetrachloro		100	x	U210	127-18-4
Ethene, trichloro		100			79-01-6
Ethion	1000	10			563-12-2
Ethoprophos	1000	1000	x		13194-48-4
Ethyl acrylate		1000	x	U113	140-88-5
Ethyl carbamate		100			51-79-6
Ethyl chloride		100			75-00-3
Ethyl chloroformate			x		541-41-3
Ethyl dipropylthiocarbamate (EPTC)			x	U390	759-94-4
Ethyl methacrylate		1000		U118	97-63-2
Ethyl methanesulfonate		1		U119	62-50-0
Ethylbenzene		1000	x		100-41-4
Ethylbis(2-chloroethyl)amine	500	500			538-07-8
Ethylene			x		74-85-1
Ethylene dibromide		1			106-93-4
Ethylene dichloride		100			107-06-2
Ethylene Fluorohydrin	10	10			371-62-0
Ethylene glycol		5000	x		107-21-1
Ethylene oxide	1000	10	x	U115	75-21-8
Ethylene thiourea		10	x	U116	96-45-7
Ethylenebisdithiocarbamic- acid, salts & esters/		5000		U114	111-54-6
Ethylenediamine	10,000	5000			107-15-3
Ethylenediamine tetra-acetic acid (EDTA)		5000			60-00-4
Ethyleneimine	500	1	x	P054	151-56-4
Ethylenethiocyanate	10,000	10,000			542-90-5
Ethylidene dichloride		1000	x		75-34-3
Famphur		1000	x	P097	52-85-7
Fenamiphos	10/10,000	10			22224-92-6
Fenarimol			x		60100-88-9

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Fenbutatin oxide			x		13356-08-6
Fenitrothion	500				122-14-5
Fenoxaprop ethyl			x		66441-23-4
Fenoxycarb			x		72490-01-8
Fenpropathrin			x		39515-41-8
Fensulfothion	500	500			115-90-2
Fenthion					55-38-9
Fenvalerate			x		51630-58-1
Ferbam			x	U396	14484--64- 1
Ferric ammonium cit rate		1000			1185-57-5
Ferric ammonium oxalate		1000			2944-67-4
Ferric ammonium oxalate		1000			55488-87-4
Ferric chloride		1000			7705-08-0
Ferric fluoride		100			7783-50-8
Ferric nitrate		1000			10421-48-4
Ferric sulfate		1000			10028-22-5
Ferrous ammonium sul fate		1000			10045-89-3
Ferrous chloride		100			7758-94-3
Ferrous sulfate		1000			7720-78-7
Ferrous sulfate		1000			7782-63-0
Florouracil	500/10,000				51-21-8
Fuazifop-butyl			x		69806-50-4
Fluometuron	100/10,000	100			4301-50-2
Fluorene		5000			2164-17-2
Fluorine	500	10	x	P056	86-73-7
Fluoroacetamide	100/10,000	100		P057	7782-41-4
Fluoroacetic acid	10/10,000	10			640-19-7
Fluoroacetyl chloride	10	10			144-49-0
Fluorouracil	500/10,000	100	x		359-06-8
Fluvalinate			x		51-21-8
Folpet			x		69409-94-5
Fomesafen			x		133-07-3
Fonofos	500	500			72178-02-0
Formaldehyde	500	100	x	U122	944-22-9
Formaldehyde cyano hydrin	1000	1000			50-00-0
Formetanate hydro chloride	500/10,000	1##		P198	107-16-4
Formic acid		5000	x	U123	23422-53-9
Formothion	100	100			64-18-6
Formparanate	100/10,000	1##		P197	2540-82-1
Fosthietan	500	500			17702-57-7
Fuberidazole	100/10,000	100			21548-32-3
Fulminic acid, mercu ry(II) salt		10		P065	3878-19-1
Fumaric acid		5000			628-86-4
Furan	500	100		U124	110-17-8
Furan, tetrahydro-		1000		U213	110-00-9
Gallium trichloride	500/10,000	500			109-99-9
Glycidylaldehyde		10		U126	13450-90-3
Guanidine,N-nitroso-N methyl-N'-nitro		10		U163	765-33-4
Heptachlor		1	x	P059	70-25-7
Heptachlor epoxide		1			76-44-8
Hexachloro-1,3-butadi ene		1	x	U128	1024-57-3
Hexachlorobenzene		10			87-68-3
Hexachlorobutadiene		1			118-74-1
					87-68-3

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Hexachlorocyclohexane		1			58-89-9
Hexachlorocyclopentadiene	100	10	x	U130	77-47-4
Hexachloroethane		100			67-72-1
Hexachloronaphthalene			x		1335-87-1
Hexachlorophene		100	x	U132	70-30-4
Hexachloropropene		1000		U234	1888-71-7
Hexaethyl tetraphosphate		100		P062	757-58-4
Hexamethylenimine-1,6-diisocyanate		100			822-06-0
Hexamethylenediamine, N,N'-dibutyl-	500				4835-11-4
Hexamethylphosphoramide		1	x		680-31-9
Hexane		5000	x		110-54-3
Hexazinone			x		51235-04-2
Hexone		5000			108-10-1
Hydramethylnon			x		67485-29-4
Hydrazine	1000	1	x	U133	302-01-2
Hydrazine, 1,1-dimethyl-		10			57-14-7
Hydrazine, 1,2-diphenyl-		10			122-66-7
Hydrazine, methyl-		10			60-34-4
Hydrazine sulfate			x		10034-93-2
Hydrochloric acid		5000			7647-01-0
Hydrogen chloride (gas only)	1000	500	x		7647-01-0
Hydrocyanic acid	100	10	x	P063	74-90-8
Hydrofluoric acid		100			7664-39-3
Hydrogen fluoride	100	100	x	U134	7664-39-3
Hydrogen peroxide (conc > 52%)	1000	1000			7722-84-1
Hydrogen phosphide		100			7803-51-2
Hydrogen selenide	10	10			7783-07-5
Hydrogen sulfide	500	100		U135	7783-06-4
Hydroquinone	500/10,000	100	x		123-31-9
Isomethane		100			74-88-4
Imazalil			x		35554-44-0
Indeno(1,2,3-cd)pyrene		100		U137	193-39-5
Iron, pentacarbonyl-	100	100	x		13463-40-06
Isobenzan	100/10,000	100			297-78-9
Isobutyl alcohol		5000		U140	78-83-1
Isobutyraldehyde			x		78-84-2
Isobutyronitrile	1000	1000			78-82-0
Isocyanic acid, 3,4-dichlorophenyl ester	500/10,000	500			102-36-3
Isodrin	100/10,000	1	x	P060	465-73-6
Isofenphos			x		25311-71-1
Isoflurophate	100	100			56-91-4
Isophorone		5000			78-59-1
Isophorone diisocyanate	100	100			4098-71-9
Isoprene		100			78-79-5
Isopropanolamine dodecylbenzene sulfonate		1000			42504-46-1
Isopropyl alcohol (mfg-strong acid processes)			x		67-63-0
Isopropyl chloroformate	1000	1000			108-23-6
Isopropylmethylpyrazolyl dimethylcarbamate	500	1##		P192	119-38-0

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Kepone		1		U142	143-50-0
Lactofen			x		77501-63-4
Lactonitrile	1000	1000			78-97-7
Lasiocarpine		10		U143	303-34-4
Lead		10	x		7439-92-1
Lead arsenate		1			10102-48-4
Lead arsenate		1			7645-25-2
Lead arsenate		1			7784-40-9
Lead chloride		10			7758-95-4
Lead fluoborate		10			13814-96-5
Lead fluoride		10			7783-46-2
Lead iodide		10			10101-63-0
Lead nitrate		10			10099-74-8
Lead phosphate		10		U145	7446-27-7
Lead stearate		10			1072-35-1
Lead stearate		10			52652-59-2
Lead stearate		10			7428-48-0
Lead stearate		10			56189-09-4
Lead subacetate		10		U146	1335-32-6
Lead sulfate		10			15739-80-7
Lead sulfate		10			7446-14-2
Lead sulfide		10			1314-87-0
Lead thiocyanate		10			592-87-0
Leptophos	500/10,000	500			21609-90-5
Lewisite	10	10			541-25-3
Lindane	1000/ 10,000	1	x	U129	58-89-9
Linuron			x		330-55-2
Lithium carbonate			x		554-13-2
Lithium chromate		10			14307-35-8
Lithium hydride	100	100			7580-67-8
m-Nitrophenol		100			554-84-7
m-Nitrotoluene		1000			99-08-1
Malathion		100	x		121-75-5
Maleic acid		5000			110-16-7
Maleic anhydride		5000			108-31-6
Maleic, hydrazide		5000		U148	123-33-1
Malononitrile	500/10,000	1000	x	U149	109-77-3
Maneb			x		12427-38-2
Manganese			x		7439-96-5
Manganese dimeth yldithiocarbamate		1##		P196	15339-36-3
Manganese, tricarbo nyl methylcyclopen tadienyl	100	100			12108-13-3
MDI		5000			101-68-8
Mechlorethamine	10	10	x		51-75-2
Mecoprop			x		93-65-2
MEK		5000			78-93-3
Melphalan		1		U150	148-82-3
Mephosfolan	500	500			950-10-7
Mercuric acetate	500/10,000	500			1600-27-7
Mercuric chloride	500/10,000	500			7487-94-7
Mercuric cyanide		1			592-04-1
Mercuric nitrate		10			10045-94-0
Mercuric oxide	500/10,000	500			21908-53-2
Mercuric sulfate		10			7783-35-9
Mercuric thiocyanate		10			592-85-8
Mercurous nitrate		10			7782-86-7
Mercurous nitrate		10			10415-75-5
Mercury		1	x	U151	7439-97-6

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Merphos			x		150-50-5
Methacrolein diacetate	1000	1000			10476-95-6
Methacrylic anhydride	500	500			760-93-0
Methacryloyl chloride	100	100			920-46-7
Methacryloyloxyethyl isocyanate	100	100			30674-80-7
Methacrylonitrile	500	1000	x	U152	126-98-7
Metham sodium		1##	x	U384	137-42-8
Methamidophos	100/10,000	100			10265-92-6
Methanamine, N- methyl- N-nitro		10			62-75-9
Methane, bromo		1000			74-83-9
Methane, chloro		100	x	U045	74-87-3
Methane, chlo romethoxy		10			107-30-2
Methane, dibromo-		1000	x	U068	74-95-3
Methane, dichloro-		1000	x	U080	75-09-2
Methaneiodd		100	x	U138	74-88-4
Methane, oxybis(chloro		10			542-88-1
Methane, tetrachloro		10			58-23-5
Methane, tribromo		100			75-25-2
Methane, trichloro		10			67-66-3
Methane, trichloroflu oro- (CFC-11)		5000		U121	75-69-4
Methanesulfanyl chlo ride, trichloro	500	100	x	P118	594-42-3
Methanesulfonyl fluo ride	1000	1000			558-25-8
Methanol		5000	x	U154	67-56-1
Methapyrilene		5000		U155	91-80-5
Methazole			x		20354-26-1
Methidathion	500/10,000	500			950-37-8
Methiocarb	500/10,000	10	x		2032-65-7
Methomyl	500/10,000	100		P066	16752-77-5
Methoxone			x		94-74-6
Methoxone sodium salt			x		3653-48-3
Methoxychlor		1	x		72-43-5
Methoxyethylmercuri cacetate	500/10,000	500			151-38-2
Methyl 2-chloroacry late	500	500			80-63-7
Methyl acrylate			x		96-33-3
Methyl alcohol		5000			67-56-1
Methyl bromide	1000	1000	x	U029	74-83-9
Methyl Chloride		100			74-87-3
Methyl chlorocarbonate			x		79-22-1
Methyl chlorofo mate(Methylchloro carbonate)	500	1000		U156	79-22-1
Methyl chloroform		1000	x	U226	71-55-6
Methyl ethyl ketone		5000			78-93-3
Methyl hydrazine	500	10	x	P068	60-34-4
Methyl iodide		100			74-88-4
Methyl isobutyl ketone		5000	x	U161	108-10-1
Methyl isocyanate	500	10	x	P064	624-83-9
Methyl isothiocyanate	500	500	x		556-61-1
Methyl mercaptan	500	100		U153	74-93-1
Methyl methacrylate		1000	x	U162	80-62-6
Methyl parathion			x		298-00-0
Methyl phenkapton	500	500			3735-23-7
Methyl phosphonic dichloride	100	100			676-97-1
N-Methyl-2-pyrroli done			x		873-50-4



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Methyl tert-butyl ether		1000	x		1634-04-4
Methyl thiocyanate	10,000	10,000			556-64-9
Methyl vinyl ketone	10	10			78-94-4
Methylene-bis-(phenyl iso- cyanate)(MBI)			x		101-68-8
Methylene chloride		1000			75-09-2
Methylene diphenyl diisocyanate		5000			101-68-8
Methylmercuric dicy- anamide	500/10,000	500			502-39-6
N-Methylolacrylamide			x		924-42-5
Methylthiouracil		10		U164	56-04-2
Methyltrichlorosilane	500	500	x		75-79-6
Metiram			x		9006-42-2
Metolcarb	100/10,000	1##		P190	1129-41-5
Metribuzin			x		21087-64-9
Mevinphos	500	10	x		7786-34-7
Mexacarbate	500/10,000	1000			315-18-4
Michler's ketone			x		90-94-8
Molinate			x	U365	2212-67-1
Mitomycin C	500/10,000	10		U010	50-07-7
Molybdenum trioxide			x		1313-27-5
Moncrotophos	10/10,000	10			6923-22-4
(Mono)chloropenta- fluoroethane (CFC 115)			x		76-15-3
Monoethylamine		100			75-04-7
Monomethylamine		100			74-89-5
Monuron			x		150-68-5
Muscimol	500/10,000	1000		P007	2763-96-4
Mustard gas	500	500	x		505-60-2
Myclobutanil			x		88671-89-0
n-Butyl alcohol			x		71-36-3
N,N'-Diethylhydrazine		10		U086	1615-80-1
N,N'-Dimethylaniline			x		121-69-7
N,N'-Dimethylformamide			x		68-12-2
N-Nitroso-N-ethylurea		1	x		759-73-9
N-Nitroso-N-methylurea		1	x		684-93-5
N-Nitrosodiphenylamine		100	x		86-30-6
N-Nitrosodimethylamine		10			62-75-9
N-Nitrosomethylvinyl- amine		10	x		4549-40-0
N-Nitrosomorpholine		1	x		59-89-2
N-Nitrosornicotine			x		16543-55-8
N-Nitrosopiperidine		10	x	U179	100-75-4
N-Nitrosopyrrolidine		1		U180	930-55-2
Nabam			x		142-59-6
Naled		10	x		300-76-5
Naphthalene		100	x	U165	91-20-3
Naphthenic acid		100			1338-24-5
Nickel		100	x		7440-02-0
Nickel ammonium sulfate		100			15699-18-0
Nickel carbonyl	1	10		P073	13463-39-3
Nickel chloride		100			37211-05-5
Nickel chloride		100			7718-54-9
Nickel cyanide		10		P074	557-19-7
Nickel hydroxide		10			12054-48-7
Nickel nitrate		100			14216-75-2
Nickel sulfate		100			7786-81-4
Nicotine	100	100		P075	54-11-5

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Nicotine sulfate	100/10,000	100			65-30-5
Nitrapyrin			x		1929-82-4
Nitric acid	1000	1000	x		7697-37-2
Nitric oxide	100	10		P076	10102-43-9
Nitriiotriacetic acid			x		139-13-9
p-Nitroaniline			x		100-01-6
Nitrobenzene	10,000	1000	x	U169	98-95-3
Nitrocyclohexane	500	500			1122-60-7
Nitrogen			x		1836-75-5
Nitrogen dioxide	100	10		P078	10102-44-0
Nitrogen dioxide		10		P078	10544-72-6
Nitroglycerine		10	x	P081	55-63-0
Nitrophenol (mixed)		100			25154-55-6
Nitrosodimethylamine	1000	10	x	P082	62-75-9
Nitrotoluene		1000			1321-12-6
Norbormide	100/10,000	100			991-42-4
Norflurazon			x		27314--13- 2
O,O-Diethyl S-methyl dithiophosphate		5000		U087	3288-58-2
o-Anisidine hydrochloride			x		134-29-2
o-Anisidine		100	x		90-04-0
o-Dinitrobenzene		100	x		528-29-0
o-Nitrophenol		100	x		88-75-5
o-Nitrotoluene		1000			88-72-2
o-Toluidine		100	x	U328	95-53-4
Octachloronaphthalene			x		2234-13-1
Octachlorostyrene			x		29082-74-4
Oryzalin			x		19044-88-3
Osmium tetroxide		1000	x	P087	20816-12-0
Ouabain	100/10,000	100			630-60-4
Oxamyl	100/10,000	1##		P194	23135-22-0
Oxetane, 3,3- bis(chloromethyl)-	500	500			78-71-7
Oxirane		10			75-21-8
Oxirane, (chloromethyl)		100			106-89-8
Oxydemeton methyl			x		301-12-2
Oxydiazon			x		19666-30-9
Oxydisulfoton	500	500			2497-07-6
Oxyfluorfen			x		42874-03-3
Ozone	100	100	x		10028-15-6
p-Anisidine			x		104-94-9
p-Benzoquinone		10	x	U197	106-51-4
p-Chloro-o-toluidine			x		95-69-2
p-Chloroaniline			x		106-47-8
p-Chlorophenyl isocyanate			x		104-12-1
p-Cresidine			x		120-71-8
p-Dinitrobenzene		100	x		100-25-4
p-Nitrophenol		100	x	U170	100-02-7
p-Nitrosodiphenylamine			x		156-10-5
p-Nitrotoluene		1000			99-99-0
Paraformaldehyde		1000			30525-89-4
Paraldehyde		1000	x		123-63-7
Paraquat dichloride	10/10,000	10	x		1910-42-5
Paraquat methosulfate	10/10,000	10			2074-50-2
Parathion	100	10	x	P089	56-38-2
Parathion, methyl	100/10,000	100		P071	298-00-0
Paris green (Cuprie acetoarsenite)	500/10,000	1			12002-03-8
PCNB		100			82-68-8

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Pebulate			x	U391	1114-71-2
Pendimethalin			x		40487-42-1
Pentaborane	500	500			19624-22-7
Pentachlorobenzene			x		608-93-5
Pentachloroethane		10	x	U184	76-01-7
Pentachloronitrobenzene		100			82-68-8
Pentachlorophenol		10	x	U242	87-86-5
Pentadecyclamine	100/10,000	100			2570-26-5
Pentobarbital sodium			x		57-33-0
Peracetic acid	500	500	x		79-121-0
Perchloroethylene		10			127-18-4
Perchloromethyl mercaptan	100	100			594-42-3
Permethrin			x		52645-53-1
Phenanthrene		5000	x		85-01-8
Phenol	500/10,000	1000	x	U188	108-95-2
Phenol,2,2'-thio bis (4- chloro-6-methyl	100/10,000	100			4418-66-0
Phenol,2,3,4,6-tetra chloro		10		U212	58-90-2
Phenol,2,4,5-trichloro		10	x	U230	95-95-4
Phenol,2,4,6-trichloro		10	x	U231	88-06-2
Phenol,3-(1-methyl ethyl), methylcarbamate	500/10,000	1##		P202	64-00-6
Phenol, methyl		100			1319-77-3
Phenothrin			x		26002-80-2
Phenoxarsine,10,10'- oxydi-	500/10,000	500			58-36-6
Phenyl dichloroarsine	500	1		P036	696-28-6
p-Phenylenediamine		5000	x		106-50-3
Phenylhydrazine hydrochloride	1000/ 10,000	1000			59-88-1
Phenylmercury acetate	500/10,000	100		P092	62-38-4
Phenylsilatrane	100/10,000	100			2097-19-0
Phenylthiourea	100/10,000	100		P093	103-85-5
Phenytoin			x		57-41-0
Phorate	10	10		P094	298-02-2
Phosacetim	100/10,000	100			4104-14-7
Phosfolan	100/10,000	100			947-02-4
Phosgene	10	10	x	P095	75-44-5
Phosmet	10/10,000	10			732-11-6
Phosphamidon	100	100			13171-21-6
Phosphine	500	100	x	P096	7803-51-2
Phosphonothioic acid methyl-O-(4-nitro phenyl)O-phenyl ester	500	500			2703-13-1
Phosphonothioic acid, methyl-O-ethyl-O- (4- (methylthio)phenyl Ester	100	100			50782-69-9
Phosphonothioic acid, methyl-,s-(2-(bis(1- methylethyl)amino Ethyl o-Ethyl Ester					
Phosphoric acid		5000	x		7664-38-2
Phosphoric acid, dimethyl 4-(methylthio)phenyl ester	500	500			3254-63-5
Phosphorothioic acid, O,O-diethyl, O- pyrazinyl ester		20			56-38-2

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Phosphorothioic acid, O,O-diethyl, O-(4Nitrophenyl) ester	500	100		P040	297-97-2
Phosphorothioic acid, O,O-dimethyl-S-(2-methylthio)ethyl est	500	500			2587-90-8
Phosphorus	100	1	x		7723-14-0
Phosphorus oxychloride	500	1000			10025-87-3
Phosphorus pentachloride	500	500			10026-13-8
Phosphorus pentasulfide		100		U189	1314-80-3
Phosphorus pentoxide	10				1314-56-3
Phosphorus trichloride	1000	1000			7719-12-2
phthalic anhydride		5000			85-44-9
Physostigmine	100/10,000	1##		P204	57-47-6
Physostigmine, salicylate (1:1)	100/10,000	1##		P188	57-64-7
Picloram			x		1918-02-1
Picric acid			x		88-89-1
Picrotoxin	500/10,000	500			124-87-8
Piperidine	1000	1000			110-89-4
Piperonyl butoxide			x		51-03-6
Pirimifos-ethyl	1000	1000			23505-41-1
Piriimiphos methyl			x		29232-93-7
Polychlorinated biphenyls		1	x		1336-36-3
Potassium arsenate		1			7784-41-0
Potassium arsenite	500/10,000	1			10124-50-2
Potassium bichromate		10			7778-50-9
Potassium bromate			x		7758-01-2
Potassium chromate		10			7789-00-6
Potassium cyanide	100	10		P098	151-50-8
Potassium dimethyldithiocarbamate			x	U383	128-03-0
Potassium hydroxide		1000			1310-58-3
Potassium n-methyldithiocarbamate			x	U377	137-41-7
Potassium permanganate		100			7722-64-7
Potassium silver cyanide	500	1		P099	506-61-6
Profenofos			x		41198-08-7
Promecarb	500/10,000	1##		P201	2631-37-0
Prometryn			x		7287-19-6
Pronamide			x		23950-58-5
Propachlor			x		1918-16-7
Propanil			x		709-98-8
Propargite		10	x		2312-35-8
Propargyl alcohol		1000	x	P102	107-19-7
Propargyl bromide	10	10			106-96-7
Propfampfos			x		31218-83-4
Propiconazole			x		60207-90-1
Propiolactone, beta-	500	10	x		57-57-8
Propionaldehyde		1000	x		123-38-6
Propionic acid		5000			79-09-4
Propionic acid, 2-(2,4,5-trichlorophenoxy)-		100		U233	93-72-1
Propionic anhydride		5000			123-62-6
Propenenitrile	500	10		P101	107-12-0
Propenenitrile, 3-chloro-	1000	1000		P027	542-76-7
Propiophenone, 4'-amino-	100/10,000				70-69-9

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Propam		1##		U373	122-42-9
Propoxur		100	x		114-26-1
Propyl chloroformate	500	500			109-61-5
Propylene Dichloride		1000			78-87-5
Propylene (Propene)			x		115-07-1
Propylene oxide	10,000	100	x		75-56-9
Propyleneimine	10,000	1	x	P067	75-55-8
Prosulfocarb		1##		U387	52888-80-9
Prothoate	100/10,000	100			2275-18-5
Pyrene	1000/ 10,000	5000			129-00-0
Pyrethrins		1			121-21-1
Pyrethrins		1			121-29-9
Pyrethrins		1			8003-34-7
Pyridine		1000	x	U196	110-86-1
Pyridine,2-methyl-5- vinyl-	500	500			140-76-1
Pyridine,4-amino-	500/10,000	1000		P008	504-24-5
Pyridine,4-nitro-1- oxide	500/10,000	500			1124-33-0
Pyriminil	100/10,000	100			53558-25-1
Quinoline		5000	x		91-22-5
Quinone		10			106-51-4
Quintobenzene		100			82-68-86
Quizalofop-ethyl			x		76578-14-8
Reserpine		5000		U200	50-55-5
Resmethrin			x		10453-86-8
Salcomine	500/10,000	500			14167-18-1
Sarin	10	10			107-44-8
Selenium		100	x		7742-49-2
Selenium dioxide		10		U204	7446-08-4
Selenium disulfide		10		U205	7448-56-4
Selenium oxychloride	500	500			7791-23-3
Selenious acid	1000/ 10,000	10		U204	7783-00-8
Selenouree		1000		P103	630-10-4
Semicarbazide hydro chloride	1000/ 10,000	1000			563-41-7
Sethoxydim			x		74051-80-2
Silane,(4-aminobutyl) diethoxymethyl-	1000				3037-72-7
Silver		1000	x		7440-22-4
Silver cyanide		1		P104	506-64-9
Silver nitrate		1			7761-88-8
Simazine			x		122-34-9
Sodium		10			7440-23-5
Sodium arsenate	1000/ 10,000	1			7631-89-2
Sodium arsenite	500/10,000	1			7784-46-5
Sodium azide (Na(N3))	500	1000	x	P105	26628-22-8
Sodium bichromate		10			10588-01-9
Sodium bifluoride		100			1333-83-1
Sodium bisulfite		5000			7631-90-5
Sodium cacodylate	100/10,000	100			124-65-2
Sodium chromate		10			7775-11-3
Sodium cyanide (Na(CN))	100	10		P106	143-33-9
Sodium dicamba			x		1982-69-0
Sodium dimethyldithio carbamate			x	U382	128-04-1
Sodium dodecylben zene sulfonate		1000			25155-30-0
Sodium fluoride		1000			7681-49-4
Sodium fluoroacetate	10/10,000	10	x	P058	62-74-8
Sodium hydrosulfide		5000			16721-80-5

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Sodium hydroxide		1000			1310-73-2
Sodium hypochlorite		100			10022-70-5
Sodium hypochlorite		100			7681-52-9
Sodium methylate		1000			124-41-4
Sodium nitrite		100	x		7632-00-0
Sodium pentachlorophenate			x		131-52-2
Sodium o-phenylphenoxide			x		132-27-4
Sodium phosphate, dibasic		5000			10039-32-4
Sodium phosphate, dibasic		5000			10140-65-5
Sodium phosphate, dibasic		5000			7558-79-4
Sodium phosphate, tribasic		5000			10101-89-0
Sodium phosphate, tribasic		5000			10124-56-8
Sodium phosphate, tribasic		5000			10361-89-4
Sodium phosphate, tribasic		5000			7601-54-9
Sodium phosphate, tribasic		5000			7758-29-4
Sodium phosphate, tribasic		5000			7785-84-4
Sodium selenate	100/10,000	100			13410-01-0
Sodium selenite	100/10,000	100			10102-18-8
Sodium selenite		100			7782-82-3
Sodium tellurite	500/10,000	500			10102-20-2
Strannane,acetoxo-triphenyl-	500/10,000	500			900-95-8
Strontium chromate		10			7789-06-2
Strychnine	100/10,000	10		P108	57-24-9
Strychnine, sulfate	100/10,000	10			60-41-3
Styrene		1000	x		100-42-5
Styrene oxide		100	x		96-09-3
Sulfotep	500	100		P109	3689-24-5
Sulfoxide,3-chloropropyl	500	500			3569-57-1
Sulfur dioxide	500	500			7446-09-5
Sulfur monochloride		1000			12771-08-3
Sulfur tetrafluoride	100	100			7783-60-0
Sulfur trioxide	100	100			7446-11-9
Sulfuric acid (acid aerosols including mists, vapors,gas, fog, and airborne forms of any particle size)	1000	1000	x		7664-93-9
Sulfuric acid		1000			8014-95-7
Sulfuric acid, dimethyl ester	1000	100			77-78-1
Sulfurayl fluoride			x		2699-79-8
Sulprrofos			x		35400-43-2
Tabun	10	10			77-81-6
TCDD		1			1746-01-6
Tebuthiuron			x		34014-18-1
Tellurium	500/10,000				13494-80-9
Tellurium hexafluoride	100	100			7783-80-4

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Temephos			x		3383-96-8
Terbacil			x		5902-51-2
Terbufos	100	100			13071-79-9
Tetrabromobisphenol A			x		79-94-7
Tetrachloroethene		100			127-18-4
Tetrahaloroethylene		100			127-18-9
Tetrachlorvinphos			x		961-11-5
Tetracycline hydrochloride			x		64-75-5
Tetraethyldithiopyrphosphate	100	10		P111	107-49-3
Tetraethyllead	100	10		P110	78-00-2
Tetraethyltin	100	100			597-64-8
Tetramethrin			x		7696-12-0
Tetramethyl Lead	100	100			75-74-1
Tetranitromethane	500	10		P112	509-14-8
Thallic oxide		100		P113	1314-32-5
Thallium		1000	x		7440-28-0
Thallium(1) carbonate	100/10,000	100		U215	6533-73-9
Thallium (I)sulfate	100/10,000	100		P115	10031-59-1
Thallium(I)nitrate		100		U217	10102-45-1
Thallium(I)selenide		1000		P114	12039-52-0
Thallos chloride	100/10,000	100		U216	7791-73-9
Thallos malonate	100/10,000	100			2757-18-8
Thallos sulfate	100/10,000	100		P115	7446-18-6
Thiabendazole			x		140-79-8
Thiobencarb			x		28249-77-6
Thiocarbazine	1000/ 10,000	1000			2231-57-4
Thiodicarb		1#	x	U410	59669-26-0
Thiofanox	100/10,000	100		P045	39196-18-4
Thionazin	500	100			297-97-2
Thiophanate ethyl			x		23564-06-9
Thiophanate-methyl		1##	x	U409	23564-05-8
Thiram		10	x	U244	137-26-8
Thiophenol	500	100		P014	108-98-5
Thiosemicarbazide	100/10,000	100	x	P116	79-19-6
Thiourea		10	x		62-56-6
Thiourea,(2-chlorophenyl)-	100/10,000	100		P026	5344-82-1
Thiourea, (2-methylphenyl)-	500/10,000	500			614-78-8
Thorium dioxide			x		1314-20-1
Titanium dioxide			x		13463-67-7
Titanium tetrachloride	100	1000	x		7550-45-0
Toluene		1000			108-88-3
Toluene2,4-diisocyanate	500	100	x		584-84-9
Toluene2,6-diisocyanate	100	100	x		91-08-7
Toluenediamine		10			95-80-7
Toluenediisocyanate		100			584-84-9
o-Toluidine		100			95-53-4
Toxaphene(Camphe clor)		1	x	P123	8001-35-2
trans 1,1-dichloro butene	500				110-57-6
trans-1,3-Dichloropropene			x		10061-02-6
trans-1,4-Dichloro-2-butene	500	500	x		110-57-6
Triadimefon			x		43121-43-3
Triallate		1##	x	U389	2303-17-5
Triamiphos	500/10,000	500			1031-47-6
Triaziquone			x		68-76-8

Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
Triazofos	500	500			24017-47-8
Tribenuron methyl			x		101200-48-0
Tributyltin fluoride			x		1982-10-4
Tributyltin methacry late			x		2155-70-6
S,S,S-Tributyltrithio phosphate			x		78-48-8
Triclopyr, triethylam monium salt			x		57213-69-1
Trichloroacetyl chloride	500	500	x		76-02-8
Trichloro(chlorome thyl) silane	100	100			1558-25-4
Trichloro(dichloro- phenyl) silane	500	500			27137-85-5
Trichloroethene		100			79-01-6
Trichloroethylene		100	x	U228	79-01-6
Trichloroethylsilane	500	500			115-21-9
Trichlorofon		100	x		52-68-6
Trichloronate	500	500			327-98-0
Trichlorophenol		10			25167-82-2
Trichlorophenylsilane	500	500			98-13-5
Triethanolamine dode- cybenzene sulfonate		1000			27323-41-7
Triethoxysilane	500	500			998-30-1
Triethylamine		5000	x		121-44-8
Trifluralin		10	x		1582-09-8
Triforine			x		26644-46-2
Trimethylamine		100			75-50-3
Trimethylchlorosilane	1000	1000	x		75-77-4
Trimethylolpropane phosphite	100/10,000	100			824-11-3
Trimethyltin chloride	500/10,000	500			1066-45-1
Triphenyltin chloride	500/10,000	500	x		639-58-7
Triphenyltin hydroxide			x		76-87-9
Tris(2-chloroethyl) amine	100	100			555-77-1
Trypan blue		10	x	U236	72-57-1
Uracil,5-[bis(2-chloro ethyl)amino]-		10		U237	66-75-1
Uranyl acetate		100			541-09-3
Uranyl nitrate		100			10102-06-4
Uranyl nitrate		100			36478-76-9
Urea, N-methyl -N-nitroso		1			
Urethane		100			51-79-6
Valinomycin	1000/ 10,000	1000			2001-95-8
Vanadium(fume or dust)			x (except when contined in an alloy)		7440-62-2
Vanadium pentoxide	100/10,000	1000		P120	1314-62-1
Vanadyl sulfate		1000			27774-13-6
Vinclozolin			x		50471-44-8
Vinyl acetate, monomer	1000	5000	x		108-05-4
Vinyl bromide		100	x		593-60-2
Vinylidenechloride		100			75-35-4
Warfarin	500/10,000	100		P001	81-81-2
Warfarin sodium	100/10,000	100			129-06-6
Xylene		100			1330-20-7
m-Xylene		1000			108-38-3
o-Xylene		1000			95-47-6
p-Xylene		100			106-42-3
Xylene, isomers and		100			1330-20-7



Chemical Name	Extremely Haz Sub 40 CFR 355 (lb)	Haz Sub RQ 40 CFR 302.4 (lb)	Toxic Chemicals 40 CFR 372.65(a)	Haz Mat which are RCRA wastes	CAS No.
mixture					
Xylene, mixed		100			1330-20-7
Xylenol		1000			1300-71-6
Xylene dichloride	100/10,000	100			28347-13-9
Zinc		1000	x		7440-66-6
Zinc acetate		1000			557-34-6
Zinc ammonium chlo ride		1000			52628-25-8
Zinc ammonium chlo ride		1000			14639-97-5
Zinc ammonium chlo ride		1000			14639-98-6
Zinc borate		1000			1332-07-6
Zinc bromide		1000			7699-45-8
Zinc carbonate		1000			3486-35-9
Zinc chloride		1000			7646-85-7
Zinc cyanide		10		P121	557-21-1
Zinc, dichloro(4,4- dimethyl-5(( methylamino) carbnyl)oxy)imino) Pentane-nitrile)-,(T-4)	100/10,000	100			58270-08-9
Zinc fluoride		1000			7783-49-5
Zinc formate		1000			557-41-5
Zinc hydrosulfite		1000			7779-86-4
Zinc nitrate		1000			7779-88-6
Zinc phenolsulfonate		5000			127-82-2
Zinc phosphide	500	100		P122	1314-84-7
Zinc silicofluoride		5000			16871-71-9
Zinc sulfate		1000			7733-02-0
Zineb			x		12122-67-7
Ziram		1##		P205	137-30-4
Zirconium nitrate		5000			13746-89-9
Zirconium potassium fluoride		1000			16923-95-8
Zirconium sulfate		5000			14644-61-2
Zirconium tetrachloride		5000			10026-11-6



### Appendix 3-1a

#### Lower Thresholds for Chemicals of Special Concern (40 CFR 372.28) [Added April 2000]

##### Chemical Listing in Alphabetic Order.

Chemical Name	CAS NO.	Reporting Threshold
Aldrin	00309-00-2	100
Benzo(g,h,i)perylene	00191-24-2	10
Chlordane	00057-74-9	10
Heptachlor	00076-44-8	10
Hexachlorobenzene	00118-74-1	10
Isodrin	00465-73-6	10
Mercury	07439-97-6	10
Methoxychlor	00072-43-5	100
Octachlorostyrene	29082-74-4	10
Pendimethalin	40487-42-1	100
Pentachlorobenzene	00608-93-5	10
Polychlorinated biphenyl (PCBs)	01336-36-3	10
Tetrabromobisphenol A	00079-94-7	100
Toxaphene	08001-35-2	10
Trifluralin	01582-09-8	100

##### Chemical Categories in Alphabetic Order

Category name	Reporting threshold
<p>Dioxin and dioxin-like compounds (Manufacturing; and the processing or otherwise use of dioxin and dioxin-like compounds if the dioxin and dioxin-like compounds are present as contaminants in a chemical and if they were created during the manufacturing of that chemical) (This category includes only those chemicals listed below).</p> <ul style="list-style-type: none"> <li>- 1,2,3,4,6,7,8-Heptachlorodibenzofuran</li> <li>- 1,2,3,4,7,8,9-Heptachlorodibenzofuran</li> <li>- 1,2,3,4,7,8-Hexachlorodibenzofuran</li> <li>- 1,2,3,6,7,8-Hexachlorodibenzofuran</li> <li>- 1,2,3,7,8,9-Hexachlorodibenzofuran</li> <li>- 2,3,4,6,7,8-Hexachlorodibenzofuran</li> <li>- 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin</li> <li>- 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin</li> <li>- 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin</li> <li>- 1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin</li> </ul>	0.1 grams

Category name	Reporting threshold
<ul style="list-style-type: none"> <li>- 1,2,3,4,6,7,8,9-Octachlorodibenzofuran</li> <li>- 1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin</li> <li>- 1,2,3,7,8-Pentachlorodibenzofuran</li> <li>- 2,3,4,7,8-Pentachlorodibenzofuran</li> <li>- 1,2,3,7,8-Pentachlorodibenzo-p-dioxin</li> <li>- 2,3,7,8-Tetrachlorodibenzofuran</li> <li>- 2,3,7,8 Tetrachlorodibenzo-p-dioxin</li> </ul>	
Mercury compounds	10
<p>Polycyclic aromatic compounds (PACs) (This 100 category includes only those chemicals listed below).</p> <ul style="list-style-type: none"> <li>- Benz(a)anthracene</li> <li>- Benzo(b)fluoranthene</li> <li>- Benzo(j)fluoranthene</li> <li>- Benzo(k)fluoranthene</li> <li>- Benzo(j,k)fluorene</li> <li>- Benzo(r,s,t)pentaphene</li> <li>- Benzo(a)phenanthrene</li> <li>- Benzo(a)pyrene</li> <li>- Dibenz(a,h)acridine</li> <li>- Dibenz(a,j)acridine</li> <li>- Dibenzo(a,h)anthracene</li> <li>- 7H-Dibenzo(c,g)carbazole</li> <li>- Dibenzo(a,e)fluoranthene</li> <li>- Dibenzo(a,e)pyrene</li> <li>- Dibenzo(a,h)pyrene</li> <li>- Dibenzo(a,l)pyrene</li> <li>- 7,12-Dimethylbenz(a)anthracene</li> <li>- Indeno[1,2,3-cd]pyrene</li> <li>- 3-Methylcholanthrene</li> <li>- 5-Methylchrysene</li> <li>- 1-Nitropyrene</li> </ul>	100

**Appendix 3-2**

**Maximum Allowable Capacity of Containers and Portable Tanks  
(29 CFR 1910.106(d)(2), Table H-12)**

Container Type	Flammable Liquids			Combustible Liquids	
	Class IA	Class IB	Class IC	Class II	Class III
Glass or approved plastic	1 pt	1 qt	1 gal	1 gal	1 gal
Metal (other than DOT drums)	1 gal	5 gal	5 gal	5 gal	5 gal
Safety cans	2 gal	5 gal	5 gal	5 gal	5 gal
Metal drums (DOT specifications)	60 gal	60 gal	60 gal	60 gal	60 gal
Approved portable tanks	660 gal	660 gal	660 gal	660 gal	660 gal



Appendix 3-3

Storage in Inside Rooms  
(29 CFR 1910.106(d)(4), Table H-13)

Fire Protection Provided <sup>1</sup>	Fire Resistance (hours)	Maximum Size	Total Allowable Quantities (gal/ft <sup>2</sup> floor area)
Yes	2	500 ft <sup>2</sup>	10
No	2	500 ft <sup>2</sup>	5
Yes	1	150 ft <sup>2</sup>	4
No	1	150 ft <sup>2</sup>	2

<sup>1</sup>Fire protection system will be sprinkler, water spray, or other approved method.





**Appendix 3-4**

**Flammable/Combustible Materials  
(29 CFR 1910.106(d)(5) and 1910.106(d)(6), Tables H-14 through H-17)**

**Indoor Container Storage**

<b>Class</b>	<b>Liquid Storage Level</b>	<b>Protected Storage Maximum per Pile</b>	<b>Unprotected Storage Minimum per Pile</b>
A	Ground and upper floors	2750 gal (50)	600 gal (12)
	Basement	Not permitted	Not permitted
B	Ground and upper floors	5500 gal (100)	1375 gal (25)
	Basement	Not permitted	Not permitted
C	Ground and upper floors	16,500 gal (300)	4125 gal (75)
	Basement	Not permitted	Not permitted
II	Ground and upper floors	16,500 gal (300)	4125 gal (75)
	Basement	5500 gal (100)	Not permitted
III	Ground and upper floors	55,000 gal (1000)	13,750 gal (250)
	Basement	8250 gal (450)	Not permitted

(NOTE: Numbers in parenthesis indicate corresponding number of 55-gal drums.)

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate maximum gallonages.

NOTE 2: Aisles will be provided so that no container is more than 12 ft from an aisle.  
Main aisles will be at least 3-ft wide and side aisles at least 4-ft wide.

NOTE 3: Each pile shall be separated from the others by at least 4 ft.

### Outdoor Container Storage

1 Class	2 Maximum per pile (gal)	3 Distance between piles (ft)	4 Distance to property line that can be built upon (ft)	5 Distance to street, alley or public way (ft)
IA	1100	5	20	10
IB	2200	5	20	10
IC	4400	5	20	10
II	8800	5	10	5
III	22,000	5	10	5

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate gallonages.

NOTE 2: Within 200 ft of each container, there will be a 12-ft wide access way to permit approach of fire control apparatus.

NOTE 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures and such protection for exposures does not exist, the distances in column 4 will need to be doubled.

NOTE 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distance in columns 4 and 5 may be reduced 50 percent, but not less than 3 ft.

### Indoor Portable Tank Storage

Class Liquid	Storage Level	Protected Storage Maximum per Pile (gal)	Unprotected Storage Minimum per Pile (gal)
IA	Ground and upper floors Basement	Not permitted Not permitted	Not permitted Not permitted
IB	Ground and upper floors Basement	20,000 Not permitted	2000 Not permitted
IC	Ground and upper floors Basement	40,000 Not permitted	5500 Not permitted
II	Ground and upper floors Basement	40,000 20,000	5500 Not permitted
III	Ground and upper floors Basement	60,000 20,000	22,000 Not permitted

NOTE 1: When one or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate maximum gallonages.

NOTE 2: Aisles will be provided so that no container is more than 12 ft from an aisle. Main aisles will be at least 3-ft wide and side aisles at least 4-ft wide.

NOTE 3: Each pile shall be separated from each other by at least 4 ft.

### Outdoor Portable Tank Storage

1 Class	2 Maximum per pile (gal)	3 Distance between piles (ft)	4 Distance to property line that can be built upon (ft)	5 Distance to street, alley, or public way (ft)
IA	2200	5	20	10
IB	4400	5	20	10
IC	8800	5	20	10
II	17,600	5	10	5
III	44,000	5	10	5

NOTE 1: When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile will be the smallest of the two or more separate gallonages.

NOTE 2: Within 200 ft of each container, there will be a 12-ft wide access way to permit approach of fire control apparatus.

NOTE 3: The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 4 will be doubled.

NOTE 4: When total quantity stored does not exceed 50 percent of maximum per pile, the distance in columns 4 and 5 may be reduced 50 percent, but not less than 3 ft.

### Appendix 3-5

#### Hazardous Materials/Hazardous Waste Storage Incompatibility Chart

**Substances in bold have detailed example lists on the next page.**

If the material contains:	It may not be stored with any of the following:
Acid (pH below 2.0)	<b>Caustics</b> (pH above 12.5) <b>Reactive Metals</b> Alcohol Water Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b> Spent Cyanide and Sulfide Solutions <b>Oxidizers</b>
Caustic (pH above 12.5)	<b>Acid</b> (pH below 2.0) <b>Reactive Metals</b> Alcohol Water Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b>
Reactive Metals	<b>Caustics</b> <b>Acids</b> Alcohol Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b> <b>Oxidizers</b>
Reactive Organic Compounds and Solvents	<b>Caustics</b> <b>Acids</b> <b>Reactive Metals</b>
Spent Cyanide and Sulfide Solutions	<b>Acids</b>
Oxidizers	Acetic or Other Organic Acids Concentrated Mineral Acids <b>Reactive Metals</b> <b>Reactive Organic Compounds and Solvents</b> <b>Ignitable [Flammable/Combustible] Wastes*</b>

\* "Ignitable" in this context refers to substances with a flashpoint below 140 × °F, and includes:  
 Combustible substances, with a flashpoint below 140 × °F  
 Flammable substances, with a flashpoint below 100 × °F.

#### Some Deadly Combinations

Acids + Oil or Grease = Fire      Flammable Liquids + Hydrogen Peroxide = Fire/Explosion  
 Acids + Caustics = Heat/Spattering      Aluminum Powder + Ammonium Nitrate = Explosion  
 Caustics + Epoxies = Extreme Heats      Sodium Cyanide + Sulfuric Acid = Lethal Hydrogen Cyanide  
 Chlorine Gas + Acetylene = Explosion      Ammonia + Bleach = Noxious Fumes

In general: **Reactives** must be segregated from **Ignitables**  
**Acids** must be segregated from **Caustics**  
**Corrosives** should be segregated from **Flammables**  
**Oxidizers** should be segregated from **EVERYTHING**  
**Many Corrosives** are "Water Reactive"  
**Most Organic Reactives** must be segregated from **Inorganic Reactives** (metals)

Ignitables (Flammables/Combustibles)	Corrosives	
	Acids	Caustics
Carburetor Cleaners Engine Cleaners Epoxy, Resins, Adhesives, and Rubber Cements Finishes Fuels Lacquers Paints Paint Thinners Paint Wastes Pesticides that contain Solvents (such as Methyl Alcohol, Ethyl Alcohol, Isopropyl Alcohol, Toluene, Xylene). Petroleum Solvents (Drycleaning Fluid) Solvents: Acetone Benzene Carbon Tetrachloride (Carbon Tet) Ethanol (Ethyl Alcohol) Ethyl Benzene Isopropanol (Isopropyl Alcohol) Kerosene (Fuel Oil #1) Methanol (Wood Alcohol) Methyl Ethyl Ketone (MEK) Petroleum Distillates Tetrahydrofuran (THF) Toluene (Methacide, Methylbenzene, Methylbenzol, Phenylmethane, Toluol, Antisal 1A) White Spirits (White Spirits, Mineral Spirits, Naptha) Xylene (Xylol) Stains Stripping Agents Varsol Waste Fuels Waste Ink Wax Removers Wood Cleaners	Battery Acids Degreasers and Engine Cleaners Etching Fluids Hydrobromic Acid Hydrochloric Acid (Muriatic Acid) Nitric Acid (<40%) (Aquafortis) Phosphoric Acid Rust Removers Sulfuric Acid (Oil of Vitriol)	Acetylene Sludge Alkaline Battery Acids Alkaline Cleaners Alkaline Degreasers Alkaline Etching Fluids Lime and Water Lime Wastewater Potassium Hydroxide (Caustic Potash) Rust Removers Sodium Hydroxide (Caustic Soda, Soda Lye)
	<hr/> <b>Reactive Metals</b> <hr/> Lithium (Batteries) Aluminum Beryllium Calcium Magnesium Sodium Zinc Powder	<hr/> <b>Reactive Organic Compounds and Solutions</b> <hr/> Alcohols Aldehydes Chromic Acids (from chrome plating, copper stripping and aluminum anodizing) Cyanides (from electroplating operations) Hypochlorides (from water treatment plants, swimming pools, sanitizing operations) Organic Peroxides (including Hydrogen Peroxide) Perchlorates Permanganates Sulfides
	<b>Oxidizers</b> Chlorine Gas Nitric Acid (>40%), aka Red Fuming Nitric Nitrates (Sodium Nitrate, Ammonium Nitrate) Perchlorates Perchloric Acid Peroxides Calcium Hypochlorite (>60%)	

## Appendix 3-6

### Placarding Guidelines

The following table specifies placards that should be used for the transportation of ANY QUANTITY of the listed hazardous material.

#### Hazardous Materials

<i>Classed or Described As</i>	<i>Placards</i>
Class A Explosives	EXPLOSIVES A
Class B Explosives	EXPLOSIVES B
Poison A	POISON GAS
Flammable Solid	FLAMMABLE SOLID

(NOTE: Any of the above substances that are dangerous when wet should also have the placard: DANGEROUS WHEN WET, in addition to their primary placard.)

The following table specifies placards that should be used for the transportation of 1000 lb or more of the listed hazardous materials.

#### Hazardous Materials

<i>Classed or Described As</i>	<i>Placards</i>
Class C Explosives	FLAMMABLE
Nonflammable Gas	NONFLAMMABLE GAS
Nonflammable Gas (Chlorine)	CHLORINE
Nonflammable Gas (Fluorine)	POISON
Nonflammable Gas (Oxygen, pressurized liquid)	OXYGEN
Flammable Gas	FLAMMABLE GAS
Combustible Liquid	COMBUSTIBLE
Flammable Liquid	FLAMMABLE
Flammable Solid	FLAMMABLE SOLID
Oxidizer	OXIDIZER
Organic Peroxide	ORGANIC PEROXIDE
Poison B	POISON
Corrosive Material	CORROSIVE
Irritating Material	DANGEROUS

1. Placards should be affixed on both sides, rear and front, of the motor vehicle.
2. Place placards clear of ladders, pipes, and tarps.
3. Placards should be at least 3 in. away from advertising and markings.
4. The DANGEROUS placards may be used when a motor vehicle contains two or more classes of hazardous materials requiring different placards. The DANGEROUS placard may be used in place of the separate placards for each class.
5. Portable tanks having a rated capacity of 1000 gal or more must be placarded.
6. Cargo tanks having any quantity of hazardous material must be placarded.





**Appendix 3-7**  
**American Table of Distances for Storage of Explosives<sup>1-5</sup>**  
**(29 CFR 1910.109(c)(1) Table H-21)[Added August 1999]**

Explosives		Distance in feet when storage is barricaded: Separation of Magazines
Pounds over	Pounds not over	
2	5	6
5	10	8
10	20	10
20	30	11
30	40	12
40	50	14
50	75	15
75	100	16
100	125	18
125	150	19
150	200	21
200	250	23
250	300	24
300	400	27
400	500	29
500	600	31
600	700	32
700	800	33
800	900	35
900	1000	36
1000	1200	39
1200	1400	41
1400	1600	43
1600	1800	44
1800	2000	45
2000	2500	49
2500	3000	52
3000	4000	58
4000	5000	61
5000	6000	65
6000	7000	68
7000	8000	72
8000	9000	75
9000	10,000	78
10,000	12,000	82
12,000	14,000	87
14,000	16,000	90
16,000	18,000	94
18,000	20,000	98
20,000	25,000	105
25,000	30,000	112
30,000	35,000	119
35,000	40,000	124
40,000	45,000	129
45,000	50,000	135

50,000	55,000	140
55,000	60,000	145
60,000	65,000	150
65,000	70,000	155
70,000	75,000	160
75,000	80,000	165
80,000	85,000	170
85,000	90,000	175
90,000	95,000	180
95,000	100,000	185
100,000	110,000	195
110,000	120,000	205
120,000	130,000	215
130,000	140,000	225
140,000	150,000	235
150,000	160,000	245
160,000	170,000	255
170,000	180,000	265
180,000	190,000	275
190,000	200,000	285
200,000	210,000	295
210,000	230,000	315
230,000	250,000	335
250,000	275,000	360
275,000	300,000	385

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<sup>1</sup>Natural Barricade - natural features of the ground, such as hills, or timber of sufficient density that the surrounding exposures which require protection cannot be seen from the magazine when the trees are bare of leaves.

<sup>2</sup>Artificial Barricade - an artificial mound or revetted wall of earth of a minimum thickness of 3 ft.

<sup>3</sup>Barricade - when a building containing explosives is effectually screened from a magazine, building, railway, or highway, either by a natural barricade, or by an artificial barricade of such height that a straight line from the top of any sidewall of the building containing explosives to the eave line of any magazine, or building, or to a point 12 ft above the center of a railway or highway, will pass through such intervening natural or artificial barricade.

<sup>4</sup>(NOTE: when two or more storage magazines are located on the same property, each magazine must comply with the minimum distances specific from inhabited buildings, railways, and highways, and in addition, they should be separated from each other by not less than the distances shown for Separation of Magazines, except that the quantity of explosives contained in cap magazines shall govern in regard to the spacing of said cap magazines from magazines containing other explosives. If any two or more magazines are separated from each other by less than the specific Separation of Magazines distances, then such two or more magazines, as a group, must be considered as one magazine, and the total quantity of explosives stored in such group must be treated as if stored in a single magazine located on the site of any magazine of the group, and must comply with the minimum of distances specified from other magazines, inhabited buildings, railways, and highways.

<sup>5</sup>This table applies only to the permanent storage of commercial explosives. It is not applicable to transportation of explosives, or any handling or temporary or incidental thereto. It is not intended to apply to bombs, projectiles, or other heavily encased explosives.

## SECTION 4

### HAZARDOUS WASTE MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section applies to FWS facilities that generate, store, transport, treat, or dispose of any type of hazardous waste. Federal regulations establish different regulatory requirements based on the amount of hazardous waste generated.

This section and its associated evaluation checklists are more complex than other sections in this volume. Not all evaluation items will be applicable to a facility. Guidance is provided on the checklists to direct the evaluator to the regulations concerning the type of hazardous waste activities/facilities on the facility. This section does not include the requirements which apply to the operation and management of a treatment, storage, or disposal facility since the large majority of FWS facilities do not fall under this classification.

Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to Federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised, or added in July 2000, for example [Added July 2000].

#### B. Federal Legislation

- *The Resource Conservation and Recovery Act (RCRA)*. RCRA of 1976, which amended the Solid Waste Disposal Act, addresses nonhazardous (Subtitle D) and hazardous (Subtitle C) waste management activities. The Hazardous and Solid Waste Amendments (HSWA) of 1984 strengthened RCRA's waste management provisions and added Subtitle I, which governs underground storage tanks (USTs). This section addresses Subtitle C requirements. See Solid Waste Management for Subtitle D requirements and Storage Tank Management for Subtitle I requirements [Revised July 2000].

Regulations promulgated pursuant to Subtitle C of RCRA (40 CFR 260 through 299) establish a "cradle-to-grave" system governing hazardous waste from the point of generation to disposal. RCRA hazardous wastes include the specific materials listed in the regulations (commercial chemical products designated with the code "P" or "U", hazardous wastes from specific industries/sources designated with the code "K", or hazardous wastes from non-specific sources, designated with the code "F") or materials that exhibit a hazardous waste characteristic (ignitability, corrosivity, reactivity, or toxicity and designated with the code "D").

Regulated entities that generate hazardous waste are subject to waste accumulation, manifesting, and record keeping standards. Facilities generally must obtain a permit either from U.S. EPA or from a state agency that U.S. EPA has authorized to implement the permitting program if they

store hazardous wastes for more than 90 days before treatment or disposal. Facilities may operate less-than-90-day tanks or containers of hazardous wastes without a permit. Subtitle C permits contain general facility standards, such as contingency plans, emergency procedures, record keeping and reporting requirements, financial assurance mechanisms, and unit-specific standards. RCRA also contains provisions (40 CFR 264, Subpart S and Section 264.101) for conducting corrective actions that govern the cleanup of releases of hazardous waste or constituents from solid waste management units at RCRA treatment, storage, and disposal facilities.

Many operations and organizations may have numerous operations that result in the generation and management of different types of solid and hazardous waste. These operations may be subject to specific parts of RCRA, depending on the type of waste generated, its management (e.g., stored, transported), and its disposal. Most RCRA requirements are not industry specific but apply to any entity that generates, transports, treats, stores, or disposes of hazardous waste. The following are some important RCRA regulatory requirements:

- **Identification of Solid and Hazardous Wastes** (40 CFR 261) delineates the procedure every generator must follow in determining whether the material in question is considered a hazardous waste or solid waste or is exempted from regulation.
- **Standards for Generators of Hazardous Waste** (40 CFR 262) establish the responsibilities of hazardous waste generators. These include obtaining a U.S. EPA identification number, preparing a manifest, ensuring proper packaging and labeling, meeting standards for waste accumulation units, and meeting record keeping and reporting requirements. Providing they meet additional requirements described in 40 CFR 262.34, generators may accumulate hazardous waste for up to 90 days (or 180 or 270 days depending on the amount of waste generated and the distance the waste will be transported).
- **Land Disposal Restrictions (LDRs)** (40 CFR 268) are regulations prohibiting the disposal of hazardous waste on land without prior treatment. Under the LDR program, materials must meet LDR treatment standards prior to placement in a RCRA land disposal unit (landfill, land treatment unit, waste pile, or surface impoundment). Generators of waste subject to the LDR must provide notification of such to the designated TSD facility to ensure proper treatment prior to disposal.
- **Used Oil Management Standards** (40 CFR 279) impose management requirements affecting the storage, transportation, burning, processing, and re-refining of the used oil. For parties that merely generate used oil, regulations establish storage standards. For a party considered a used oil processor, re-refiner, burner, or marketer (one who generates and sells off-specification used oil directly to a used oil burner), additional tracking and paperwork requirements must be satisfied. These requirements are addressed in the section titled POL Management.
- **Tanks and Containers**, as well as any unit, used to store, treat, or dispose of hazardous waste, are regulated under RCRA. Tanks and containers used to store hazardous waste with a high volatile organic concentration must meet emission standards under RCRA. Regulations (40 CFR 264-265, Subpart CC) require generators to test the waste to determine the concentration of the waste, to satisfy tank and container emissions standards, and to inspect and monitor regulated units. These regulations apply to all facilities that store such waste, including large quantity generators accumulating waste prior to shipment off-site. Storage tanks are addressed in the section titled Storage Tank Management.

- **Boilers and Industrial Furnaces** (BIFs) that use or burn fuel containing hazardous waste must comply with design and operating standards. BIF regulations (40 CFR 266, Subpart H) address unit design, provide performance standards, require emissions monitoring, and restrict the type of waste that may be burned.
- *The Federal Facility Compliance Act* (FFCA) of 1992. This act provides for a waiver of sovereign immunity with respect to Federal, state, and local procedural and substantive requirements relating to RCRA solid and hazardous waste laws and regulations. Additionally, it defines hazardous waste in relation to public vessels, expands the definition of mixed waste, addresses the issue of munitions, and discusses waste discharges to Federally owned treatment works (FOTWs).
- *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA) of 1980. This act was amended by the *Superfund Amendments and Reauthorization Act* (SARA) of 1986, 42 USC 9601-11050 and 10 USC 2701-2810 et. al. This act has four basic elements. The first element is the establishment of an information gathering and analysis system for the characterization of contaminated sites. This information is used in the development of the USEPA's National Priorities List (NPL). The second element is the establishment of Federal authority to respond to hazardous substance emergencies and cleanup leaking sites. The third element is the creation of a trust fund to pay for removal and remedial actions. The fourth element makes persons who are responsible for hazardous substance releases liable for cleanup and restitution costs.
- *Community Environmental Response Facilitation Act*. This act, PL 102-426, amends CERCLA. It requires that prior to the termination of Federal activities on any real property owned by the Federal Government, agencies must identify real property where no hazardous substance was stored, released, or disposed of. The purpose is to identify property that offers the greatest opportunity for reuse and redevelopment.
- Executive Order (EO) 12580, *Superfund Implementation*. This EO, dated 23 January 1987, mandates the development of the National Response Team (NRT) and relegates authority for various functions related to Superfund from the President to other Federal agencies.
- Federal regulations used to develop the checklist include:
  - 40 CFR 260, *Hazardous Waste Management System: General*.
  - 40 CFR 261, *Identification and Listing of Hazardous Waste*.
  - 40 CFR 262, *Standards Applicable to Generators of Hazardous Waste*.
  - 40 CFR 263, *Standards Applicable to Transporters of Hazardous Waste*.
  - 40 CFR 264, *Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities*.
  - 40 CFR 265, *Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities*.
  - 40 CFR 266, *Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities*.
  - 40 CFR 268, *Land Disposal Restrictions*.
  - 49 CFR 172-179, *Transportation Regulations*.

### C. State/Local Regulations

Many states have met the U.S. Environmental Protection Agency (USEPA) requirements in 40 CFR 271 and have been authorized to manage their own state programs. RCRA encourages states to

develop their own hazardous waste statutes and to operate regulatory programs. Many states have adopted the USEPA regulations by reference or have promulgated regulations which are identical to the USEPA regulations, while other states have promulgated regulations stricter than the Federal RCRA. These differences between individual state regulations and the Federal program require that evaluators check the status of the state's authorization and then determine which regulations apply. Since the section checklists are based exclusively on the requirements of the Federal RCRA/USEPA program, it is necessary to determine in what ways the applicable state program differs from the RCRA/USEPA program.

#### D. FWS/DOI Manuals

- 561 FW 6, *Compliance Requirements RCRA - Hazardous Waste*. This chapter, dated 9 July 1995, provides guidance for RCRA hazardous waste management at Service facilities.

#### E. Key Compliance Requirements

- Generator Requirements - Responsibilities of facilities are based on the amount of waste being generated in 1 mo. Typical wastes include solvents, paint, contaminated antifreeze or oil, and sludges. In some states, used oil and other substances have been classified as a hazardous waste and therefore need to be included in the total amount of waste being generated. Within Federal regulations there are three classifications:
  1. A conditionally exempt small quantity generator (CESQG) produces no more than 100 kg [≈ 220 lb] of hazardous waste and no more than 1 kg [≈ 2.20 lb] of acute hazardous waste in any calendar month. They cannot generate more than 100 kg [≈ 220 lb] in one month of any residue or contaminated soil, waste, or other debris from the clean-up of a spill, into or on any land or water, of any acute hazardous wastes. They also do not accumulate onsite more than 1000 kg [≈ 2205 lb] of hazardous waste and no more than 1 kg [≈ 2.20 lb] of acute hazardous waste at any one time. When either the volume of waste produced in 1 mo exceeds 100 kg [≈ 220 lb] of nonacutely hazardous waste or more than 1 kg [≈ 2.20 lb] of acutely hazardous waste or more than 1000 kg [≈ 2205 lb] of waste has accumulated onsite, the facility is required to comply with the more stringent standards applicable to a small quantity generator (SQG) or a Generator.
  2. An SQG produces between 100 [≈ 220 lb] and 1000 kg [≈ 2205 lb] of hazardous waste and no more than 1 kg [≈ 2.20 lb] acute hazardous waste in any calendar month. They cannot generate more than 100 kg [≈ 220 lb] in one month of any residue or contaminated soil, waste, or other debris from the clean-up of a spill, into or on any land or water, of any acute hazardous wastes. The waste cannot accumulate onsite for more than 180 days unless the waste must be transported more than 200 mi to a TSDF. In that situation, the waste can accumulate for 270 days. But at no time is there to be more than 6000 kg [≈ 13,227 lb] of waste accumulated at the facility. When the accumulation time onsite is exceeded, or more than 6000 kg [≈ 13,227 lb] of waste is onsite, the facility is required to apply for a permit and comply with the standards of 40 CFR 264 and 40 CFR 265.
  3. A Generator produces 1000 kg [≈ 2205 lb] or more of hazardous waste or more than 1 kg [≈ 2.20 lb] acute hazardous waste in any calendar month. This classification is sometimes referred to as a large quantity generator.

(NOTE: Using water, which weighs 8.34 lb/gal [≈ 3.78 kg/gal] as a basis of measurement, 100 kg [≈ 220 lb] would equal about 26.5 gal [≈ 100 L], 1000 kg [≈ 2205 lb] would equal about 265 gal [≈ 1003 L]).

Whether the facility is a CESQG, an SQG, or a Generator determines the type of records the facility is required to keep and design standards for storage areas. Storage areas connected with a generation point are often referred to as accumulation points.

Regardless of the amount of hazardous waste generated, every facility is required to test or use knowledge of materials or processes used to determine if it is a listed hazardous waste or has hazardous characteristics. Every facility is also required to store and/or accumulate hazardous waste in containers that are compatible with the waste, undamaged, and labeled to indicate the contents.

#### Comparison of RCRA Generator Requirements

Requirement	CESQG	SQG	Generator
Identify HW	Yes	Yes	Yes
Quantity Limits	< 100 kg/mo [≈ 220 lb/m]	100 kg/mo [≈ 220 lb] - 1000 kg/mo [≈ 2205 lb]	> 1000 kg/mo [≈ 2205 lb/mo]
Acute Waste Limits	< 1 kg/mo [≈ 2.20 lb/mo]	< 1 kg/mo [≈ 2.20 lb/mo]	any quantity
Facility Receiving Waste	State approved or RCRA permitted	RCRA permitted facility	RCRA permitted facility
USEPA ID Number	Not Required	Required	Required
RCRA Personnel Training	Not Required	Basic Training Required	Required
DOT Training	Required	Required	Required
Exception Report	Not Required	Required > 60 days	Required > 45 days
Biennial Report	Not Required	Not Required	Required
Onsite Accumulation Limits (without permit)	< 1000 kg [≈ 2205 lb] hazardous waste < 1 kg [≈ 2.20 lb] acutely hazardous waste	< 6000 kg [≈ 13,228 lb] hazardous waste < 1 kg [≈ 2.20 lb] acutely hazardous waste	Any quantity
Accumulation Time Limits (without permit)	None	< 180 days or < 270 days (> 200 mi)	< 90 days + 30 days granted by USEPA
Storage Requirements	None	Basic requirements with technical standards for containers or tanks	Full compliance with management of containers or tanks
Use Manifests	No	Yes*	Yes

\* Unless the waste is reclaimed under contractual agreement and properly marked and labeled.

- Transport Requirements - Containers of hazardous waste shipped offsite must be labeled to identify the waste and its hazard class. Transporters of hazardous waste required to be manifested must have a USEPA identification number and must comply with manifest management requirements.

- **Accumulation Point Management** - An accumulation point is an area where hazardous waste is accumulated or stored before being turned in for disposal. Storage in these areas is temporary, and the permissible length of time for accumulation depends on what size generator the facility is.
- **Satellite Accumulation Point Management** - A satellite accumulation point is an area at which no more than 55 gal of a hazardous waste or 1 qt of an acute hazardous waste is accumulated at or near the point of generation. The satellite accumulation point is under the control of one operator of the process generating the waste. When the 55 gal limit is reached the operator has 3 days to move the waste to a 90-day or permitted storage area or a permitted TSDF. These standards only apply to an SQG or a Generator.
- **Universal Wastes** - These requirements apply to batteries, pesticides, and thermostats as defined in 40 CFR 273. There are alternate standards for the handling of these wastes instead of the requirements found in 40 CFR 260 through 272. Handlers can be classified as either a large quantity handler of universal waste (5000 kg [ $\approx$  11,111 lb] or more in 1 yr) or a small quantity handler of universal waste (less than 5000 kg [ $\approx$  11,111 lb] in 1 yr). Depending on classification, the handler has to meet requirements concerning management of the waste, marking and labeling, notifications, and transportation. Additionally, there are standards for universal waste transporters and universal waste destination facilities (40 CFR 273). These regulations are only effective upon adoption by the state RCRA program, except in those areas without an authorized program.
- **Recordkeeping** - Regardless of the regulatory requirements concerning the length of time records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### **F. Key Compliance Definitions**

- **Aboveground Tank** - in relation to hazardous waste, a device that meets the definition of a tank in 40 CFR 260.10 and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected (40 CFR 260.10) [Reviewed July 2000].
- **Active Life** - the period from the initial receipt of hazardous waste at the facility until the Regional Administrator receives certification of final closure (40 CFR 260.10).
- **Acute Hazardous Waste** - any waste listed under 40 CFR 261.31 - 261.33(c) with a hazard code of H. These include USEPA Hazardous waste numbers: F020, F021, F022, F023, F026, and F027 (40 CFR 261.31 through 261.33).
- **Aquifer** - a geologic formation or group of formations, or part of a formation, capable of yielding a significant amount of groundwater to wells or springs (40 CFR 260.10).
- **Average Volatile Organic (VO) Concentration** - the mass-weighted average VO concentration of a hazardous waste (40 CFR 265.1081).
- **Battery** - a device consisting of one or more electrically connected electrochemical cells which is designed to receive, store, and deliver electric energy. An electrochemical cell is a system consisting of an anode, cathode, and an electrolyte, plus such connections (electrical and mechanical) as may be needed to allow the cell to deliver or receive electrical energy. The term



battery also includes an intact, unbroken battery from which the electrolyte has been removed (40 CFR 260.10 and 273.9).

In relation to the concept of universal wastes, this term includes all batteries except the following (40 CFR 273.2(b)):

1. Spent lead acid batteries that are managed under 40 CFR 266, Subpart G (reclamation of spent lead acid batteries that are recyclable).
2. Batteries as defined above that are not yet wastes under 40 CFR 261, including those that do not meet the criteria for waste generation (see definition of Waste Battery).
3. Batteries as defined above that are not hazardous waste. A battery is a hazardous waste if it exhibits one or more of the characteristics identified in 40 CFR 261, Subpart C [**Revised April 2000**].

See also the definition of waste battery.

- *Boiler* - an enclosed device using controlled flame combustion and having the following characteristics (40 CFR 260.10):
  1. The unit has physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases.
  2. The unit's combustion chamber and primary energy recovery section(s) must be of integral design.
  3. While in operation, the unit maintains a thermal energy recovery efficiency of at least 60 percent.
  4. The unit exports and utilizes at least 75 percent of the recovered energy.
- *Certification* - a statement of professional opinion based upon knowledge and belief (40 CFR 260.10).
- *Characteristics of Hazardous Waste* - the characteristics of ignitability, corrosivity, reactivity, and toxicity which identify hazardous waste (40 CFR 261.20 through 261.24).
- *Closed Portion* - the portion of a facility which has been closed in accordance with the approved closure plan and all applicable closure requirements (40 CFR 260.10).
- *Closure Device* - a cap, hatch, lid, plug, seal, valve, or other type of fitting that blocks an opening in a cover such that when the device is secured in the closed position it prevents or reduces air pollutant emissions to the atmosphere. Closure devices include devices that are detachable from the cover (e.g., a sampling port cap), manually operated (e.g., hinged access lid or hatch), or automatically operated (e.g., a spring loaded pressure relief valve) (40 CFR 265.1081).
- *Component* - refers to either the tank or the ancillary equipment of the tank system (40 CFR 260.10).
- *Consignee* - the ultimate treatment, storage, or disposal facility in a receiving country to which the hazardous waste will be sent (40 CFR 262.51).
- *Container* - any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled (40 CFR 260.10).
- *Containment Building* - a hazardous waste management unit that is used to store or treat hazardous waste under 40 CFR 264.1100 through 264.1103 and 40 CFR 265.1100 through 1103 (40 CFR 260.10).

- *Contingency Plan* - a document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment (40 CFR 260.10).
- *Corrosion Expert* - a person who, by reason of knowledge of the physical sciences and the principles of engineering and mathematics, acquired by a professional education and related practical experiences, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be certified as being qualified by the National Association of Corrosion Engineers (NACE) or be a registered professional engineer who has certification and licensing that includes education and experience in corrosion control and/or buried or submerged metal piping systems or tanks (40 CFR 260.10).
- *Cover* - a device that provides a continuous barrier over the hazardous waste managed in a unit to prevent or reduce air pollutant emissions to the atmosphere. A cover may have openings (such as access hatches, sampling ports, gauge wells) that are necessary for operation, inspection, maintenance, and repair of the unit on which the cover is used. A cover may be a separate piece of equipment which can be detached and removed from the unit or a cover may be formed by structural features permanently integrated into the design of the unit (40 CFR 265.1081).
- *Debris* - solid material exceeding a 60 mm particle size that is intended for disposal and that is: a manufactured object; or plant or animal matter; or natural geologic material. The following materials are not debris: any material for which a specific treatment standard is provided; process residuals such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emissions residues; and intact containers of hazardous waste that are not ruptured and retain at least 75 percent of their original volume (40 CFR 268.2).
- *Designated Facility* - a hazardous waste TSDF that is identified on a manifest as the destination of a hazardous waste shipment. The facility must have an appropriate permit, interim status, or be regulated under specific recycling requirements (40 CFR 260.10).
- *Destination Facility* - a facility that treats, disposes of, or recycles a particular category of universal waste, except small quantity handlers of universal waste batteries and thermostats, or a large quantity handler of universal waste batteries or thermostats. A facility at which a particular category of universal waste is only accumulated is not a destination facility for the purposes of managing that category of universal waste (40 CFR 262.10 and 273.9) [Revised October 1999].
- *Detonation* - an explosion in which chemical transformation passes through the material faster than the speed of sound (0.33 km/s at sea level) (40 CFR 265.382).
- *Dike* - an embankment or ridge of either natural or manmade materials used to prevent the movement of liquids, sludges, solids, or other materials (40 CFR 260.10).
- *Discharge or Hazardous Waste Discharge* - the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water (40 CFR 260.10).
- *Disposal* - the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwaters (40 CFR 260.10).

- *Disposal Facility* - a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure. The term disposal facility does not include a corrective action management unit into which remediation wastes are placed (40 CFR 260.10).
- *Enclosure* - a structure that surrounds a tank or container, captures organic vapors emitted from the tank or container, and vents the captured vapors through a closed-vent system to a control device (40 CFR 265.1081).
- *EPA Acknowledgment of Consent* - the cable sent to the USEPA from the U.S. Embassy in a receiving country that acknowledges the written consent of the receiving country to accept the hazardous waste and describes the terms and conditions of the receiving country's consent to the shipment (40 CFR 262.51).
- *EPA Hazardous Waste Number* - the number assigned by USEPA to each hazardous waste listed in 40 CFR 261, Subpart D and to each characteristic identified in 40 CFR 261, Subpart C (40 CFR 260.10).
- *EPA Identification Number* - the number assigned by USEPA to each generator, transporter, and treatment, storage, or disposal facility (40 CFR 260.10).
- *Equipment* - each valve, pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, or flange or other connector, and any control devices or systems required by this subpart (40 CFR 264.1031) **[Added April 1999]**.
- *Exempted Hazardous Waste Containers and Surface Impoundments* - containers and surface impoundments are exempt from these air emission requirements if the waste management unit is one of the following (40 CFR 264.1082(c) and 265.1083(c)) **[December 1997]**:
  1. Containers and surface impoundments for which all hazardous wastes entering the unit has an average VO concentration at the point of waste origination is less than 500 ppmw. This determination is updated at least every 12 mo.
  2. Containers and surface impoundments for which the organic content of all hazardous wastes entering the unit has been reduced by an organic destruction or removal process that achieves any of the following conditions:
    - a. A process that removes or destroys the organics to a level such that the average VO concentration of the hazardous waste at the point of waste treatment is less than the exit concentration limit established for the process.
    - b. A process that removes or destroys the organics contained in the hazardous waste to such a level that the organic reduction efficiency for the process is equal to or greater than 95 percent, and the average VO concentration of the hazardous waste at the point of waste treatment is less than 100 ppmw.
    - c. A process that removes or destroys the organics contained in the hazardous waste to such a level that the actual organic mass removal rate for the process is greater than the required organic mass removal rate established for the process.
    - d. A biological process that destroys or degrades the organics contained in the hazardous waste such that either of the following is met:
      - i. The organic reduction efficiency for the process is equal to or greater than 95 percent and the organic biodegradation efficiency for the process is equal to or greater than 95 percent.
      - ii. The total actual organic mass biodegradation rate for all hazardous waste treated by the process is equal to or greater than the required organic mass removal rate.

- e. A process that removes or destroys the organics contained in the hazardous waste and meets all the following conditions:
    - i. From the point of waste origination through the point where the hazardous waste enters the process, the hazardous waste is continuously managed in waste management units which use air emissions controls as applicable to the waste management unit.
    - ii. From the point of waste origination through the point where the hazardous waste enters the process, any transfer of the hazardous waste is accomplished through continuous hard-piping or other closed system transfer that does not allow exposure of the waste to the atmosphere.
    - iii. The average VO concentration of the hazardous waste at the point of waste treatment is less than the lowest average VO concentration at the point of waste origination determined for each of the individual hazardous waste streams entering the process or 500 ppmw, whichever value is lower.
  - f. A process that removes or destroys the organics contained in the hazardous waste to a level such that the organic reduction efficiency for the process is equal to or greater than 95 percent the owner/operator certifies that the average VO concentration at the point of waste origination for each of the individual waste streams entering the process is less than 10,000 ppmw.
  - g. A hazardous waste incinerator for which the owner/operator has either been issued a final permit or has certified compliance.
  - h. A boiler or industrial furnace for which the owner or operator has been issued a final permit or has certified compliance.
3. A surface impoundment used for biological treatment of hazardous waste such that it degrades or destroys the organics contained in the hazardous waste such that either of the following conditions is met:
- a. Organic reduction efficiency for the process is equal to or greater than 95 percent and the organic biodegradation efficiency for the process is equal to or greater than 95 percent.
  - b. The total actual organic mass biodegradation rate for all hazardous waste treated by the process is equal to or greater than the required organic mass removal rate.
4. Containers or surface impoundments for which all hazardous waste placed in the unit either:
- a. Meets the numerical concentrations limits for organic hazardous constituents as specified in 40 CFR 280.
  - b. Has been treated by the treatment technology established by the USEPA in 40 CFR 268.42(a) or have been removed or destroyed by an equivalent method of treatment.
- *Exempted Hazardous Waste Management Unit* - in relation to air emissions standards, this is (40 CFR 264.1080(b)(1) and 265.1080(b)) [**Revised April 1999/Revised July 2000**]:
    - 1. A waste management unit that holds hazardous waste placed in the unit before 6 December 1996, and in which no hazardous waste is added to the unit on or after 6 December 1996.
    - 2. A container that has a design capacity less than or equal to 0.1 m<sup>3</sup>.
    - 3. A tank in which an owner or operator has stopped adding hazardous waste and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan.
    - 4. A surface impoundment in which an owner or operator has stopped adding hazardous waste (except to implement an approved closure plan) and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan.
    - 5. A waste management unit that is used solely for the on-site treatment or storage of hazardous waste that is generated as the result of implementing remedial activities required

under corrective action authorities of RCRA sections 3004(u), 3004(v), or 3008(h); CERCLA authorities; or similar Federal or state authorities.

6. A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the *Atomic Energy Act* and the *Nuclear Waste Policy Act*.
7. A hazardous waste management unit that the owner or operator certifies is equipped with and operating air emissions controls in accordance with regulations promulgated as a result of the CAA.
8. A tank that has a process vent as defined in 40 CFR 264.1031.

• **Exempted Hazardous Waste Storage Tanks** - storage tanks are exempt from these air emission requirements if the waste management unit is one of the following (40 CFR 264.1082(c) and 265.1083(c)) [Revised July 2000]:

1. Tanks for which all hazardous wastes entering the unit has an average VO concentration at the point of waste origination is less than 500 ppmw. This determination is updated at least every 12 mo.
2. Tanks for which the organic content of all hazardous wastes entering the unit has been reduced by an organic destruction or removal process that achieves any of the following conditions:
  - a) A process that removes or destroys the organics to a level such that the average VO concentration of the hazardous waste at the point of waste treatment is less than the exit concentration limit established for the process.
  - b) A process that removes or destroys the organics contained in the hazardous waste to such a level that the organic reduction efficiency for the process is equal to or greater than 95 percent, and the average VO concentration of the hazardous waste at the point of waste treatment is less than 100 ppmw.
  - c) A process that removes or destroys the organics contained in the hazardous waste to such a level that the actual organic mass removal rate for the process is equal to or greater than the required organic mass removal rate established for the process.
  - d) A biological process that destroys or degrades the organics contained in the hazardous waste such that either of the following is met:
    - i) The organic reduction efficiency for the process is equal to or greater than 95 percent and the organic biodegradation efficiency for the process is equal to or greater than 95 percent.
    - ii) The total actual organic mass biodegradation rate for all hazardous waste treated by the process is equal to or greater than the required organic mass removal rate.
  - e) A process that removes or destroys the organics contained in the hazardous waste and meets all the following conditions:
    - i) From the point of waste origination through the point where the hazardous waste enters the process, the hazardous waste is continuously managed in waste management units which use air emissions controls as applicable to the waste management unit.
    - ii) From the point of waste origination through the point where the hazardous waste enters the process, any transfer of the hazardous waste is accomplished through continuous hard-piping or other closed system transfer that does not allow exposure of the waste to the atmosphere.
    - iii) The average VO concentration of the hazardous waste at the point of waste treatment is less than the lowest average VO concentration at the point of waste origination determined for each of the individual hazardous waste streams entering the process or 500 ppmw, whichever value is lower.
  - f) A process that removes or destroys the organics contained in the hazardous waste to a level such that the organic reduction efficiency for the process is equal to or greater

- than 95 percent and the owner or operator certifies that the average VO concentration at the point of waste origination for each of the individual waste streams entering the process is less than 10,000 ppmw.
- g) A hazardous waste incinerator for which the owner or operator has either been issued a final permit under 40 CFR 270 or has certified compliance with the requirements of 40 CFR 265, Subpart O.
  - h) A boiler or industrial furnace for which the owner or operator has been issued a final permit under 40 CFR 270 or has certified compliance with the requirements of 40 CFR 266, Subpart H.
3. A tank used for biological treatment of hazardous waste such that it degrades or destroys the organics contained in the hazardous waste such that either of the following conditions is met:
    - a) Organic reduction efficiency for the process is equal to or greater than 95 percent and the organic biodegradation efficiency for the process is equal to or greater than 95 percent.
    - b) The total actual organic mass biodegradation rate for all hazardous waste treated by the process is equal to or greater than the required organic mass removal rate.
  4. Tanks for which all hazardous waste placed in the unit either:
    - a) Meets the numerical concentrations limits for organic hazardous constituents as specified in 40 CFR 280 has been treated by the treatment technology established by the USEPA in 40 CFR 268.42 or have been removed or destroyed by an equivalent method of treatment approved by USEPA under 40 CFR 268.42(b).
- *Existing Hazardous Waste Management (HWM) Facility or Existing Facility* - a facility which was in operation or for which construction commenced on or before 19 November 1980 (40 CFR 260.10).
  - *Existing Portion* - the land surface area of an existing waste management unit, included in the original Part A permit application, on which wastes have been placed prior to the issuance of a permit (40 CFR 260.10).
  - *Existing Tank System or Existing Component* - a tank system or component that is used for the storage or treatment of hazardous waste and that is in operation, or for which installation has commenced on or before 14 July 1986. Installations will have been considered to be commenced if the owner or operator has obtained all Federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and if either (40 CFR 260.20):
    1. A continuous onsite physical construction of the site or installation program has begun.
    2. The owner or operator has entered into contractual obligations that cannot be canceled or modified without substantial loss for physical construction of the site or installation of the tank system to be completed within a reasonable time.
  - *Explosives or Munitions Emergency* - a situation involving the suspected or detected presence of unexploded ordnance (UXO), damaged or deteriorated explosives or munitions, an improvised explosive device (IED), other potentially explosive material or device, or other potentially harmful military chemical munitions or device, that creates an actual or potential imminent threat to human health, including safety, or the environment, including property, as determined by an explosives or munitions emergency response specialist. Such situation may require immediate and expeditious action by an explosives or munitions emergency response specialist to control, mitigate, or eliminate the threat (40 CFR 260.10).

- *Explosives or Munitions Emergency Response* - all immediate response activities by an explosives and munitions emergency response specialist to control, mitigate, or eliminate the actual or potential threat encountered during an explosives or munitions emergency. An explosives or munitions emergency response may include in-place render safe procedures, treatment, or destruction of the explosives or munitions and/or transporting those items to another location to be rendered safe, treated, or destroyed. Any reasonable delay in the completion of an explosives or munitions emergency response caused by a necessary, unforeseen, or uncontrollable circumstance will not terminate the explosives or munitions emergency. Explosives and munitions emergency responses can occur on either public or private lands and are not limited to responses at RCRA facilities (40 CFR 260.10).
- *External Floating Roof* - a pontoon or double-deck type floating roof that rests on the surface of a hazardous waste being managed in a tank that has no fixed roof (40 CFR 265.1081).
- *Facility* - all contiguous land and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combination of them) (40 CFR 260.10).
- *Final Closure* - the closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under 40 CFR 264 and 265 are no longer conducted at the facility unless subject to the provisions of 262.34 (40 CFR 260.10).
- *Fixed Roof* - a cover that is mounted on a unit in a stationary position and does not move with fluctuations in the level of the material managed in the unit (40 CFR 265.1081).
- *Floating Membrane Cover* - a cover consisting of a synthetic flexible membrane material that rests upon and is supported by the hazardous waste being managed in a surface impoundment (40 CFR 265.1081).
- *Floating Roof* - a cover consisting of a double deck, pontoon single deck, or internal floating cover which rests upon and is supported by the material being contained, and is equipped with a continuous seal (40 CFR 265.1081).
- *Food-Chain Crops* - tobacco, crops grown for human consumption, and crops grown for feed for animals whose products are consumed by humans (40 CFR 260.10).
- *Free Liquids* - liquids which readily separate from the solid portion of a waste under ambient temperature and pressure (40 CFR 260.10).
- *Freeboard* - the vertical distance between the top of a tank or surface impoundment dike, and the surface of the waste contained within it (40 CFR 260.10).
- *Generator* - any person, by site, whose act or process produces hazardous waste identified or listed in 40 CFR 261, or whose act first causes a hazardous waste to become subject to regulation (40 CFR 260.10). (NOTE: This typically is used to refer to a facility producing hazardous waste in quantities greater than 1000 kg/mo [ $\approx$  2205 lb/mo] or any amount of acute waste) [Reviewed July 2000].
- *Groundwater* - water below the land surface in a zone of saturation (40 CFR 260.10).

- *Halogenated Organic Compounds (HOC)* - those compounds having a carbon-halogen bond which are listed in Appendix III or 40 CFR 268 (40 CFR 268.2).
- *Hazardous Debris* - debris that contains a hazardous waste listed in Subpart D or 40 CFR 261 or that exhibits a characteristic of hazardous waste identified in subpart C of 40 CFR 26. Any deliberate mixing of prohibited hazardous waste with debris that changes its treatment classification (i.e., from waste to hazardous debris) is not allowed under the dilution prohibition in 40 CFR 268.3 (40 CFR 268.2) [Revised July 1999].
- *Hazardous Waste* - a solid waste identified as a characteristic or listed hazardous waste in 40 CFR 261.3 (40 CFR 260.10).
- *Hazardous Waste Constituent* - a constituent that caused the hazardous waste to be listed in 40 CFR 261, Subpart D (lists of hazardous wastes from nonspecific and specific sources, and listed hazardous wastes), or a constituent listed in the table of maximum concentrations of contaminants for the toxicity characteristic) (40 CFR 260.10).
- *Hazardous Waste Management Unit* - a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples are a surface impoundment, a waste pile, a treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed (40 CFR 260.10).
- *In Light Liquid Service* - the piece of equipment contains or contacts a waste stream where the vapor pressure of one or more of the organic components in the stream is greater than 0.3 kPa at 20 °C, the total concentration of the pure organic components having a vapor pressure greater than 0.3 kPa at 20 °C is equal to or greater than 20 percent by weight, and the fluid is a liquid at operating conditions (40 CFR 264.1031) [December 1997].
- *In Light Material Service* - the container is used to manage a material for which both of the following conditions apply (40 CFR 265.1081):
  1. The vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kPa at 20 °C.
  2. The total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at 20 °C is equal to or greater than 20 percent by weight.
- *Incinerator* - an enclosed device that (40 CFR 260.10):
  1. Uses controlled flame combustion and neither meets the criteria for classification as a boiler, sludge dryer, or carbon regeneration unit, nor is listed as an industrial furnace.
  2. Meets the definition of infrared incinerator or plasma arc incinerator.
- *Incompatible Waste* - a hazardous waste that is unsuitable for (40 CFR 280.10):
  1. Placement in a particular device or facility because it may cause corrosion or decay of containment materials (e.g., container liners or tank walls).
  2. Commingling with another waste or material under uncontrolled conditions because the commingling conditions produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mist, fumes or gases, or flammable fumes or gases.
- *Individual Generation Site* - the contiguous site at or on which one or more hazardous waste(s) is generated. An individual generation site, such as a large manufacturing plant, may have one or



more sources of hazardous waste, but is considered a single or individual generation site if the site or property is contiguous (40 CFR 260.10).

- *In-Ground Tank* - a device meeting the definition of tank in 40 CFR 260.10 whereby a portion of the tank is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank that is in the ground (40 CFR 260.10).
- *Inner Liner* - a continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or reagents used to treat the waste (40 CFR 260.10).
- *Lamp* - the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infrared regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps (40 CFR 260.10, 273.9) **[Added April 2000, Reviewed July 2000]**.

The following are exempted from the definition of lamp in relation to universal waste (40 CFR 273.5(b)):

1. Lamps that are not yet wastes under 40 CFR 261 (see the definition of Waste Lamp).
2. Lamps that are not hazardous waste. A lamp is a hazardous waste if it exhibits one or more of the characteristics identified in 40 CFR 261.

See also the definition for Waste Lamp.

- *Land Disposal* - placement in or on the land, except in a corrective action management unit, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault, or bunker intended for disposal purposes (40 CFR 268.2).
- *Land Treatment Facility* - a facility, or part of a facility, at which hazardous waste is applied onto or incorporated into the soil surface; such facilities are disposal facilities if the waste will remain after closure (40 CFR 260.10).
- *Large Quantity Generator* - see *Generator*.
- *Large Quantity Handler of Universal Waste* - a universal waste handler who accumulates 5,000 kilograms or more total of universal waste (batteries, pesticides, thermostats, or lamps, calculated collectively) at any time. This designation as a large quantity handler of universal waste is retained through the end of the calendar year in which 5,000 kg (≈ 11,111 lb) or more total of universal waste is accumulated (40 CFR 273.9) **[Revised April 2000, Reviewed July 2000]**.
- *Leak Detection System* - a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary structure. Such a system must employ operational controls (e.g., visual inspections for releases into the secondary containment system of aboveground tanks) or consist of an interstitial monitoring device designed to detect continuously and automatically the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure (40 CFR 260.10).

- *Liner* - a continuous layer of natural or manmade materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate (40 CFR 260.10).
- *Management or Hazardous Waste Management* - the systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous waste (40 CFR 260.10).
- *Malfunction* - any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operations are not malfunctions (40 CFR 265.1081).
- *Management Practice (MP)* - practices which, although not mandated by law, are encouraged to promote safe operating procedures.
- *Manifest* - the shipping document originated and signed by the generator containing the information required by 40 CFR 262, Subpart B (40 CFR 260.10).
- *Manifest Document Number* - the USEPA 12-digit number assigned to the generator plus a unique 5 digit number assigned to the Manifest by the generator for recording and reporting purposes (40 CFR 260.10).
- *Military Munitions* - all ammunition products and components produced or used by or for the U.S. DOD or the U.S. Armed Services for national defense and security, including military munitions under the control of the DOD, the Coast Guard, the DOE, and National Guard personnel. The term military munitions includes: confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes and incendiaries used by DOD components, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. Military munitions do not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components thereof. However, the term does include non-nuclear components of nuclear devices, managed under DOE's nuclear weapons program after all required sanitization operations under the *Atomic Energy Act of 1954*, as amended, have been completed (40 CFR 260.10).
- *Movement* - that hazardous waste transported to a facility in an individual vehicle (40 CFR 260.10).
- *New Tank System or New Component System* - a tank system or component that will be used for the storage and treatment of hazardous waste and for which installation has commenced after 14 July 1986, except however, for purposes of 264.193(g)(2) and 265.193(g)(2), a new tank system is one for which construction commenced after 14 July 1986 (see also existing tank system) (40 CFR 260.10).
- *No Detectable Organic Emissions* - no escape of organics to the atmosphere as determined by using the procedures specified in 40 CFR 265.1084(d) (40 CFR 265.1081).
- *Nonwastewaters* - wastes that do not meet the criteria for wastewaters (40 CFR 268.2).

- *Onground Tank* - a device meeting the definition of tank in 40 CFR 260.10 and that is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visibly inspected (40 CFR 260.10) [Reviewed July 2000].
- *Onsite* - the same or geographically contiguous property which may be divided by a public or private right-of-way, provided the entrance and exit between the properties is at a crossroads intersection, and access is by crossing as opposed to going along the right-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access is also considered onsite property (40 CFR 260.10) [Reviewed July 2000].
- *Open Burning* - the combustion of any material without the following characteristics (40 CFR 260.10):
  1. Control of combustion air to maintain adequate temperature for efficient combustion.
  2. Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion.
  3. Control of emission of the gaseous combustion products.
- *Ordnance* - See Waste Explosives.
- *Partial Closure* - the closure of a hazardous waste management unit in accordance with the applicable closure requirements of 40 CFR 264 and 265 at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems) while other units of the same facility continue to operate (40 CFR 260.10).
- *Pesticides* - any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant, other than any article that either (40 CFR 262.10 and 273.9):
  1. Is a new animal drug under FFDCa Section 201(w).
  2. Is an animal drug that has been determined by regulation of the Secretary of Human Health and Human Services not to be a new animal drug.
  3. Is an animal feed under FFDCa section 201(x) that bears or contains any substances described by paragraph 1 or 2 of this definition.

Pesticides that are regulated as universal wastes include pesticides that are either (40 CFR 273.3(a):

1. Recalled pesticides that are stocks of a suspended and canceled pesticide that are a part of a voluntary or mandatory recall under FIFRA Section 19(b), including, but not limited to, those owned by the registrant responsible for conducting the recall.
2. Recalled pesticide that are stocks of suspended or canceled pesticides, or a pesticide that is not in compliance with FIFRA, that are part of a voluntary recall by the registrant.
2. Stocks of other unused pesticide products that are collected and managed as a part of a waste pesticide collection.

Pesticides that are not universal wastes include (40 CFR 273.3(b):

1. The following pesticides when disposed of on a farmers own farm in a manner consistent with the label, and the container is triple rinsed:
  - a. Suspended or recalled pesticides that are a part of a voluntary or mandatory recall under FIFRA Section 19(b), including, but not limited to, those owned by the registrant responsible for conducting the recall.

- b. Stocks of suspended or canceled pesticide products that are not in compliance with FIFRA and are part of a voluntary recall by the registrant.
  - c. Stocks of other unused pesticide products.
2. Pesticides not meeting the definition of a universal waste.
  3. Pesticides that are not wastes under 40 CFR 261, including those who do not meet the criteria for waste generation or those that are not wastes (see the definition of Waste Pesticide).
  4. Pesticides that are not a hazardous waste [Revised April 2000, Reviewed July 2000].

See also the definition for Waste Pesticides.

- *Point of Waste Treatment* - the point where a hazardous waste exits a waste management unit used to destroy, degrade, or remove organics in the hazardous waste (40 CFR 265.1081).
- *Publicly Owned Treatment Works (POTW)* - any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a state or municipality (as defined by section 502(4) of the CWA). This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment (40 CFR 260.10).
- *Pump Operating Level* - a liquid level proposed by the owner or operator and approved by the Regional Administrator based on pump activation level, sump dimensions, and level that avoids backup into the drainage layer and minimizes head in the sump (40 CFR 264.226(d)(3)).
- *Qualified Groundwater Scientist* - a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering and has sufficient training and experience in groundwater hydrology and related fields as may be demonstrated by state registration, professional certification, or completion of accredited university courses that enable that individual to make sound professional judgments regarding groundwater monitoring and contaminant fate and transport (40 CFR 260.10).
- *Representative Sample* - a sample of a universe or whole (e.g., waste pile, lagoon, groundwater) which can be expected to exhibit the average properties of the universe or whole (40 CFR 260.10).
- *Restricted Wastes* - those categories of hazardous wastes that are prohibited from land disposal either by regulation or by statute, in other words, a hazardous waste that is restricted no later than the date of the deadline established in RCRA Section 3004 (40 CFR 268).
- *Runoff* - any rainwater, leachate, or other liquid that drains over land from any part of a facility (40 CFR 260.10).
- *Run-on* - any rainwater, leachate, or other liquid that drains over land onto any part of a facility (40 CFR 260.10).
- *Sludge* - any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant (40 CFR 260.10).

- *Small Quantity Generator* - a generator who generates less than 1000 kg/mo [ $\approx$  2205 lb/mo] of hazardous waste in a calendar month. (NOTE: As commonly used, an SQG generates between 100 kg [ $\approx$  220 lb] and 1000 kg [ $\approx$  2205 lb] of hazardous waste in a calendar month (40 CFR 260.10).) **[Reviewed July 2000]**.
- *Small Quantity Handler of Universal Waste* - a universal waste handler who does not accumulate 5,000 kg [ $\approx$  11,111 lb] or more total of universal waste (batteries, pesticides, thermostats, or lamps, calculated collectively) at any time (40 CFR 273.9) **[Revised April 2000, Reviewed July 2000]**.
- *Soil* - unconsolidated earth material composing the superficial geologic strata (material overlying bedrock), consisting of clay, silt, sand, or gravel size particles as classified by the U.S. Natural Resources Conservation Service, or a mixture of such materials with liquids, sludges or solids which is inseparable by simple mechanical removal processes and is made up primarily of soil by volume based on visual inspection. Any deliberate mixing of prohibited hazardous waste with soil that changes its treatment classification (i.e., from waste to contaminated soil) is not allowed under the dilution prohibition in 40 CFR 268.3 (40 CFR 268.2) **[Added July 1999]**.
- *Storage* - the holding of hazardous wastes for a temporary period, at the end of which the hazardous wastes are treated, disposed of, or stored elsewhere (40 CFR 260.10).
- *Sump* - any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serve to collect hazardous waste for transport to hazardous waste TSDFs except that as used in the landfill, surface impoundment, and waste pile rules, *sump* means any lined pit or reservoir that serves to collect liquids drained from a leachate collection and removal system or leak detection system for subsequent removal from the system (40 CFR 260.10).
- *Tank* - a stationary device designed to contain an accumulation of hazardous waste that is constructed primarily of nonearthen materials (e.g., wood, concrete, steel, plastic) which provide structural support (40 CFR 260.10) **[Reviewed July 2000]**.
- *Tank System* - a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system (40 CFR 260.10) **[Reviewed July 2000]**.
- *Thermostat* - a temperature control device that contains metallic mercury in an ampule attached to a bimetal sensing element, and mercury-containing ampules that have been removed from these temperature control devices in compliance with the requirements of 40 CFR 273.12(c)(2) or 273.33(c)(2) (40 CFR 262.10 and 273.9).

The following are exempted from the definition of thermostat in relation to universal waste (40 CFR 273.4(b)):

1. Thermostats that are not yet wastes under 40 CFR 261 (see the definition of Waste Thermostat).
2. Thermostats that are not hazardous waste **[Revised April 2000, Reviewed July 2000]**.

See also the definition for Waste Thermostat.

- *Transfer Facility* - any transportation related facility including loading docks, parking areas, storage areas, and other similar areas where shipments of hazardous wastes are held during the normal course of transportation (40 CFR 260.10).

- *Transport Vehicle* - a motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, railroad freight car, etc.) is a separate transport vehicle (40 CFR 260.10).
- *Transporter* - a person engaged in the offsite transportation of hazardous wastes by air, rail, highway, or water (40 CFR 260.10).
- *Treatability Study* - a study in which a hazardous waste is subjected to a treatment process to determine (40 CFR 260.10):
  1. Whether the waste is amenable to the treatment process.
  2. What pretreatment (if any) is required.
  3. The optimal process conditions needed to achieve the desired treatment.
  4. The efficiency of a treatment process for a specific waste or wastes.
  5. The characteristics and volumes of residuals from a particular treatment process.

Also included in this definition for the purpose of the 261.4(e) and (f) exemptions are liner compatibility, corrosion, and other material compatibility studies and toxicological and health effects studies. A treatability study is not a means to commercially treat or dispose of hazardous waste.

- *Treatment* - any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste nonhazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume (40 CFR 260.10).
- *Underground Tank* - a device meeting the definition of tank in 40 CFR 260.10 whose entire surface area is totally below the surface and covered by the ground (40 CFR 260.10) **[Reviewed July 2000]**.
- *Unexploded Ordnance (UXO)* - military munitions that have been primed, fused, armed, or otherwise prepared for action, and have been fired, dropped, launched, projected, or placed in a such a manner as to constitute a hazard to operations, installation, personnel, or material and remain unexploded either by malfunction, design, or any other cause (40 CFR 266.201).
- *Unfit-for-Use Tank System* - a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment (40 CFR 260.10) **[Reviewed July 2000]**.
- *Universal Waste* - any of the following hazardous wastes that are managed under the universal waste requirements of 40 CFR 273 (40 CFR 260.10 and 273.9):
  1. Batteries as described in Sec. 273.2 (see definition of Battery).
  2. Pesticides as described in Sec. 273.3 (see definition of Pesticides).
  3. Thermostats as described in Sec. 273.4 (see definition of Thermostat).
  4. Lamps as described in Sec. 273.5 (see definition of Lamp) **[Revised April 2000]**.
- *Universal Waste Handler* - this term means either (40 CFR 262.10 and 273.9):
  1. A generator of universal waste.
  2. The owner or operator of a facility, including all contiguous property, that receives universal waste from other universal waste handlers, accumulates universal waste, and sends

universal waste to another universal waste handler, to a destination facility, or to a foreign destination.

It does not mean:

1. A person who treats (except under the provisions of 40 CFR 273.13(a) or (c), or 273.33(a) or (c), disposes of, or recycles universal waste.
  2. A person engaged in offsite transportation of a universal waste by air, rail, highway, or water, including a universal waste transfer facility [Revised April 2000, Reviewed July 2000].
- *Universal Waste Transfer Facility* - any transportation related facility including loading docks, parking areas, storage areas, and other similar areas where shipments of universal waste are held during the normal course of transportation for 10 days or less (40 CFR 273.9) [Revised April 2000, Reviewed July 2000].
  - *Universal Waste Transporter* - a person engaged in the offsite transportation of universal waste by air, rail, highway, or water (40 CFR 260.10 and 273.9) [Revised April 2000, Reviewed July 2000].
  - *Uppermost Aquifer* - the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary (40 CFR 260.10).
  - *Volatile Organic (VO) Concentration* - the fraction by weight of the volatile organic compounds in a hazardous waste expressed in terms of ppmw as determined by direct measurement or by knowledge of the waste in accordance with the requirements of 40 CFR 265.1081 (40 CFR 265.1081) [Revised July 2000].
  - *Waste Battery* - a used battery becomes a waste on the date that it is discarded (e.g., when sent for reclamation). An unused battery becomes a waste on the date the handler decides to discard it. See also the definition of Battery (40 CFR 273.2(c)) [Reviewed July 2000].
  - *Waste Explosives* - waste that has the potential to detonate and bulk military propellants that cannot be safely disposed of through other modes of treatment (40 CFR 265.382).
  - *Waste Lamp* - A used lamp becomes a waste on the date it is discarded. An unused lamp becomes a waste on the date the handler decides to discard it (40 CFR 273.5(c)) [Added April 2000, Reviewed July 2000].
  - *Waste Military Munitions* - a military munition is not a solid waste when (40 CFR 266.202):
    1. Used for its intended purpose, including:
      - a. Use in training military personnel or explosives and munitions emergency response specialists (including training in proper destruction of unused propellant or other munitions.
      - b. Use in research, development, testing, and evaluation of military munitions, weapons, or weapon systems.
      - c. Recovery collection, and on range destruction of unexploded ordnance and munitions fragments during range clearance activities at active or inactive ranges. However, "use for intended purposes" does not include the on-range disposal or burial of unexploded ordnance and contaminants when the burial is not a result of product use.
    2. An unused munition, or component thereof, is being repaired, reused, recycled, reclaimed, disassembled, reconfigured, or otherwise subjected to materials recovery activities, unless such activities involve use constituting disposal or burning for energy recovery.

An unused military munition is a solid waste when any of the following occurs:

1. The munition is abandoned by being disposed of, burned, detonated (except during intended use), incinerated, or treated prior to disposal.
2. The munition is removed from storage in a military magazine or other storage area for the purpose of being disposed of, burned, or incinerated, or treated prior to disposal.
3. The munition is deteriorated or damaged (e.g., the integrity of the munition is compromised by cracks, leaks, or other damage) to the point that it cannot be put into serviceable condition, and cannot reasonably be recycled or used for other purposes.
4. The munition has been declared a solid waste by an authorized military official.

A used or fired military munition is a solid waste:

1. When transported off range or from the site of use, where the site of use is not a range, for the purpose of storage, reclamation, treatment, disposal, or treatment prior to disposal.
2. If recovered, collected, and then disposed of by burial, or landfilling either on or off a range.

• **Waste Pesticides** - this term applies as follows (40 CFR 273.3(c)) [Reviewed July 2000]:

1. A recalled pesticide becomes a waste on the first date on which both of the following conditions apply:
  - a. The generator of the recalled pesticide agrees to participate in the recall.
  - b. The person conducting the recall decides to discard (e.g., burn the pesticides for energy recovery) the pesticides.
2. Stocks of unused pesticide products that are collected and managed as part of a waste pesticide collection program becomes a waste on the day the generator decides to discard it.

The following pesticides are not waste (40 CFR 273.3(d)):

1. Recalled pesticides providing the person conducting the recall:
  - a. Has not made a decision to discard (e.g., burn for energy recovery) the pesticide.
  - b. Has made a decision to use a management option that, under 40 CFR 261.2, does not cause the pesticide to be a solid waste (i.e., the selected option is use (other than use constituting disposal), or reuse, or reclamation).
2. Unused pesticide products that are collected and managed as a part of a waste pesticide collection program if the generator of the unused pesticide product has not decided to discard (e.g., burn for energy recovery) them.

• **Waste Stabilization Process** - any physical or chemical process used to either reduce the mobility of hazardous constituents in a hazardous waste or eliminate free liquids (40 CFR 265.1081) [Reviewed July 2000].

• **Waste Thermostats** - A used thermostat becomes a waste on the date it is discarded (e.g., sent for reclamation). An unused thermostat becomes a waste on the date the handler decides to discard it (40 CFR 273.4(c)).

• **Wastewater Treatment Unit** - a device that is part of a wastewater treatment facility subject to regulation under section 402 or 307(b) of the CWA and receives and treats or stores an influent wastewater that is a hazardous waste (as defined in 40 CFR 261.3), or that generates and accumulates a wastewater treatment sludge that is a hazardous waste, or treats or stores a wastewater treatment sludge and meets the definition of tank or tank system (40 CFR 260.10).



- *Wastewaters* - wastes that contain less than 1 percent by weight total organic compounds and less than 1 percent by weight total suspended solids (TSS) with certain exceptions (40 CFR 268.2).
- *Zone of Engineering Control* - an area under the control of the owner/operator that upon detection of a hazardous waste release, can be readily cleaned up before the release of hazardous waste or hazardous constituents to groundwater or surface water (40 CFR 260.10).



## HAZARDOUS WASTE MANAGEMENT

### GUIDANCE FOR CHECKLIST USERS

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	REFER TO CHECKLIST ITEMS:
All Facilities	HW.1.1 through HW.1.6
All Sizes of Generators	HW.10.1 through HW.10.7
Conditionally Exempt Small Quantity Generators (CESQGs)	HW.15.1 through HW.15.10
Small Quantity Generators (SQGs)	
General	HW.20.1 through HW.20.5
Personnel Training	HW.25.1 through HW.25.3
Containers	HW.30.1 through HW.30.4
Satellite Accumulation Points	HW.35.1
Container Storage Areas	HW.40.1 through HW.40.3
Storage Tanks	HW.42.1 through HW.42.3
Disposal of Restricted Waste	HW.45.1 through HW.45.5
Generators	
General	HW.55.1 through HW.55.7
Personnel Training	HW.60.1 and HW.60.2
Contingency Plans and Emergency Coordinators	HW.65.1 through HW.65.4
Containers	HW.70.1 through HW.70.10
Satellite Accumulation Points	HW.75.1
Container Storage Areas	HW.80.1 through HW.80.4
Emissions from Process Vents	HW.85.1 through HW.85.6
Air Emission Standards for Equipment Leaks	HW.90.1 through HW.90.10
Storage Tanks	HW.95.1 through HW.95.11
Storage Tank Emissions	HW.100.1 through HW.100.9
Containment Buildings	HW.105.1 through HW.105.7
Disposal of Restricted Waste	HW.110.1 through HW.110.6
Transportation of Hazardous Waste	HW.120.1 through HW.120.5
Military Munitions	HW.122.1 through HW.122.4
Small Quantity Universal Waste Handlers	
General	HW.125.1 through HW.125.4
Specific Wastes	HW.130.1 through HW.130.6
Personnel Training	HW.135.1
Containers	HW.140.1
Transportation	HW.150.1 and HW.150.2
Large Quantity Universal Waste Handler	
General	HW.155.1 through HW.155.4
Specific Wastes	HW.160.1 through HW.160.6

	<b>REFER TO CHECKLIST ITEMS:</b>
Personnel Training	HW.165.1
Containers	HW.170.1
Notification	HW.175.1
Transportation	HW.180.1 through HW.180.3
Universal Waste Transporter	HW.185.1 through HW.185.7
Universal Waste Destination Facilities	HW.190.1 through HW.190.4
Cleanup Sites	
General	HW.200.1 through HW.200.6
Administrative Record	HW.205.1 and HW.205.2
Community Relations	HW.210.1 through HW.210.5
NPL Sites	HW.215.1 and HW.215.2

Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in July 2000, for example **[Added July 2000]**.

## HAZARDOUS WASTE MANAGEMENT

### Records To Review [Revised January 1999]

*Generator (including TSDFs if they are also generators)*

- Notification (USEPA identification number)
- Hazardous waste manifests
- LDR Restriction Notification Forms
- Manifest exception reports
- Biennial reports
- Inspection Logs (as applicable)
- Delistings
- Land disposal restriction certifications
- Employee training documentation
- Contingency plan
- Notifications of hazardous waste oil fuel marketing or blending activity

### Physical Features To Inspect [Revised January 1999]

- Disposal sites
- Accumulations points
- Incinerators
- Vehicles used for transport
- Storage facilities (including drums)
- Surface impoundments
- OB/OD sites
- Treatment units
- Generation sites
- Satellite accumulation points
- Recycling sites



**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>HW.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>HW.1.2.</b> FWS facilities are required to comply with state and local regulations and compliance agreements negotiated with Federal, state, and local governments (EO 12088, Section 1-1; <i>Federal Facilities Compliance Act</i>, Section 102).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local hazardous waste requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies where approved.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> <li>- additional manifesting requirements</li> <li>- more frequent reporting requirements</li> <li>- transportation</li> <li>- identification of special waste or waste categories</li> <li>- regulation of specific substances as hazardous waste such as: medical, pathological, and infectious waste; used oil; explosives; used batteries</li> <li>- small and very small quantity generator requirements</li> <li>- RCRA permitting of oil/water separators</li> <li>- disposal requirements</li> <li>- construction and operation of storage and disposal facilities</li> <li>- satellite accumulation point requirements</li> <li>- container marking and labeling requirements.)</li> </ul> <p>Verify that the actions detailed in compliance agreements are being taken according to the schedule established in the agreements.</p>

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.1.3.</b> Facilities are required to meet regulatory and FWS requirements issued since the finalization of the handbook (a finding under this checklist item will have the citation of the new regulations as a basis of finding).</p>	<p>Determine if any new regulations concerning hazardous waste have been issued since the finalization of the handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p>
<p><b>HW.1.4.</b> FWS facilities should report all NOV's to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p>	<p>Determine if the facility has received an NOV relating to hazardous waste.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p>
<p><b>HW.1.5.</b> Specific persons should be designated responsible for areas where hazardous waste is stored, and the precise nature of their responsibilities should be specified (MP).</p>	<p>Verify that specific individuals have been designated responsible for hazardous waste storage areas.</p> <p>Verify that the individuals designated responsible for hazardous waste storage areas are aware of the precise nature of their responsibilities.</p>
<p><b>HW.1.6.</b> FWS facilities should report spills of hazardous waste to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p>	<p>Verify that FWS facilities report spills of hazardous waste to the Region and the EFC.</p> <p>(NOTE: Use the reportable quantity (RQ) as the baseline for reporting, see Appendix 3-1 in Hazardous Materials Management.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.10</b></p> <p><b>ALL SIZES OF GENERATORS</b></p> <p><b>HW.10.1.</b> Generators of solid waste must determine if the wastes are hazardous wastes (40 CFR 261.3, 261.4(b), 261.21 through 261.24, and 262.11) [Revised April 2000].</p>	<p>(NOTE: Determination of whether or not a waste is a hazardous waste can be done through one of the following:</p> <ul style="list-style-type: none"> <li>- knowledge of all the constituents of the waste (MSDSs) and whether it is listed in 40 CFR 261</li> <li>- laboratory analysis</li> <li>- knowledge of processes and/or materials used.)</li> </ul> <p>(NOTE: Unidentified waste materials and spilled hazardous materials may have to be disposed of as hazardous waste depending on their constituents or characteristics.)</p> <p>(NOTE: Some batteries, pesticides, thermostats, and mercury lamps may be considered universal wastes instead of hazardous wastes and need to be handled according to the requirements in 40 CFR 273 (see the appropriate definitions for clarification.)</p> <p>Discuss with staff how wastes generated are identified and classified.</p> <p>Determine if USEPA criteria were followed for identifying the characteristics of hazardous waste and USEPA's listed wastes in 40 CFR 261 (see Appendices 4-1, 4-2, 4-3, and 4-5).</p> <p>Determine whether the facility generates, transports, treats, stores, or disposes of any hazardous waste (see Appendices 4-1, 4-2, 4-3, and 4-5 for guidance) and the quantity.</p> <p>(NOTE: The following solid wastes are not considered to be hazardous wastes:</p> <ul style="list-style-type: none"> <li>- household waste</li> <li>- solid wastes that are generated by any of the following and are returned to the soils as fertilizers:               <ul style="list-style-type: none"> <li>- growing and harvesting of agricultural crops</li> <li>- raising of animals, including animal manures</li> <li>- mining overburden returned to the mine site</li> </ul> </li> <li>- fly ash waste, bottom ash waste, and flue gas emission control waste generated primarily from the combustion of coal or other fossil fuels except for facilities that burn hazardous waste</li> <li>- drilling fluids, produced waters, and other wastes affiliated with the explorations, development, or production of crude oil, natural gas, or geothermal energy</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- wastes that fail the test for the toxicity characteristic because chromium is present or are listed in Subpart D because of the presence of chromium, that do not fail the test for toxicity characteristics for any other constituent or are not listed due to the presence of any other constituent, and that do not fail the test for other characteristics (see 40 CFR 261.4(b) for a listing of types of industries generating this type of waste that receive exclusions)</li> <li>- solid waste from the extraction, beneficiation, and processing of ores and minerals (including coal, phosphate rock, and overburden) from the mining of uranium ore (NOTE: There is an exception to this for facilities that burn or process hazardous waste.)</li> <li>- cement kiln dust waste, except for facilities that burn or process hazardous waste</li> <li>- solid waste that consists of discarded arsenic-treated wood or wood products that fail the test for toxicity characteristics for hazardous waste codes D004 through D017 and that is not a hazardous waste for any other reason if the waste is generated by persons who utilize the arsenic-treated wood and wood products for those materials' intended end use</li> <li>- petroleum contaminated media and debris that fail the test for toxicity characteristics (hazardous waste codes D018 through D043 only) and are required to meet the corrective action regulations under 40 CFR 280 (see the section titled Storage Tank Management)</li> <li>- used chlorofluorocarbon refrigerants from totally enclosed heat transfer equipment, including mobile air-conditioning systems, mobile refrigeration and commercial and industrial air-conditioning and refrigeration systems that use chlorofluorocarbons as the heat transfer fluid in a refrigeration cycle, provided that the refrigerant is reclaimed for further use</li> <li>- non-terne plated used oil filters that are not mixed with a listed hazardous waste if these oil filters have been gravity hot-drained using one of the following methods:             <ul style="list-style-type: none"> <li>- puncturing the filter anti-drain back valve or the filter dome end and hot-draining</li> <li>- hot-draining and crushing</li> <li>- dismantling and hot-draining</li> <li>- any other equivalent hot-draining method that will remove used oil</li> </ul> </li> <li>- used oil re-refining distillation bottoms that are used as feedstock to manufacture asphalt products</li> <li>- leachate or gas condensate collected from landfills where certain solid wastes have been disposed, provided that:</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.10.2.</b> Facilities which claim that a particular material is not a solid waste or is conditionally exempt from regulation as a hazardous waste are required to provide specific documentation (40 CFR 261.2(f)).</p>	<ul style="list-style-type: none"> <li>-the solid wastes disposed would meet one or more of the listing descriptions for Hazardous Waste Codes K169, K170, K171, and K172 if these wastes had been generated after 8 February 1999</li> <li>-the solid wastes were disposed prior to the effective date of the listing</li> <li>-the leachate or gas condensate do not exhibit any characteristic of hazardous waste nor are derived from any other listed hazardous waste</li> <li>-discharge of the leachate or gas condensate, including leachate or gas condensate transferred from the landfill to a POTW by truck, rail, or dedicated pipe, is subject to regulation under sections 307(b) or 402 of the CWA.</li> </ul> <p>(NOTE: After 13 February 2001, leachate or gas condensate will no longer be exempt if it is stored or managed in a surface impoundment prior to discharge. There is one exception: if the surface impoundment is used to temporarily store leachate or gas condensate in response to an emergency situation (e.g., shutdown of wastewater treatment system), provided the impoundment has a double liner, and provided the leachate or gas condensate is removed from the impoundment and continues to be managed in compliance after the emergency ends.)</p> <p>Verify that listed wastes are tested for reactivity, corrosivity, ignitability, and toxicity characteristics.</p> <p>Verify that all data used for determination, including quality assurance data, is maintained and kept available for reference or inspection.</p> <p>Determine if the facility has any wastes that are typically handled as hazardous waste that it claims are exempt.</p> <p>(NOTE: This typically includes items that are recycled such as batteries, waste antifreeze, solvents, and in some states used oil.)</p> <p>Verify that, for these wastes, the facility can demonstrate that there is a known market or disposition for the material and that they meet the terms of the exclusion or exemption.</p> <p>Verify that documentation is provided that indicates the material is not a waste, or is exempt from regulation.</p> <p>(NOTE: One example of documentation are contracts showing that a second person uses the material as an ingredient in a production process.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.10.3.</b> Areas where containers of hazardous waste are stored should have secondary containment (MP).</p> <p><b>HW.10.4.</b> Checklist item deleted [July 1997].</p> <p><b>HW.10.5.</b> Empty containers previously holding hazardous wastes must meet the regulatory definition of empty before they are exempted from hazardous waste requirements (40 CFR 261.7).</p>	<p>Verify that, if the facility is claiming to recycle material, the equipment for the recycling is actually at the facility and in working order.</p> <p>Verify that the areas where containers of hazardous waste are stored have secondary containment such as a berm, dike, containment pallet, or other facility to prevent leakage to the environment.</p> <p>Verify that, for containers or inner liners holding hazardous wastes, one of the following is done:</p> <ul style="list-style-type: none"> <li>- wastes are removed that can be removed using common practices and no more than 2.5 cm [1 in.] of residue remains</li> <li>- if the container is less than or equal to 110 gal, no more than 3 percent by weight of total container capacity remains</li> <li>- when the container is greater than 110 gal, no more than 0.3 percent by weight of the total container capacity remains.</li> </ul> <p>Verify that, for containers which hold a compressed gas, the pressure in the container approaches atmosphere.</p> <p>Verify that, for containers or inner liners which held an acute hazardous waste listed in Appendix 4-4, one of the following is done:</p> <ul style="list-style-type: none"> <li>- it is triple rinsed</li> <li>- it is cleaned by another method identified through the literature or testing as achieving equivalent removal</li> <li>- the inner liner is removed.</li> </ul> <p>Verify that the rinsate has been disposed of as necessary according to its properties and possible classification as a hazardous waste.</p> <p>(NOTE: Some states require a treatment permit when returning compressed gas cylinders and aerosol cans to atmospheric.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.10.6.</b> Facilities that generate hazardous waste are required to maintain specific records for hazardous waste management (RP, 561 FW 6.6C(2) and 6.9A(1) through 6.9A(9)) [Citation Revised June 1998].</p> <p><b>HW.10.7.</b> Facilities with personnel exposed to injurious corrosive materials must have emergency use facilities available (29 CFR 1910.151(c)) [Added July 1999].</p>	<p>Verify that field stations maintain the following records:</p> <ul style="list-style-type: none"> <li>- a hazardous waste inventory</li> <li>- the USEPA and DOT identification numbers and waste descriptions</li> <li>- the known hazard of the waste</li> <li>- quantity generated in a month</li> <li>- location of the hazardous waste generation</li> <li>- type of storage (container, UST, AST, or other type of storage)</li> <li>- quantity of waste stored at one time and the location of the storage area</li> <li>- the amount of time the hazardous waste can be stored depending on generator status</li> <li>- all records to include manifests</li> <li>- the current removal/disposal practice for each waste.</li> </ul> <p>Verify that, where the eyes and body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body are provided within the work area for immediate emergency use.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.15</b></p> <p><b>CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS (CESQGs)</b></p> <p><b>HW.15.1.</b> Generators of no more than 100 kg/mo [≈ 220 lb/mo] of hazardous waste may qualify as CESQGs when they meet specific requirements (40 CFR 261.5) [Revised June 1998].</p>	<p>Verify that the following quantity and storage limitations are met:</p> <ul style="list-style-type: none"> <li>-no more than 100 kg [≈ 220 lb] of hazardous waste is generated in a calendar month</li> <li>-total onsite accumulation does not exceed more than 1000 kg [2204.62 lb] of hazardous waste</li> <li>-no more than 1 kg [≈ 2 lb] of acute hazardous waste (see Appendix 4-4) is generated in a calendar month</li> <li>-no more than a total of 100 kg [≈ 220 lb] of any residue or contaminated soil, waste, or other debris resulting from the cleanup of any acute wastes in a calendar month is generated.</li> </ul> <p>(NOTE: When making quantity determinations, all hazardous waste generated must be included except hazardous waste that is:</p> <ul style="list-style-type: none"> <li>-exempt from regulation under 40 CFR 261.4(c) through (f), 261.6(a)(3), 261.7(a)(1), or 261.8</li> <li>-managed immediately upon generation only in onsite elementary neutralization units, wastewater treatment units, or totally enclosed treatment facilities</li> <li>-recycled, without prior storage or accumulation, in an onsite process</li> <li>-used oil managed under 40 CFR 261.6(a)(4) and 40 CFR 279</li> <li>-universal waste managed under 40 CFR 273.)</li> </ul> <p>Verify that wastes are either treated or disposed of in an onsite facility or delivered to an offsite TSDF, either of which is one of the following:</p> <ul style="list-style-type: none"> <li>-permitted</li> <li>-in interim status</li> <li>-authorized to manage hazardous waste by a state with an approved hazardous waste management program</li> <li>-permitted, licensed, or registered by a state to manage municipal or industrial solid waste</li> <li>-a facility that does one of the following: <ul style="list-style-type: none"> <li>-beneficially uses or reuses, or legitimately recycles or reclaims, its waste</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.15.2.</b> CESQG personnel who handle hazardous waste are required to meet certain training requirements (RP, 561 FW 6.9C(3)) [Citation Revised June 1998].</p>	<p align="center">- treats waste prior to beneficial use or reuse, or legitimate recycling or reclamation - a universal waste handler or a destination facility for universal waste.</p> <p>(NOTE: A permitted TSF should be permitted to receive hazardous waste from a CESQG.)</p> <p>(NOTE: If a hazardous waste generator meets the requirements for being a CESQG, they are not required to meet any of the standards outlined in 40 CFR 262 through 266, (except 262.11), 268, and 270.)</p> <p>(NOTE: If a CESQG mixes its waste with used oil, the mixture is subject to the requirements in Subpart G, 40 CFR 279 if the mixture is destined to be burned for energy recovery.)</p> <p>(NOTE: Quantities of acute hazardous waste greater than listed amounts are required to be handled according to the standards in 40 CFR 262 through 266, 268, 270, and 124.)</p> <p>(NOTE: Even though a CESQG is not legally required to use a manifest or obtain a hazardous waste identification number, many hazardous waste haulers will not transport hazardous waste from a facility without a manifest or identification number.)</p> <p>Verify that the training program is directed by a person trained in hazardous waste management procedures.</p> <p>Verify that the training program coincides with the hazard communication program and includes the following:</p> <ul style="list-style-type: none"> <li>- response to fire or explosion</li> <li>- response to leaks or spills</li> <li>- waste turn-in procedures</li> <li>- identification of hazardous wastes</li> <li>- container use, marking, labeling, and onsite transportation</li> <li>- manifesting and offsite transportation</li> <li>- personnel health and safety and fire safety</li> <li>- facility shutdown procedures.</li> </ul> <p>Verify that new employee training is completed within 6 mo of employment.</p> <p>Verify that an annual review of initial training is provided.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.15.3.</b> Training records must be maintained for all CESQG staff who manage hazardous waste (MP).</p> <p><b>HW.15.4.</b> Containers used to store hazardous waste at CESQGs must be in good condition and not leaking (RP, 561 FW 6.7E(2)(b)(iii)) [Citation Revised June 1998]</p> <p><b>HW.15.5.</b> Containers used at CESQGs must be made of or lined with materials compatible with the waste stored in them (RP, 561 FW 6.7E(2)(b)(iv)) [Citation Revised June 1998].</p> <p><b>HW.15.6.</b> Containers of hazardous waste at CESQGs must be closed during storage and handled in a safe manner (RP, 561 FW 6.7E(2)(b)(ii) and 6.7E(2)(b)(v)) [Citation Revised June 1998].</p>	<p>Verify that employees do not work unsupervised until training is completed.</p> <p>Verify specifically that accumulation point managers and hazardous waste handlers have been trained.</p> <p>Examine training records and verify that they include the following:</p> <ul style="list-style-type: none"> <li>- job title and description for each employee by name</li> <li>- written description of how much training each position will obtain</li> <li>- documentation of training received by name.</li> </ul> <p>Determine if training records are retained for 3 yr after employment at the facility terminates or until closure of the facility.</p> <p>Verify that containers are not leaking, bulging, rusting, damaged, or dented.</p> <p>Verify that waste is transferred to a new container or managed in another appropriate manner when necessary.</p> <p>Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums.</p> <p>Verify that containers are closed, except when it is necessary to add or remove waste (check bungs on drums).</p> <p>Verify that handling and storage practices do not cause damage to the containers or cause them to leak.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.15.7.</b> Containers of hazardous waste are required to be stored in designated storage areas at CESQGs that meet specific parameters (RP, 561 FW 6.7E(2)(c)) [Citation Revised June 1998].</p>	<p>Verify that all hazardous waste containers are identified and stored in appropriate areas.</p> <p>(NOTE: Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply.)</p> <p>Verify that the storage area has a portable fire extinguisher and special extinguishing equipment is needed for the waste being stored.</p> <p>Verify the following by inspecting storage areas:</p> <ul style="list-style-type: none"> <li>- containers are not stored more than two high and have pallets between them</li> <li>- containers are positioned so that the label is clearly visible at all times</li> <li>- containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system)</li> <li>- at least 3 ft of aisle space is provided between rows of containers</li> <li>- there is adequate spill control/containment material on hand.</li> </ul>
<p><b>HW.15.8.</b> Storage areas are required to be inspected periodically (RP, 561 FW 6.7E(2)(d)) [Citation Revised June 1998].</p>	<p>Verify that the storage areas are inspected periodically.</p> <p>Verify that inspection logs are maintained by facility personnel.</p> <p>Verify that the inspection includes the following:</p> <ul style="list-style-type: none"> <li>- condition of drums</li> <li>- compatibility/segregation of wastes</li> <li>- required labels</li> <li>- adequate aisle space</li> <li>- proper safety equipment</li> <li>- adequate spill control materials</li> <li>- storage period compliance.</li> </ul>
<p><b>HW.15.9.</b> CESQGs are required to have a contingency plan (RP, 561 FW 6.9B(4) and 6.9B(7)) [Citation Revised June 1998].</p>	<p>Verify that the facility has a contingency plan that is specific to the wastes managed at the facility.</p> <p>Verify that the plan includes:</p> <ul style="list-style-type: none"> <li>- a description of actions to be taken during an emergency</li> <li>- a description of arrangements made with local police departments, fire departments, hospitals, contractors, and state and local emergency response teams as appropriate</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.15.10.</b> CESQG facilities are required to have an emergency coordinator on call at all times (RP, 561 FW 6.9B(6)) [Citation Revised June 1998].</p>	<ul style="list-style-type: none"> <li>- names, addresses, and phone numbers of all persons qualified to act as emergency coordinators</li> <li>- a list of all emergency equipment at the facility, its location, and what it looks like</li> <li>- an evacuation plan for facility personnel where there is a possibility that an evacuation would be needed.</li> </ul> <p>Verify that the plan is routinely reviewed and updated, especially when emergency coordinators change, the waste being handled changes, and/or the list of emergency equipment changes.</p> <p>Verify that there is at least one employee at the facility or on call at all times with the responsibility for coordinating all emergency response measure.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SMALL QUANTITY GENERATORS (SQGs)</b></p> <p><b>HW.20 General</b></p> <p><b>HW.20.1.</b> Generators of more than 100 kg [≈ 220 lb] but less than 1000 kg [≈ 2205 lb] of hazardous waste per month may qualify as an SQG that can accumulate hazardous waste onsite for 180 days without a permit if specific conditions are met (40 CFR 262.34(d)(1), 262.34(d)(4), 262.34(e), and 262.34(f)).</p> <p><b>HW.20.2.</b> SQGs that generate, transport, or handle hazardous wastes must obtain a USEPA identification number (40 CFR 262.12(a), 262.1(b), and 265.11).</p>	<p>(NOTE: An SQG generates more than 100 kg [≈ 220 lb, 27 gal] but less than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Inspect containers, storage, and records.</p> <p>Verify that no more than 1000 kg [≈ 2205 lb] of hazardous waste is generated in any month.</p> <p>Verify that the onsite accumulation time does not exceed 180 days.</p> <p>(NOTE: For an SQG, the accumulation start date begins when the first waste is poured/placed into the waste container, except for at satellite accumulation points.)</p> <p>(NOTE: The 180-day time period is extended to 270 days if the waste must be transported more than 200 mi to a TSDF. This extension does not apply if a TSDF is available within 200 mi and the facility chooses to transport the waste to a farther away TSDF.)</p> <p>Verify that no more than 6000 kg [≈ 13,228 lb] is allowed to accumulate at the facility.</p> <p>Verify that containers are marked with the date accumulation began and the words HAZARDOUS WASTE.</p> <p>Verify that the containers and the areas at which containers are stored meet the requirements outlined in the subsections pertaining to SQGs.</p> <p>(NOTE: When an SQG exceeds the quantity generation or amount accumulation, it becomes subject to either Generator or TSDF requirements. When an SQG exceeds the storage time limitation, the SQG becomes subject to all storage facility and permitting requirements.)</p> <p>Examine documentation from USEPA for the facility's generator identification number.</p> <p>Verify that the correct identification number is used on all appropriate documentation (i.e., manifests).</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.20.3.</b> An SQG must not offer its hazardous waste to transporters or to TSDFs that have not received a USEPA identification number (40 CFR 262.12(c)).</p> <p><b>HW.20.4.</b> SQGs of hazardous waste are required to use manifests and keep records of hazardous waste activity (40 CFR 262.20, 262.40(a), 262.40(c), 262.40(d), 262.42(b), 262.43, and 262.44).</p> <p><b>HW.20.5.</b> SQGs are required to have an emergency coordinator and emergency response planning (40 CFR 262.34(d)(5)).</p>	<p>Verify that all transporters of hazardous waste of TSDFs have a USEPA identification number by examining records pertaining to disposal contract awards.</p> <p>Verify that signed copies of returned manifests are kept for 3 yr.</p> <p>Verify that exception reports were submitted to the USEPA regional administrator when a signed manifest copy was not received within 60 days of the waste being accepted by the initial transporter.</p> <p>Verify that exception reports are kept for at least 3 yr.</p> <p>Verify that records of test results, waste analyses, and determinations are kept for 3 yr.</p> <p>(NOTE: The requirement to prepare a manifest does not apply if:</p> <ul style="list-style-type: none"> <li>- the waste is reclaimed under contractual agreement and: <ul style="list-style-type: none"> <li>- the type of waste and frequency of shipments are specified in the agreement</li> <li>- the vehicle used to transport the waste to the recycling facility and to deliver regenerated material back to the generator is owned and operated by the reclaimer</li> </ul> </li> <li>- the generator maintains a copy of the reclamation agreement for at least 3 yr after termination of the agreement.)</li> </ul> <p>(NOTE: Period of retention of records is extended automatically during the course of any unresolved enforcement action or as requested by the USEPA administrator.)</p> <p>Verify that the facility has an emergency coordinator.</p> <p>Verify that the following emergency information is posted next to the telephone:</p> <ul style="list-style-type: none"> <li>- name and telephone number of emergency coordinator</li> <li>- location of fire extinguishers and spill control materials</li> <li>- location of fire alarms (if present)</li> <li>- telephone number of fire department.</li> </ul> <p>Verify that waste handlers are familiar with waste handling and emergency procedures.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SQGs</b></p> <p><b>HW.25 Personnel Training</b></p> <p><b>HW.25.1.</b> SQG personnel are required to be thoroughly familiar with proper waste handling and emergency procedures (40 CFR 262.34(d)(5)(iii)).</p> <p><b>HW.25.2.</b> SQG personnel who handle hazardous waste are required to meet certain training requirements (RP, 561 FW 6.9C(3)) [Citation Revised June 1998].</p> <p><b>HW.25.3.</b> Training records should be maintained for all SQG staff who manage hazardous waste (MP).</p>	<p>(NOTE: An SQG generates more than 100 kg [≈ 220 lb, 27 gal] but less than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Verify that personnel are thoroughly familiar with waste handling and emergency procedures relevant to their responsibilities during normal facility operation and emergencies.</p> <p>Verify that the training program is directed by a person trained in hazardous waste management procedures.</p> <p>Verify that the training program coincides with the hazard communication program and includes the following:</p> <ul style="list-style-type: none"> <li>- response to fire or explosion</li> <li>- response to leaks or spills</li> <li>- waste turn-in procedures</li> <li>- identification of hazardous wastes</li> <li>- container use, marking, labeling, and onsite transportation</li> <li>- manifesting and offsite transportation</li> <li>- personnel health and safety and fire safety</li> <li>- facility shutdown procedures.</li> </ul> <p>Verify that new employee training is completed within 6 mo of employment.</p> <p>Verify that an annual review of initial training is provided.</p> <p>Verify that employees do not work unsupervised until training is completed.</p> <p>Verify specifically that accumulation point managers and hazardous waste handlers have been trained.</p> <p>Examine training records and verify that they include the following:</p> <ul style="list-style-type: none"> <li>- job title and description for each employee by name</li> <li>- written description of how much training each position will obtain</li> <li>- documentation of training received by name.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	Determine if training records are retained for 3 yr after employment at the facility terminates or until closure of the facility.



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SQGs</b></p> <p><b>HW.30 Containers</b></p> <p><b>HW.30.1.</b> Containers used to store hazardous waste at SQGs must be in good condition and not leaking (40 CFR 262.34(d)(2) and 265.171).</p> <p><b>HW.30.2.</b> Containers used at SQGs must be made of or lined with materials compatible with the waste stored in them (40 CFR 262.34 (d)(2) and 265.172).</p> <p><b>HW.30.3.</b> Containers of hazardous waste at SQGs must be closed during storage and handled in a safe manner (40 CFR 262.34 (d)(2) and 265.173).</p> <p><b>HW.30.4.</b> The handling of incompatible wastes, or incompatible wastes and materials in containers at SQGs, must comply with safe management practices (40 CFR 262.34(d)(2) and 265.177).</p>	<p>(NOTE: An SQG generates more than 100 kg [<math>\approx</math> 220 lb, 27 gal] but less than 1000 kg [<math>\approx</math> 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Verify that containers are not leaking, bulging, rusting, damaged, or dented.</p> <p>Verify that waste is transferred to a new container or managed in another appropriate manner when necessary.</p> <p>Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums.</p> <p>Verify that containers are closed, except when it is necessary to add or remove waste (check bungs on drums).</p> <p>Verify that handling and storage practices do not cause damage to the containers or cause them to leak.</p> <p>Verify that incompatible wastes or incompatible wastes and materials are not placed in the same containers unless it is done so that it does not:</p> <ul style="list-style-type: none"> <li>-generate extreme heat or pressure, fire, or explosion, or violent reaction</li> <li>-produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health</li> <li>-produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions</li> <li>-damage the structural integrity of the device or facility</li> <li>-by any other like means threaten human health.</li> </ul>

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	<p>(NOTE: Incompatible wastes as listed in Appendix 4-5 should not be placed in the same drum.)</p> <p>Verify that hazardous wastes are not placed in an unwashed container that previously held an incompatible waste or material.</p> <p>Verify that containers holding hazardous wastes incompatible with wastes stored nearby in other containers, open tanks, piles, or surface impoundments are separated or protected from each other by a dike, berm, wall, or other device.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SQGs</b></p> <p><b>HW.35 Satellite Accumulation Points</b></p> <p><b>HW.35.1.</b> All SQGs may accumulate as much as 55 gal of hazardous waste or 1 qt of acutely hazardous waste in containers at or near any point of initial generation without complying with the requirements for onsite storage if specific standards are met (40 CFR 262.34(c)).</p>	<p>(NOTE: An SQG generates more than 100 kg [≈ 220 lb, 27 gal] but less than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>(NOTE: This type of storage is often referred to as a satellite accumulation point.)</p> <p>Verify that the satellite accumulation point is at or near the point of generation and is under the control of the operator of the waste generating process.</p> <p>Verify that the containers are in good condition and are compatible with the waste stored in them and that the containers are kept closed except when waste is being added or removed.</p> <p>Verify that the containers are marked HAZARDOUS WASTE or other words that identify contents.</p> <p>(NOTE: See Appendices 4-1, 4-2, 4-3, and 4-4 for guidance on characteristic and listed hazardous wastes.)</p> <p>Verify that, when waste is accumulated in excess of quantity limitations, the following actions are taken by interviewing the shop managers:</p> <ul style="list-style-type: none"> <li>- the excess container is marked with the date the excess amount began accumulating</li> <li>- the excess waste is transferred to a 180-day or permitted storage area within 3 days.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SQGs</b></p> <p><b>HW.40 Container Storage Areas</b></p> <p><b>HW.40.1.</b> Containers of hazardous waste are required to be stored in designated storage areas at SQGs that meet specific parameters (RP, 561 FW 6.7E(2)(c)) [Citation Revised June 1998].</p> <p><b>HW.40.2.</b> SQG storage areas for hazardous waste must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste (40 CFR 262.34(d)(4) and 265.30 through 265.37).</p>	<p>(NOTE: An SQG generates more than 100 kg [≈ 220 lb, 27 gal] but less than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Verify that all hazardous waste containers are identified and stored in appropriate areas.</p> <p>(NOTE: Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply.)</p> <p>Verify that the storage area has a portable fire extinguisher and special extinguishing equipment is needed for the waste being stored.</p> <p>Verify the following by inspecting storage areas:</p> <ul style="list-style-type: none"> <li>- containers are not stored more than two high and have pallets between them</li> <li>- containers are positioned so that the label is clearly visible at all times</li> <li>- containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system)</li> <li>- at least 3 ft of aisle space is provided between rows of containers</li> <li>- there is adequate spill control/containment material on hand.</li> </ul> <p>Determine if the following required equipment is easily accessible and in working condition by inspecting the SQG storage areas:</p> <ul style="list-style-type: none"> <li>- internal communications or alarm system capable of providing immediate emergency instruction to facility personnel</li> <li>- a telephone or hand-held two-way radio</li> <li>- portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals)</li> <li>- spill control equipment</li> <li>- decontamination equipment</li> <li>- fire hydrants or other source of water (reservoir, storage tank, etc.) with adequate volume and pressure, foam producing equipment, automatic sprinklers, or water spray systems.</li> </ul> <p>Determine if equipment is tested and maintained as necessary to ensure proper operation in an emergency.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.40.3.</b> SQGs must conduct weekly inspections of container storage areas (40 CFR 262.34(d)(2) and 265.174).</p>	<p>Verify that sufficient aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the operation.</p> <p>Verify that police, fire departments, and emergency response teams are familiar with the layout of the facility, properties of the waste being handled, and general operations as appropriate for the type of waste and potential need for such services.</p> <p>Verify that the hospital is familiar with the site and the types of injuries that could result in an emergency as appropriate for the type of waste and potential need for such services.</p> <p>Verify that inspections are conducted at least weekly to look for leaking containers and signs of deterioration of containers.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SQGs</b></p> <p><b>HW.42 Storage Tanks</b></p> <p><b>HW.42.1.</b> SQGs must comply with certain storage tank requirements (40 CFR 262.34(d)(3) and 265.201(a) through 265.201(c)).</p>	<p>(NOTE: An SQG generates more than 100 kg [≈ 220 lb, 27 gal] but less than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Determine if the facility is an SQG that stores or treats wastes in tanks.</p> <p>Verify that:</p> <ul style="list-style-type: none"> <li>- the tank prevents: <ul style="list-style-type: none"> <li>- generation of extreme heat or pressure, fire or explosions, or violent reactions</li> <li>- production of uncontrolled toxic mists, fumes, dusts, or gases in quantities that would threaten human health or the environment</li> <li>- production of uncontrolled flammable fumes or gases in quantities that would pose a risk of fire or explosion</li> <li>- damage to structural integrity of the device or facility</li> <li>- threats to human health or the environment through other means</li> </ul> </li> <li>- no treatment reagent or hazardous wastes are placed in the tank that would cause it to rupture, leak, corrode, or otherwise fail before the end of its intended life</li> <li>- uncovered tanks have at least 60 cm (2 ft) of freeboard unless the tank has a containment structure, drainage control system, or a diversion structure with a volume that equals or exceeds the capacity of the top 60 cm (2 ft) of the tank</li> <li>- continuous feed tanks have a wastefeed cutoff or other stop/bypass system.</li> </ul> <p>Verify that the following are inspected at the indicated times:</p> <ul style="list-style-type: none"> <li>- discharge control equipment at least once each operating day</li> <li>- monitoring equipment (pressure and temperature gauges) at least once each operating day</li> <li>- waste level in tank at least once each operating day</li> <li>- construction material of the tank for corrosion or leakage weekly</li> <li>- surrounding area for leakage and/or contamination at least weekly.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.42.2.</b> Tank systems at SQGs must comply with requirements for ignitable, reactive, or incompatible wastes (40 CFR 262.34(d)(3) and 265.201(e) through 265.201(f)).</p>	<p>Verify that ignitable or reactive wastes are not placed in a tank system unless one of the following is done:</p> <ul style="list-style-type: none"> <li>- the waste is treated, rendered, or mixed before or immediately after placement in the tank system so that it is no longer reactive or ignitable and the minimum requirements for reactive and ignitable wastes are met</li> <li>- the waste is treated or stored in such a way that it is protected from any material or conditions that may cause the waste to ignite or react</li> <li>- the tank system is used solely for emergencies.</li> </ul> <p>Verify that the minimum protective distances between waste management areas and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's (NFPA'S) <i>Flammable and Combustible Liquids Code</i> are maintained.</p> <p>Verify that incompatible waste, or incompatible wastes and materials, are not placed in the same tank system unless minimum safety requirements are met.</p> <p>Verify that hazardous waste is not placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material unless minimum safety requirements are met.</p>
<p><b>HW.42.3.</b> SQGs must comply with specific tank closure requirements (40 CFR 265.201(d)).</p>	<p>Verify that tank systems in the process of being closed or closed had all hazardous waste removed from tanks, discharge control equipment, and discharge confinement structures.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SQGs</b></p> <p><b>HW.45 Disposal of Restricted Waste</b></p> <p><b>HW.45.1.</b> SQGs must test their wastes or use process knowledge to determine if they are restricted from land disposal (40 CFR 268.7(a)(1)) <b>[Revised June 1998]</b>.</p> <p><b>HW.45.2.</b> When an SQG is managing a waste or soil that does not meet treatment standards, a written notice must be issued to the TSDF stating the appropriate treatment standards and prohibition levels (40 CFR 268.7(a)(2), 268.7(a)(3) and 268.7(a)(10)) <b>[Revised April 2000]</b>.</p>	<p>(NOTE: See Appendix 4-6 for a summary of recordkeeping and notification requirements.)</p> <p>(NOTE: An SQG generates more than 100 kg [≈ 220 lb, 27 gal] but less than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Determine whether the SQG determines if wastes have to be treated prior to disposal.</p> <p>(NOTE: Determination can be made by testing the waste or using knowledge of the waste.)</p> <p>Determine if land disposal restricted wastes are generated by reviewing test results (see Appendix 4-7).</p> <p>Verify that, for waste or soil that does not meet the applicable treatment standards or exceeds the applicable prohibition levels, the notice is issued and includes:</p> <ul style="list-style-type: none"> <li>- the USEPA hazardous waste number</li> <li>- waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 - F005, F039, D001, D002, D003, and D012 - D043</li> <li>- whether the waste is a nonwastewater or wastewater</li> <li>- the subcategory of the waste</li> <li>- for hazardous debris, the contaminants subject to treatment, and indication that the contaminants are being treated plus: <ul style="list-style-type: none"> <li>- the USEPA hazardous waste number</li> <li>- waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 - F005, F039, D001, D002, D003, and D012 - D043</li> <li>- whether the waste is a nonwastewater or wastewater</li> <li>- the subcategory of the waste</li> </ul> </li> <li>- a certification statement for contaminated soil.</li> </ul> <p>Verify that, for waste or contaminated soil that meets the treatment standard at the original point of generation, the notice includes:</p> <ul style="list-style-type: none"> <li>- the USEPA hazardous waste number</li> <li>- waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 - F005, F039, D001, D002, D003, and D012 - D043</li> </ul>

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	<ul style="list-style-type: none"> <li>- whether the waste is a nonwastewater or wastewater</li> <li>- the subcategory of the waste</li> <li>- the manifest number associated with the shipment</li> <li>- the waste analysis data, when available</li> <li>- the signature of an authorized representative certifying that the waste complies with the treatment standards of 40 CFR 268.</li> </ul> <p>Verify that, for waste or contaminated soil that meets the treatment standard at the original point of generation, if the waste changes, the generator sends a new notice and certification to the receiving facility and places a copy in their files.</p> <p>(NOTE: Generators of hazardous debris excluded from the definition of hazardous waste under 40 CFR 261.3(f) are not subject to the requirements for waste or contaminated soil that meets the treatment standard at the original point of generation.)</p> <p>Verify that, for restricted waste that is subject to an exemption from a prohibition of the type of land disposal used, the notice states that the waste is not prohibited from land disposal and includes:</p> <ul style="list-style-type: none"> <li>- the USEPA hazardous waste number</li> <li>- waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 - F005, F039, D001, D002, D003, and D012 - D043</li> <li>- whether the waste is a nonwastewater or wastewater</li> <li>- the subcategory of the waste</li> <li>- the manifest number associated with the shipment</li> <li>- the waste analysis data, when available</li> <li>- for hazardous debris, the contaminants subject to treatment, and indication that the contaminants are being treated plus: <ul style="list-style-type: none"> <li>- the USEPA hazardous waste number</li> <li>- waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 - F005, F039, D001, D002, D003, and D012 - D043</li> <li>- whether the waste is a nonwastewater or wastewater</li> <li>- the subcategory of the waste.</li> </ul> </li> </ul> <p>(NOTE: SQGs with tolling agreements are required to comply with notification and certification requirements for the initial shipment of waste subject to the agreement. The SQG will retain an onsite copy of the notification and certification along with the tolling agreement for at least 3 yr after the termination or expiration of the agreement.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.45.3.</b> SQGs that are managing hazardous wastes in tanks, containers, or containment buildings and treating the waste to meet applicable treatment standards must develop and follow a written waste analysis plan (40 CFR 268.7(a)(5) and 268.7(a)(10)) [Citation Revised June 1998].</p>	<p>Verify that the plan describes the procedures the generator will carry out to comply with treatment standards.</p> <p>(NOTE: SQGs treating hazardous debris under the alternative treatment standards in Table 1 of 40 CFR 268.7(a)(4) are not required to conduct waste analysis.)</p> <p>Verify that the plan is kept onsite and:</p> <ul style="list-style-type: none"> <li>-the plan is based on a detailed chemical and physical analysis of representative sample of the prohibited waste being treated</li> <li>-contains all information necessary to treat the wastes in accordance with regulatory requirements, including the selected testing frequency</li> <li>-the plan is filed with the USEPA regional administrator or state-authorized official at least 30 days prior to the treatment activity, with delivery verified.</li> </ul> <p>(NOTE: SQGs with tolling agreements are required to comply with notification and certification requirements for the initial shipment of waste subject to the agreement. The SQG will retain an onsite copy of the notification and certification along with the tolling agreement for at least 3 yr after the termination or expiration of the agreement.)</p>
<p><b>HW.45.4.</b> SQGs are required to keep specific documents pertaining to restricted wastes onsite (40 CFR 268.7(a)(4), 268.7(a)(6), 268.7(a)(7) and 268.7(a)(10))[Revised June 1998].</p>	<p>Verify that, if generator knowledge is used to determine whether a waste or contaminated soil meets land disposal restriction requirements, the supporting data used in making this determination is retained onsite in the facility operating files.</p> <p>Verify that, when it is determined whether a waste or contaminated soil is restricted using appropriate test methods, the waste analysis data are retained onsite in the files.</p> <p>Verify that, when managing a prohibited waste that is excluded from the definition of a hazardous waste or solid waste or exempt from RCRA Subtitle C, a one-time notice is placed in the files stating that the generated waste is excluded.</p> <p>Verify that a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation is kept for at least 3 yr from the date the waste was last sent to onsite or offsite treatment, storage, or disposal.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.45.5.</b> The storage of hazardous waste that is restricted from land disposal is not allowed unless specific conditions are met (40 CFR 268.50).</p>	<p>Verify that SQGs with a tolling agreement retain the agreement and copies of notification and certification for at least 3 yr after the agreement expires.</p> <p>Verify that land disposal restricted waste is not stored at the facility unless the SQG is storing the wastes in tanks, containers, or containment buildings onsite only for the purpose of accumulating enough hazardous waste to facilitate proper recovery, treatment, or disposal and all appropriate standards for containers, tanks, and containment buildings are met.</p> <p>Verify that transporters do not store manifested shipments of land disposal restricted wastes for more than 10 days.</p> <p>(NOTE: The prohibition on storage does not apply to hazardous wastes that have met treatment standards.)</p> <p>Verify that liquid hazardous wastes containing PCBs at concentrations greater than 50 ppm are stored at a site that meets the requirements of 40 CFR 761.65(b) (see the section titled Special Pollutants Management) and is removed from storage within 1 yr of the date it was first placed into storage.</p>

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<p><b>GENERATORS</b></p> <p><b>HW.55 General</b></p> <p><b>HW.55.1.</b> Generators may accumulate hazardous waste onsite for 90 days or less without a permit or interim status provided they meet certain conditions (40 CFR 262.34(a)(2), 262.34(a)(3), and 262.34(b)).</p> <p><b>HW.55.2.</b> A generator that generates, transports, or handles hazardous wastes must obtain a USEPA identification number (40 CFR 262.12(a), 262.12(b), 264.11, and 265.11).</p>	<p>(NOTE: A Generator generates more than 1000 kg [<math>\approx</math> 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Inspect each accumulation point and interview the accumulation point manager. Verify that:</p> <ul style="list-style-type: none"> <li>- the recorded start date indicates no container or tank has been accumulating a hazardous waste longer than 90 days (unless granted a 30-day extension)</li> <li>- each container and tank is labeled or marked clearly with the words HAZARDOUS WASTE or other appropriate words clearly indicating the contents</li> <li>- the accumulation start date is indicated.</li> </ul> <p>(NOTE: For a generator, the accumulation start date begins when the first waste is poured/placed into the waste container, except for at satellite accumulation points.)</p> <p>(NOTE: A generator who meets these standards is exempt from meeting the closure requirements outlined in 40 CFR 265.110 through 265.156, except for 265.111 and 265.114.)</p> <p>(NOTE: A generator who accumulates hazardous waste for more than 90 days (without an extension) is subject to all TSD and permitting requirements.)</p> <p>Examine documentation from USEPA for the facility's generator identification number.</p> <p>Verify that the correct identification number is used on all appropriate documentation (i.e., manifests).</p>

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<p><b>HW.55.3.</b> Generators must not offer their waste to transporters or TSDFs that have not received a USEPA identification number (40 CFR 262.12(c)).</p>	<p>Verify that all transporters of hazardous wastes or TSDFs used by the generator have a USEPA identification number by examining records pertaining to disposal contract awards.</p>
<p><b>HW.55.4.</b> Generators of hazardous waste must submit a biennial report to the regional administrator by 1 March of even numbered years (40 CFR 262.40(b) and 262.41(a)).</p>	<p>Verify that the biennial report (USEPA Form 8700-13A) is complete and was submitted in a timely manner.</p> <p>Verify that copies are kept for 3 yr.</p> <p>(NOTE: Reporting for exports of hazardous waste is not required.)</p> <p>(NOTE: This may not apply if an annual report was submitted to the state depending on the state requirements.)</p> <p>(NOTE: Periods of retention of records may be extended automatically during the course of any unresolved enforcement action or at the request of the USEPA administrator.)</p>
<p><b>HW.55.5.</b> Generators are required to use manifests, file manifest exception reports, and maintain records (40 CFR 262.40(b), 262.40 (d), and 262.42(a)).</p>	<p>Verify that manifests are used when shipping the waste offsite.</p> <p>Verify that exception reports are filed with the USEPA regional administrator if a copy of the manifest is not received within 45 days after the waste is accepted by the initial transporter.</p> <p>Verify that manifests and exception reports are kept for 3 yr.</p> <p>(NOTE: Periods of retention for records may be extended automatically during the course of any unresolved enforcement action or at the request of the USEPA administrator.)</p>
<p><b>HW.55.6.</b> Generators are required to keep records of waste analyses, tests, and waste determinations (40 CFR 262.40(c)).</p>	<p>Verify that the appropriate records are kept for 3 yr from the date the waste was last sent to the onsite or offsite TSDF.</p> <p>(NOTE: Periods of retention for reports may be extended automatically during the course of any unresolved enforcement action or at the request of the USEPA administrator.)</p>

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<p><b>HW.55.7.</b> Generator storage areas must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste (40 CFR 262.34(a)(4) and 265.30 through 265.37).</p>	<p>Determine if the following required equipment is easily accessible and in working condition at the storage area:</p> <ul style="list-style-type: none"> <li>- internal communications or alarm system capable of providing immediate emergency instruction to facility personnel</li> <li>- a telephone or hand-held two-way radio</li> <li>- portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals)</li> <li>- spill control equipment</li> <li>- decontamination equipment</li> <li>- fire hydrants or other source of water (reservoir, storage tank, etc.) with adequate volume and pressure, foam producing equipment, automatic sprinklers, or water spray systems.</li> </ul> <p>Determine if equipment is tested and maintained as necessary to ensure proper operation in an emergency.</p> <p>Verify that sufficient aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the operation.</p> <p>Verify that police, fire department, and emergency response teams are familiar with the layout of the facility, properties of the waste being handled, and general operations as appropriate for the type of waste and potential need for such services.</p> <p>Verify that the hospital is familiar with the site and the types of injuries that could result in an emergency as appropriate for the type of waste and potential need for such services.</p>





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<p><b>GENERATORS</b></p> <p><b>HW.60 Personnel Training</b></p> <p><b>HW.60.1.</b> All facility personnel who handle hazardous waste must meet certain training requirements (40 CFR 262.34(a)(4) and 265.16(a) through 265.16(c)).</p> <p><b>HW.60.2.</b> Training records must be maintained for all facility staff who manage hazardous waste (40 CFR 262.34(a)(4), 265.16 (d), and 265.16(e)).</p>	<p>(NOTE: A Generator generates more than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Verify that the training program is directed by a person trained in hazardous waste management procedures.</p> <p>Verify that the training program includes the following:</p> <ul style="list-style-type: none"> <li>- contingency plan implementation (emergency procedures, equipment, and systems)</li> <li>- key parameters for automatic waste feed cut-off system</li> <li>- procedures for using, inspecting, and repairing emergency and monitoring equipment</li> <li>- operation of communications and alarm systems</li> <li>- response to fire or explosion</li> <li>- response to groundwater contamination incidents.</li> </ul> <p>Verify that new employee training is completed within 6 mo of employment/ assignment.</p> <p>Verify that an annual review of initial training is provided.</p> <p>Verify that employees do not work unsupervised until training is completed.</p> <p>Verify specifically that accumulation point managers and hazardous waste handlers have been trained.</p> <p>Verify that training records include the following:</p> <ul style="list-style-type: none"> <li>- job title and description for each employee by name</li> <li>- written description of how much training each position will obtain</li> <li>- documentation of training received by name.</li> </ul> <p>Determine if training records are retained for 3 yr after employment at the facility terminates or until the closure of the site.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GENERATORS</b></p> <p><b>HW.65 Contingency Plans and Emergency Coordinators</b></p> <p><b>HW.65.1.</b> Generators must have a contingency plan (40 CFR 262.34(a)(4) and 265.50 through 265.54).</p>	<p>(NOTE: A Generator generates more than 1000 kg [<math>\approx</math> 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>(NOTE: Generating activities may be addressed in the facility's Spill Prevention, Control, and Countermeasure (SPCC) plan or other emergency plan; or, if none exists, in a separate contingency plan.)</p> <p>Verify that the contingency plan is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents.</p> <p>Verify that the plan includes the following:</p> <ul style="list-style-type: none"> <li>- a description of actions to be taken during an emergency</li> <li>- a description of arrangements made with local police departments, fire departments, hospitals, contractors, and state and local emergency response teams as appropriate</li> <li>- names, addresses, and phone numbers of all persons qualified to act as emergency coordinator</li> <li>- a list of all emergency equipment at the facility and where this equipment is required, located, and what it looks like</li> <li>- an evacuation plan for facility personnel where there is a possibility evacuation would be needed.</li> </ul> <p>Verify that copies of the contingency plan are maintained at the generation sites and storage areas and also have been submitted to organizations which may be called upon to provide emergency services.</p> <p>Verify that the contingency plan is routinely reviewed and updated, especially when the facility is issued a new permit, the plan fails in an emergency, the emergency coordinators change, the waste being handled changes, and/or the list of emergency equipment changes.</p>

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<p><b>HW.65.2.</b> Each generator must have an emergency coordinator on the facility premises or on call at all times (40 CFR 262.34(a)(4) and 265.55).</p> <p><b>HW.65.3.</b> Emergency coordinators at generators must follow certain emergency procedures whenever there is an imminent or actual emergency situation (40 CFR 262.34(a)(4) and 265.56(a) through 265.56(i)).</p>	<p>Verify that, at all times, there is at least one employee at the facility or on call, with responsibility for coordinating all emergency response measures.</p> <p>Verify that the emergency coordinator is thoroughly familiar with the facility, the characteristics of the waste handled, and the provisions of the contingency plan. In addition, verify that the emergency coordinator has the authority to commit the resources needed to carry out the contingency plan.</p> <p>Verify that the emergency coordinator is required to follow these emergency procedures:</p> <ul style="list-style-type: none"> <li>- immediately activate facility alarms or communication systems and notify appropriate base, state, and local response parties</li> <li>- identify the character, exact source, amount, and a real extent of any released materials</li> <li>- assess possible hazards to human health or the environment, including direct and indirect effects (e.g., release of gases, surface runoff from water, or chemicals used to control fire or explosions, etc.)</li> <li>- stop processes and operations at the facility when necessary to prevent fires, explosions, or further releases</li> <li>- collect and contain the released waste</li> <li>- remove or isolate containers when necessary</li> <li>- monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment whenever appropriate</li> <li>- provide for treatment, storage, or disposal of recovered waste, contaminated soil, surface water, or other material</li> <li>- ensure that no waste which may be incompatible with the released material is treated, stored, or disposed of until cleanup is completed</li> <li>- ensure that all emergency equipment is cleaned and fit for its intended use before operations are resumed</li> <li>- notify the USEPA and appropriate state and local authorities that the facility is in compliance before operations resume.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<b>HW.65.4.</b> Operators must record the time, date, and details of any incident that requires implementing the contingency plan (40 CFR 262.34(a)(4) and 265.56(j)).	Determine if incidents have been recorded and corrective actions taken through a review of the facility operating records.  Verify that written reports have been submitted to the USEPA regional administrator within 15 days after the incident.



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<b>GENERATORS</b>	(NOTE: See Appendix 4-8 for guidance on the schedule for implementation of air emissions standards in 40 CFR 265.1080 through 265.1091. Also in relation to the requirements for air emissions standard, see the definitions of <i>Exempted Hazardous Waste Containers and Surface Impoundments</i> and <i>Exempted Hazardous Waste Management Unit</i> . There are documentation requirements for exempted containers.)
<b>HW.70 Containers</b>	(NOTE: A Generator generates more than 1000 kg [ $\approx$ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)
<b>HW.70.1.</b> Containers used to store hazardous waste at generators must be in good condition and not leaking (40 CFR 262.34(a)(1)(i) and 265.171).	Verify that containers are not leaking, bulging, rusting, damaged, or dented.  Verify that waste is transferred to a new container or managed in another appropriate manner when necessary.
<b>HW.70.2.</b> Containers used at generators must be made of or lined with materials compatible with the waste stored in them (40 CFR 262.34(a)(1)(i) and 265.172).	Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums.
<b>HW.70.3.</b> Containers at generators must be closed during storage and handled in a safe manner (40 CFR 262.34(a)(1)(i) and 265.173).	Verify that containers are closed, except when it is necessary to add or remove waste (check bungs on drums, look for funnels).  Verify that handling and storage practices do not cause damage to the containers or cause them to leak.

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<p><b>HW.70.4.</b> The handling of incompatible wastes, or incompatible wastes and materials in containers at generators, must comply with safe management practices (40 CFR 262.34(a)(1)(i) and 265.177).</p>	<p>Verify that incompatible wastes or incompatible wastes and materials are not placed in the same containers unless it is done so that it does not:</p> <ul style="list-style-type: none"> <li>- generate extreme heat or pressure, fire, or explosion, or violent reaction</li> <li>- produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health</li> <li>- produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions</li> <li>- damage the structural integrity of the device or facility</li> <li>- by any other like means threaten human health or the environment.</li> </ul> <p>(NOTE: Incompatible wastes as listed in Appendix 4-5 should not be placed in the same drum.)</p> <p>Verify that hazardous wastes are not placed in an unwashed container that previously held an incompatible waste or material.</p> <p>Verify that containers holding hazardous wastes incompatible with wastes stored nearby in other containers, open tanks, piles, or surface impoundments are separated or protected from each other by a dike, berm, wall, or other device.</p>
<p><b>HW.70.5.</b> Containers with design capacities greater than 0.1 m<sup>3</sup> [≈ 26 gal] and less than or equal to 0.46 m<sup>3</sup> [≈ 121.5 gal] into which hazardous waste is placed are required to meet specific design and operating standards (40 CFR 262.34(a)(1)(i), 265.178, and 265.1087(a) through 265.1087(b)(1)(i), 265.1087(c)) [December 1996].</p>	<p>(NOTE: The requirements of 40 CFR 265.1087 do not apply to containers in which all the hazardous waste entering the container meets one of the following (40 CFR 265.1083(c) [see also the definition for exempted hazardous waste containers and surface impoundments]):</p> <ul style="list-style-type: none"> <li>- the average VO concentration of the hazardous waste at the point of waste origination is less than 500 ppmw</li> <li>- the organic content of the hazardous waste has been reduced by an organic destruction or removal process</li> <li>- the waste meets the numerical concentration limits for organic hazardous constituents as specified in 40 CFR 268.40 or has been treated by the treatment technology established by the USEPA for the waste in 268.42(a) or an equivalent method.)</li> </ul> <p>(NOTE: These requirements do not apply to a container that has a design capacity less than or equal to 0.1 m<sup>3</sup> [≈ 26 gal] or to containers of any size at satellite accumulation points (40 CFR 265.1080(b)(2).)</p> <p>(NOTE: Standards for containers used in waste stabilization processes (40 CFR 265.1087(b)(2)) are in checklist item HW.70.7.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that, for containers with a design capacity greater than 0.1 m<sup>3</sup> [≈ 26 gal] and less than or equal to 0.46 m<sup>3</sup> [≈ 121.5 gal], air emissions are controlled according to the following Container Level 1 standards:</p> <ul style="list-style-type: none"> <li>- a container that meets applicable U.S. DOT regulations on the packaging of hazardous materials for transportation</li> <li>- a container that is equipped with a cover and closure devices that form a continuous barrier over the container openings so that when the cover and closure devices are secured in the closed position there are not visible holes, gaps, or other open spaces into the interior of the container</li> <li>- an open-top container in which an organic vapor suppressing barrier is placed on or over the hazardous waste in the container so that no hazardous waste is exposed to the atmosphere.</li> </ul> <p>Verify that when a container using Level 1 standards, other than DOT approved containers, are used, they are equipped with covers and closure devices composed of suitable materials to minimize exposure of the hazardous waste to the atmosphere and to maintain the equipment integrity for as long as it is in service.</p> <p>Verify that, whenever waste is in a container using Level 1 controls, covers, and closure devices are installed and closure devices are secured and maintained in the closed position except as follows:</p> <ul style="list-style-type: none"> <li>- opening of a closure device or cover is allowed for adding waste or other material to the container as follows: <ul style="list-style-type: none"> <li>- when the container is filled to the intended final level in one continuous operation, the closure devices is secured in the closed position and the covers installed at the conclusion of the filling operation</li> <li>- when discrete batches or quantities of material are added intermittently to the container over a period of time, the closure devices are secured in the closed position and covers installed upon either the container being filled to the intended final level, the completion of a batch loading after which no additional material will be added to the container within 15 min, the person performing the loading operation leaving the immediate vicinity of the container, or the shutdown of the process generating the material being added to the container, whichever condition occurs first</li> </ul> </li> <li>- opening of a closure device or cover is allowed for removing the hazardous waste as follows: <ul style="list-style-type: none"> <li>- in order to meet the requirements for an empty container</li> </ul> </li> </ul>

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**HW.70.6.** Containers with design capacities greater than 0.46 m<sup>3</sup> [≈ 121.5 gal] into which hazardous waste is placed are required to meet specific design and operating standards (40 CFR 262.34(a)(1)(i), 265.178, and 265.1087(a) through 265.1087(b)(1)(ii), 265.1087(b)(1)(iii), 265.1087(c), and 265.1087(d)) [December 1996].

- when discrete quantities or batches of material are removed from the container but the container is not empty, the closure devices will promptly be returned to the closed position and the covers installed upon completion of batch removal after which no additional material will be removed within 15 min or the person performing the unloading leaves the immediate vicinity, whichever condition occurs first
- opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste
- opening of a spring loaded, pressure vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintain internal container pressure
- opening of a safety device to avoid unsafe conditions.

(NOTE: The requirements of 40 CFR 265.1087 do not apply to containers in which all the hazardous waste entering the container meets one of the following [see also the definition for exempted hazardous waste containers and surface impoundments] (40 CFR 265.1083(c):

- the average VO concentration of the hazardous waste at the point of waste origination is less than 500 ppmw
- the organic content of the hazardous waste has been reduced by an organic destruction or removal process
- the waste meets the numerical concentration limits for organic hazardous constituents as specified in 40 CFR 268.40 or has been treated by the treatment technology established by the USEPA for the waste in 268.42(a) or an equivalent method.)

(NOTE: These requirements do not apply to a container that has a design capacity less than or equal to 0.1 m<sup>3</sup> [≈ 26 gal] or to containers of any size at satellite accumulation points (40 CFR 265.1080(b)(2).)

(NOTE: Standards for containers used in waste stabilization processes (40 CFR 265.1087(b)(2)) are in checklist item HW.70.7.)

Verify that, for containers with a design capacity greater than 0.46 m<sup>3</sup> [≈ 121.5 gal] that are not in light material service, air emissions are controlled according to the following Container Level 1 standards:

- a container is used that meets applicable U.S. DOT regulations on the packaging of hazardous materials for transportation
- a container is used that is equipped with a cover and closure devices that form a continuous barrier over the container openings

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	<p>so that when the cover and closure devices are secured in the closed position there are not visible holes, gaps, or other open spaces into the interior of the container</p> <ul style="list-style-type: none"> <li>- an open-top container is used in which an organic vapor suppressing barrier is placed on or over the hazardous waste in the container so that no hazardous waste is exposed to the atmosphere.</li> </ul> <p>Verify that, for containers with a design capacity greater than 0.46 m<sup>3</sup> [≈ 121.5 gal] that are in light material service, air emissions are controlled according to the following Container Level 2 standards:</p> <ul style="list-style-type: none"> <li>- a container is used that meets applicable U.S. DOT regulations on the packaging of hazardous materials for transportation</li> <li>- a container is used that operates with no detectable organic emissions</li> <li>- a container is used that has been demonstrated within the preceding 12 mo to be vapor tight.</li> </ul> <p>Verify that when a container using Level 1 standards, other than DOT approved containers, is used it is equipped with covers and closure devices composed of suitable materials to minimize exposure of the hazardous waste to the atmosphere and to maintain the equipment integrity for as long as it is in service.</p> <p>Verify that whenever waste is in a container using Level 1 or Level 2 controls, covers and closure devices are installed and closure devices are secured and maintained in the closed position except as follows:</p> <ul style="list-style-type: none"> <li>- opening of a closure device or cover is allowed for adding waste or other material to the container as follows: <ul style="list-style-type: none"> <li>- when the container is filled to the intended final level in one continuous operation, the closure devices are secured in the closed position and the covers installed at the conclusion of the filling operation</li> <li>- when discrete batches or quantities of material are added intermittently to the container over a period of time, the closure devices are promptly secured in the closed position and covers installed upon either: <ul style="list-style-type: none"> <li>- the container being filled to the intended final level</li> <li>- the completion of a batch loading after which no additional material will be added to the container within 15 min</li> <li>- the person performing the loading operation leaving the immediate vicinity of the container</li> </ul> </li> </ul> </li> </ul>

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	<ul style="list-style-type: none"> <li>- the shutdown of the process generating the material being added to the container, whichever condition occurs first</li> <li>- opening of a closure device or cover is allowed for removing the hazardous waste as follows:               <ul style="list-style-type: none"> <li>- in order to meet the requirements for an empty container</li> <li>- when discrete quantities or batches of material are removed from the container but the container is not empty, the closure devices are promptly secured in the closed position and the covers installed either:                   <ul style="list-style-type: none"> <li>- upon completion of batch removal after which no additional material will be removed within 15 min</li> <li>- the person performing the unloading leaves the immediate vicinity, whichever condition occurs first</li> </ul> </li> </ul> </li> <li>- opening of a closure device or cover is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste</li> <li>- opening of a spring loaded, pressure vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations for the purpose of maintaining internal container pressure</li> <li>- opening of a safety device to avoid unsafe conditions.</li> </ul> <p>Verify that the transfer of hazardous waste in or out of containers meeting Container Level 2 controls is done in a manner to minimize exposure of the hazardous waste to the atmosphere (i.e., a submerged fill pipe, a vapor balancing system, a vapor recovery system, a fitted opening in the top of the container through which the hazardous waste is filled and subsequently purge the transfer line before removing it).</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.70.7.</b> Containers with design capacities greater than 0.1 m<sup>3</sup> [≈ 26 gal] used for the treatment of a hazardous waste by a waste stabilization process are required to meet specific design and operating standards (40 CFR 262.34(a)(1)(i), 265.178, 265.1087(a) through 265.1087(b)(2), and 265.1087(e)(1) through 265.1087(e)(3)) [December 1996].</p>	<p>(NOTE: The requirements of 40 CFR 265.1087 do not apply to containers in which all the hazardous waste entering the container meets one of the following [see also the definition for exempted hazardous waste containers and surface impoundments] (40 CFR 265.1083(c):</p> <ul style="list-style-type: none"> <li>- the average VO concentration of the hazardous waste at the point of waste origination is less than 500 ppmw</li> <li>- the organic content of the hazardous waste has been reduced by an organic destruction or removal process</li> <li>- the waste meets the numerical concentration limits for organic hazardous constituents as specified in 40 CFR 268.40 or has been treated by the treatment technology established by the USEPA for the waste in 268.42(a) or an equivalent method.)</li> </ul> <p>(NOTE: These requirements do not apply to a container that has a design capacity less than or equal to 0.1 m<sup>3</sup> [≈ 26 gal] or to containers of any size at satellite accumulation points (40 CFR 265.1080(b)(2)).)</p> <p>(NOTE: Safety devices may be installed and operated as necessary.)</p> <p>Verify that containers with design capacities greater than 0.1 m<sup>3</sup> [≈ 26 gal] used for the treatment of a hazardous waste by a waste stabilization process meet the following Container Level 3 standards at those times during the waste stabilization process when the hazardous waste in the container is exposed to the atmosphere:</p> <ul style="list-style-type: none"> <li>- a container is vented directly through a closed vent system to a control device</li> <li>- a container is vented inside an enclosure which is exhausted through a closed vent system to a control device.</li> </ul> <p>Verify that for Level 3 containers, the following requirements are met:</p> <ul style="list-style-type: none"> <li>- the container enclosure is designed and operated in accordance with the criteria for a permanent total enclosure under 40 CFR 52.741</li> <li>- the closed vent system and control device is designed and operated in accordance with 265.1088 (see checklist item HW.70.10).</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.70.8.</b> Facilities are required to have a written plan and schedule for inspection and monitoring requirements for containers and meet specific inspection requirements (40 CFR 262.34(a)(1)(i), 265.178, 265.1087(c)(4), 265.1087(d)(4), and 265.1089) [December 1996].</p>	<p>(NOTE: These requirements do not apply to a container that has a design capacity less than or equal to 0.1 m<sup>3</sup> [≈ 26 gal] or to containers of any size at satellite accumulation points (40 CFR 265.1080(b)(2)).)</p> <p>Verify that the facility has a written plan and schedule for performing inspections and monitoring.</p> <p>Verify that the plan and schedule are being met.</p> <p>Verify that inspections of the containers and their covers and closure devices for containers using Container Level 1 or Level 2 controls are done as follows:</p> <ul style="list-style-type: none"> <li>- when a hazardous waste is already in the container when it is first accepted and the container is not emptied within 24 h after it is accepted, it is visually inspected within 24 h after acceptance for cracks, holes, gaps, or other open spaces</li> <li>- when a container used for managing hazardous waste for 1 yr or more, it is visually inspected at least once every 12 mo for visible cracks, holes, gaps, or other open spaces when the cover and closure devices are secured in the closed position.</li> </ul> <p>Verify that when a defect is detected, the first efforts at repairs are within 24 h after detection, and repair is completed as soon as possible but no later than 5 calendar days after detection.</p> <p>(NOTE: If repair cannot be completed within 5 calendar days, the hazardous waste must be removed from the container.)</p>
<p><b>HW.70.9.</b> Facilities are required to meet documentation requirements for containers (40 CFR 262.34(a)(1)(i), 265.178, 265.1087(c)(5), 265.1090(a), and 265.1090(d) through 265.1090(i)) [December 1996].</p>	<p>(NOTE: These requirements do not apply to a container that has a design capacity less than or equal to 0.1 m<sup>3</sup> [≈ 26 gal] or to containers of any size at satellite accumulation points (40 CFR 265.1080(b)(2)).)</p> <p>Verify that a copy of the procedure used to determine that containers with a capacity of 0.46 m<sup>3</sup> [≈ 121.5 gal] or greater which do not meet DOT standards are not managing hazardous waste in light material service is available.</p> <p>Verify that if using Container Level 3 air emissions controls, the facility prepares and maintains records that:</p> <ul style="list-style-type: none"> <li>- include the most recent set of calculations and measurements performed by the owner/operator to verify that the enclosure meets the criteria of a permanent total enclosure as specified in 40 CFR 52.741, Appendix B</li> <li>- the same records as required for closed vent systems.</li> </ul>

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Verify that, if using a closed-vent system and control device, the following records are maintained:

- certification that is signed and dated by the owner/operator stating that the control device is designed to operate at the performance level documented by a design analysis or by performance tests when the container is operating at capacity or the highest level reasonably expected to occur
- design documents if design analysis is used, including information describing the control device design and certification that the equipment meets the applicable specification
- a performance test plan if performance tests are used and all test results
- description and date of each modification, as applicable
- identification of operating parameters, description of monitoring devices, and diagrams of monitoring sensor locations, as applicable
- semiannual records of the following for those planned routine maintenance operations that would require the control device to exceed limitations:
  - a description of the planned routine maintenance that is anticipated to be performed for the control device during the next 6-mo period, including the type of maintenance needed, planned frequency, and lengths of maintenance periods
  - a description of the planned routine maintenance that was performed for the control device during the previous 6-mo period, including the type of maintenance performed and the total number of hours during those 6 mo that the control device did not meet applicable requirements
- records of the following for those unexpected control device system malfunctions that would cause the control device to not meet specifications:
  - the occurrence and duration of each malfunction of the control device system
  - the duration of each period during a malfunction when gases, vapors, or fumes are vented from the waste management unit through the closed vent system to the control device while the control device is not properly functioning
  - actions taken during periods of malfunction to restore a malfunctioning control device to its normal or usual manner of operation
- records of the management of the carbon removed from a carbon adsorption system.

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	<p>Verify that, for exempted containers (see the definition of Exempted Hazardous Waste Containers and Surface Impoundments), the following records are prepared and maintained as applicable:</p> <ul style="list-style-type: none"> <li>-if exempted under the hazardous waste concentration conditions, information used for the waste determination in the facility operating log and/ or the date, time, and location of each waste sample if analysis results for samples are used</li> <li>-if exempted under incineration use or process destruction use, the identification number for the incinerator, boiler, or industrial furnace in which the hazardous waste is treated.</li> </ul> <p>Verify that covers designated as unsafe to monitor are listed in a log kept in the facility operating record with an explanation of why they are unsafe to inspect and monitor and a plan and schedule of inspection and monitoring is recorded.</p> <p>Verify that, for containers not using the air emissions controls specified in 40 CFR 265.1085 through 265.1088 (see checklist items HW.70.5 through HW.70.10), the following information is maintained:</p> <ul style="list-style-type: none"> <li>-a list of the individual organic peroxide compounds manufactured at the facility if it produces more than one functional family of organic peroxides or multiple organic peroxides within one functional family, and one or more of these organic peroxides could potentially undergo self-accelerating thermal decomposition at or below ambient temperatures</li> <li>-a description of how the hazardous waste containing the organic peroxide compounds identified in the above list are managed, including: <ul style="list-style-type: none"> <li>-a facility identification number for the container or group of containers</li> <li>-the purpose and placement of this container or group of containers in the management train of this hazardous waste</li> <li>-the procedures used to ultimately dispose of the hazardous waste handled in the containers</li> </ul> </li> <li>-an explanations why managing these containers would be an undue safety hazard.</li> </ul> <p>Verify that all records, except design information records, are kept for at least 3 yr.</p> <p>Verify that design information records are maintained in the operating record until the air emissions control equipment is replaced or otherwise no longer in service.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.70.10.</b> Facilities are required to meet specific requirements for closed vent systems and control devices used to achieve compliance (40 CFR 262.34(a)(1)(i), 265.178, and 265.1088) [December 1996].</p>	<p>(NOTE: See also the recordkeeping requirements for carbon adsorption units in checklist item HW.85.3.)</p> <p>(NOTE: The requirements of 40 CFR 265.1088 do not apply to containers in which all the hazardous waste entering the container meets one of the following (40 CFR 265.1083(c):</p> <ul style="list-style-type: none"> <li>- the average VO concentration of the hazardous waste at the point of waste origination is less than 500 ppmw</li> <li>- the organic content of the hazardous waste has been reduced by an organic destruction or removal process</li> <li>- the waste meets the numerical concentration limits for organic hazardous constituents as specified in 40 CFR 268.40 or has been treated by the treatment technology established by the USEPA for the waste in 268.42(a) or an equivalent method.)</li> </ul> <p>(NOTE: These requirements do not apply to a container that has a design capacity less than or equal to 0.1 m<sup>3</sup> [≈ 26 gal] or to containers of any size at satellite accumulation points (40 CFR 265.1080(b)(2)).)</p> <p>Verify that closed vent systems meet the following:</p> <ul style="list-style-type: none"> <li>- it routes the gases, vapors, and fumes emitted from the hazardous waste in the waste management unit to a control device</li> <li>- it is designed and operated in accordance with 40 CFR 265.1033(j) (see checklist item HW.85.2)</li> <li>- if it includes bypass devices that could be used to divert the gas or vapor stream to the atmosphere before entering the control device, one of the following equipment requirements is met for each type of bypass device, (NOTE: Low leg drains, high point bleeds, analyzer vents, open-ended valve or lines, spring loaded pressure relief valves, and other fittings used for safety purposes are not considered bypass devices.):             <ul style="list-style-type: none"> <li>- a flow indicator is installed, calibrated, maintained, and operated at the inlet to the bypass line used to divert gases and vapors from the closed-vent system to the atmosphere at a point upstream of the control device inlet</li> <li>- a seal or locking device is placed on the mechanism by which the bypass device position is controlled when the bypass valve is in the closed position so that the bypass device cannot be opened without breaking the seal or removing the lock.</li> </ul> </li> </ul> <p>Verify that the seal or closure mechanism is visually inspected at least once every month.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that one of the following control devices are used:</p> <ul style="list-style-type: none"> <li>- a device designed and operated to reduce the total organic content of the inlet vapor stream vented to the control device by at least 95 percent by weight</li> <li>- an enclosed combustion device designed and operated in accordance with 265.1033(c) (see checklist item HW.85.2)</li> <li>- a flare designed and operated in accordance with 40 CFR 265.1033(d) (see checklist item HW.85.2).</li> </ul> <p>Verify that, when a closed vent system and control device is used, the following are met:</p> <ul style="list-style-type: none"> <li>- periods of planned routine maintenance of the control device during which the device does not meet specifications do not exceed 240 h per year</li> <li>- control device system malfunctions are corrected as soon as practicable</li> <li>- it is operated such that gases, vapors, and/or fumes are not actively vented to the control device during periods of planned maintenance or control device system malfunction, except in cases where it is necessary to do so in order to avoid an unsafe condition or to implement malfunction corrective actions or planned maintenance actions.</li> </ul> <p>Verify that, if a carbon adsorption system is used, the following requirements are met:</p> <ul style="list-style-type: none"> <li>- all activated carbon is replaced with fresh carbon on a regular basis as outlined in 40 CFR 265.1033(g) and 265.1033(h) (see checklist item HW.85.2)</li> <li>- all carbon removed from the devices is managed in a correct manner.</li> </ul> <p>Verify that, if a control device other than thermal vapor incinerators, flare, boiler, process heater, condenser, or carbon adsorption systems are used, the requirements in 40 CFR 265.1033(i) are met (see checklist item HW.85.2).</p> <p>Verify that, for control devices, it is demonstrated by either a performance test or a design analysis that the device achieves compliance except for the following:</p> <ul style="list-style-type: none"> <li>- a flare</li> <li>- a boiler or process heater with a design heat input capacity of 44 MW or greater</li> </ul>

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- a boiler or process heater into which the vent stream is introduced with the primary fuel
- a boiler or process heater burning hazardous waste for which the owner or operator has been issued a final permit under 40 CFR 270 and has designed and operates the unit in accordance with the requirements of 40 CFR 266, subpart H
- a boiler or industrial furnace burning hazardous waste for which the owner or operator has certified compliance with the interim status requirements of 40 CFR 266, subpart H.

Verify that the readings from each control device are inspected at least once each operating day to check control device operation.



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GENERATORS</b></p> <p><b>HW.75 Satellite Accumulation Points</b></p> <p><b>HW.75.1.</b> Generators may accumulate as much as 55 gal of hazardous waste or 1 qt of acutely hazardous waste in containers at or near any point of initial generation without complying with the requirements for onsite storage if specific standards are met (40 CFR 262.34(c)).</p>	<p>(NOTE: A Generator generates more than 1000 kg [<math>\approx</math> 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>(NOTE: This type of storage is often referred to as a satellite accumulation point.)</p> <p>Verify that the satellite accumulation point is at or near the point of generation and is under the control of the operator of the waste generating process.</p> <p>Verify that the containers are in good condition and are compatible with the waste stored in them, and that the containers are kept closed except when waste is being added or removed.</p> <p>Verify that the containers are marked HAZARDOUS WASTE or other words that identify the contents.</p> <p>(NOTE: See Appendices 4-1, 4-2, 4-3, and 4-4 for guidance on characteristic and listed hazardous wastes.)</p> <p>Verify that, when waste is accumulated in excess of quantity limitations, the following actions are taken:</p> <ul style="list-style-type: none"> <li>- the excess container is marked with the date the excess amount began accumulating</li> <li>- the excess waste is transferred to a 90-day or permitted storage area within 3 days.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GENERATORS</b></p> <p><b>HW.80 Container Storage Areas</b></p> <p><b>HW.80.1.</b> Containers of hazardous waste are required to be stored in designated storage areas at Generators that meet specific parameters (RP, 561 FW 6.7E(2)(c)) [Citation Revised June 1998].</p> <p><b>HW.80.2.</b> Containers holding ignitable or reactive waste must be located 15 m (50 ft) from the property line of the facility (40 CFR 262.34(a)(1)(i) and 265.176).</p> <p><b>HW.80.3.</b> Generator personnel must conduct weekly inspections of container storage areas (40 CFR 262.34(a)(1)(i) and 265.174).</p>	<p>(NOTE: A Generator generates more than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Verify that all hazardous waste containers are identified and stored in appropriate areas.</p> <p>(NOTE: Any unidentified contents of solid waste containers and/or containers not in designated storage areas must be tested to determine if solid or hazardous waste requirements apply.)</p> <p>Verify that the storage area has a portable fire extinguisher and special extinguishing equipment if needed for the waste being stored.</p> <p>Verify the following by inspecting storage areas:</p> <ul style="list-style-type: none"> <li>- containers are not stored more than two high and have pallets between them</li> <li>- containers are positioned so that the label is clearly visible at all times</li> <li>- containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system)</li> <li>- at least 3 ft of aisle space is provided between rows of containers</li> <li>- there is adequate spill control/containment material on hand.</li> </ul> <p>Determine the distance from storage containers holding ignitable or reactive waste to the property line.</p> <p>Verify that inspections are conducted at least weekly to look for leaking containers and signs of deterioration of containers.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.80.4.</b> Generator storage areas for hazardous waste must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of hazardous waste (40 CFR 262.34(a)(4) and 265.30 through 265.37).</p>	<p>Determine if the following required equipment is easily accessible and in working condition by inspecting the Generator storage areas:</p> <ul style="list-style-type: none"> <li>- internal communications or alarm system capable of providing immediate emergency instruction to facility personnel</li> <li>- a telephone or hand-held two way radio</li> <li>- portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals)</li> <li>- spill control equipment</li> <li>- decontamination equipment</li> <li>- fire hydrants or other source of water (reservoir, storage tank, etc.) with adequate volume and pressure, foam producing equipment, or automatic sprinklers, or water spray systems.</li> </ul> <p>Determine if equipment is tested and maintained as necessary to insure proper operation in an emergency.</p> <p>Verify that sufficient aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the operation.</p> <p>Verify that police, fire departments, and emergency response teams are familiar with the layout of the facility, properties of the waste being handled, and general operations as appropriate for the type of waste and potential need for such services.</p> <p>Verify that the hospital is familiar with the site and the types of injuries that could result in an emergency as appropriate for the type of waste and potential need for such services.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GENERATORS</b></p> <p><b>HW.85 Emissions From Process Vents</b></p> <p><b>HW.85.1.</b> Generators with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations, that manage hazardous wastes with organic concentrations of at least 10 ppmw, are required to meet specific standards (40 CFR 262.34(a)(1)(i), 265.178, 265.1030(b), and 265.1032) [December 1996].</p> <p><b>HW.85.2.</b> When a generator uses a closed-vent system and control device to meet the standards for total organic emissions, the closed-vent system and control device must meet certain minimum requirements (40 CFR 262.34(a)(1)(i), 265.178, and 265.1033(b) through 265.1033(k)) [December 1996].</p>	<p>(NOTE: A Generator generates more than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>(NOTE: This applies only if the operations are conducted in one of the following:</p> <ul style="list-style-type: none"> <li>- a unit that is subject to the permitting requirements of 40 CFR 270</li> <li>- a unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a hazardous waste recycling unit that is not a 90-day tank or container) and that is located at a hazardous waste management facility that is otherwise subject to the permitting requirements of 40 CFR 270</li> <li>- a unit that is exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a 90-day tank or container).</li> </ul> <p>Verify that one of the following is met:</p> <ul style="list-style-type: none"> <li>- total organic emissions from the process vents do not exceed 1.4 kg/h (3 lb/h) and 2.8 Mg/yr (3.1 tons/yr)</li> <li>- total organic emissions are reduced by use of a control device from all process vents by 95 weight percent.</li> </ul> <p>(NOTE: This applies to generators with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations, that manage hazardous wastes with organic concentrations of at least 10 ppmw, if the operations are conducted in one of the following:</p> <ul style="list-style-type: none"> <li>- a unit that is subject to the permitting requirements of 40 CFR 270</li> <li>- a unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a hazardous waste recycling unit that is not a 90-day tank or container) and that is located at a hazardous waste management facility that is otherwise subject to the permitting requirements of 40 CFR 270</li> <li>- a unit that is exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a 90-day tank or container).</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that control devices involving vapor recovery are designed and operated to recover the organic vapors vented to the air with an efficiency of 95 weight percent or greater, unless the total organic emission limit can be attained at an efficiency of less than 95 weight percent.</p> <p>Verify that, if an enclosed combustion device is used (i.e. vapor incinerator, boiler or process heater), it is designed and operated to reduce the organic emissions vented to it by 95 weight percent or greater, to achieve a total organic compound concentration of 20 ppmv expressed as the sum of the actual compounds, not carbon equivalents, on a dry basis corrected to 3 percent oxygen, or to provide a minimum residence time of 0.50 s at a minimum temperature of 760 °C [1400 °F].</p> <p>Verify that, if a boiler or process heater is used as the control device, the vent stream is introduced into the flame zone of the boiler or process heater.</p> <p>Verify that, if flares are used:</p> <ul style="list-style-type: none"> <li>- they are designed and operated with no visible emissions except for periods not in excess at 5 min during any 2 consecutive hours</li> <li>- they are operated with a flame present at all times</li> <li>- they are used only if the net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam assisted or air assisted</li> <li>- if nonassisted, the net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scm) or greater</li> <li>- if nonassisted or steam-assisted , have an exit velocity less than 18.3 m/s (60 ft/s), except when the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1000 Btu/scf) and the exit velocity is equal to or greater than 18.3 (60 ft/s) but less than 122 m/s (400 ft/s).</li> </ul> <p>Verify that each monitor and control device is inspected on a routine basis.</p> <p>Verify that each required control device is installed, calibrated, monitored and inspected as follows:</p> <ul style="list-style-type: none"> <li>- a flow indicator is installed in the vent stream at the nearest feasible point to the control device inlet, but before being combined with other streams, and provides a record of vent stream flow from each affected process vent to the control device at least once every hour</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>-a device to continuously monitor control device operations as specified:               <ul style="list-style-type: none"> <li>-a temperature monitoring device equipped with a continuous recorder for a thermal vapor incinerator</li> <li>-a temperature monitoring device equipped with a continuous recorder for a catalytic vapor incinerator</li> <li>-a heat sensing monitor with a continuous recorder for flares</li> <li>-a temperature monitoring device equipped with a continuous recorder to measure parameters that indicate good combustion operating practices are being used for a boiler or process heater</li> </ul> </li> <li>-for a condenser, one of the following:               <ul style="list-style-type: none"> <li>-a monitoring device with a continuous recorder to measure the concentration level of the organic compound in the exhaust vent stream from the condenser</li> <li>-a temperature monitoring device equipped with a continuous recorder capable of monitoring temperature in the exhaust vent stream from the condenser with an accuracy of +/- 1 percent of the temperature being monitored in Celsius or in +/- 0.5 °C, whichever is greater</li> </ul> </li> <li>-for a carbon adsorption system such as a fixed bed carbon adsorber that regenerates the carbon bed directly in the control device, one of the following:               <ul style="list-style-type: none"> <li>-a monitoring device equipped with a continuous recorder to measure the concentration levels of the organic compounds in the exhaust vent stream from the carbon bed</li> <li>-a monitoring device equipped with a continuous recorder to measure a parameter that indicates the carbon bed is regenerated on a regular, predetermined time cycle.</li> </ul> </li> </ul> <p>Verify that readings from monitoring devices are checked at least once a day.</p> <p>Verify that, if a carbon adsorption system is being used that regenerates the carbon bed directly onsite, the existing carbon in the control device is replaced with fresh carbon at regular, predetermined time intervals.</p> <p>(NOTE: The predetermined time interval is based on the design analysis required under 40 CFR 265.1035(b)(4)(iii)(F).)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.85.3.</b> Generators are required to maintain specific records pertaining to process vent emissions (40 CFR 262.34(a)(1)(i), 265.178 and 265.1035) [December 1996].</p>	<p>Verify that, if a carbon adsorption system is being used that does not regenerate the carbon bed directly onsite in the control device, the existing carbon in the control device is replaced on a regular basis.</p> <p>(NOTE: When to replace the carbon is determined by one of the following procedures:</p> <ul style="list-style-type: none"> <li>- monitoring the concentration level of the organic compound in the exhaust vent stream from the carbon adsorption system daily or at an interval no greater than 20 percent of the time required to consume the total carbon working capacity, whichever is longer</li> <li>- replace the carbon at a regular predetermined time interval that is less than the design carbon replacement interval.)</li> </ul> <p>Verify that closed vent systems meet one of the following:</p> <ul style="list-style-type: none"> <li>- are designed and operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background as determined by the procedures in 40 CFR 265.1034(b) and by visual inspection</li> <li>- are designed to operate at a pressure below atmospheric pressure and are equipped with at least one pressure gauge or other pressure measurement device that can be read from a readily accessible location.</li> </ul> <p>Verify that the following information is kept in the operating record:</p> <ul style="list-style-type: none"> <li>- an implementation schedule</li> <li>- up-to-date documentation of compliance</li> <li>- the test plan if test data is used to determine the organic removal efficiency or total organic compound concentration achieved by a control device</li> <li>- documentation of compliance with 40 CFR 265.1033, including: <ul style="list-style-type: none"> <li>- a list of all information references and sources used in preparing the documentation</li> <li>- records, including the dates of required compliance tests</li> <li>- design analysis, specifications, drawing, schematics, and piping and instrumentation diagrams if engineering calculations are used</li> </ul> </li> <li>- a statement signed and dated by the operator or owner certifying that the operating parameters used in the design analysis reasonably represent the conditions which exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected</li> <li>- a statement signed and dated by the owner or operator certifying that the control device is designed to operate at an efficiency of</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.85.4.</b> Closed vent systems are required to be monitored, inspected, and leaks repaired (40 CFR 262.34(a)(1)(i), 265.178, 265.1033(k) and 265.1033(n)) [December 1996].</p>	<p>95 percent or greater unless the total organic concentration limit is achieved at an efficiency of less than 95 weight percent, or the total organic emissions limits for affected process vents can be attained by a control device involving vapor recovery at an efficiency less than 95 weight percent.</p> <ul style="list-style-type: none"> <li>- all performance test results if used to demonstrate compliance</li> <li>- design documentation</li> <li>- monitoring and inspection results</li> <li>- notations of exceedance</li> <li>- explanation for each period of exceedance</li> <li>- for carbon adsorption systems:               <ul style="list-style-type: none"> <li>- when the carbon is replaced in carbon adsorption systems</li> <li>- date and time when a control device is monitored for carbon breakthrough</li> </ul> </li> <li>- the date of each control device startup and shutdown.</li> </ul> <p>Verify that records of monitoring operations and inspection information are kept for 3 yr.</p> <p>(NOTE: This applies to generators with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations, that manage hazardous wastes with organic concentrations of at least 10 ppmw, if the operations are conducted in one of the following:</p> <ul style="list-style-type: none"> <li>- a unit that is subject to the permitting requirements of 40 CFR 270</li> <li>- a unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a hazardous waste recycling unit that is not a 90-day tank or container) and that is located at a hazardous waste management facility that is otherwise subject to the permitting requirements of 40 CFR 270</li> <li>- a unit that is exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a 90-day tank or container.)</li> </ul> <p>Verify that closed vents systems designed and operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, are monitored as follows:</p> <ul style="list-style-type: none"> <li>- an initial leak detection monitoring of the closed vent system using the procedures specified in 40 CFR 265.1034(b) on or before the date the system become subject to this section of the CFR</li> <li>- after initial leak detection monitoring:               <ul style="list-style-type: none"> <li>- visual inspection at least once a year for closed vent system joints, seams, or other connections that are permanently or</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>semi-permanently sealed (e.g., a welded joint between two sections of hard piping or a bolted and gasketed ducting flange)</p> <ul style="list-style-type: none"> <li>- whenever a component is repaired or replaced monitor according to 40 CFR 265.1034(b)</li> <li>- annually and at times required by the Regional Administrator for all other parts of the system using the procedures specified in 40 CFR 265.1034(b).</li> </ul> <p>Verify that closed vent systems designed to operate at no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, are monitored as follows:</p> <ul style="list-style-type: none"> <li>- annual visual inspection to check for defects that could result in air pollutant emissions</li> <li>- initial inspection on or before the date the system becomes subject to this section of the CFR.</li> </ul> <p>(NOTE: For closed vent systems designed to operate at no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background, portions of the system designated as unsafe to monitor are exempt from the visual monitoring if:</p> <ul style="list-style-type: none"> <li>- the components are unsafe to monitor because monitoring personnel would be exposed to an immediate danger</li> <li>- a written plan that requires monitoring as practicable during safe to monitor periods is in place and followed.)</li> </ul> <p>Verify that detectable emissions, as indicated by visual inspection or by an instrument reading of greater than 500 ppmv above background, are controlled as soon as practicable but not later than 15 days after the emissions is detected.</p> <p>Verify that a first attempt at repair is made no later than 5 calendar days after the emission is detected.</p> <p>(NOTE: Delay of repair of a closed vent system for which leaks have been detected is allowed if the repair is technically infeasible without a process unit shutdown, or if it is determined that the emissions resulting from the immediate repair would be greater than the fugitive emissions likely to result from delay of repair.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.85.5.</b> Closed vent systems and control devices used to comply with the provisions of 40 CFR 265.1030 through 265.1035 are required to be operated at all times when emissions may be vented to them (40 CFR 262.34(a)(1)(i), 265.178, 265.1033(l)) <b>[December 1996]</b>.</p>	<p>(NOTE: This applies to generators with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations, that manage hazardous wastes with organic concentrations of at least 10 ppmw, if the operations are conducted in one of the following:</p> <ul style="list-style-type: none"> <li>-a unit that is subject to the permitting requirements of 40 CFR 270</li> <li>-a unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a hazardous waste recycling unit that is not a 90-day tank or container) and that is located at a hazardous waste management facility that is otherwise subject to the permitting requirements of 40 CFR 270</li> <li>-a unit that is exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a 90-day tank or container.)</li> </ul> <p>Verify that closed vent systems and control devices are operated at all times when emissions may be vented to them.</p>
<p><b>HW.85.6.</b> When carbon adsorption systems are used, operators are required to manage all carbon that is a hazardous waste according to specific parameters (40 CFR 262.34(a)(1)(i), 265.178, and 265.1033(m)) <b>[Revised June 1998]</b>.</p>	<p>(NOTE: This applies to generators with process vents associated with distillation, fractionation, thin-film evaporation, solvent extraction, or air or steam stripping operations, that manage hazardous wastes with organic concentrations of at least 10 ppmw, if the operations are conducted in one of the following:</p> <ul style="list-style-type: none"> <li>-a unit that is subject to the permitting requirements of 40 CFR 270</li> <li>-a unit (including a hazardous waste recycling unit) that is not exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a hazardous waste recycling unit that is not a 90-day tank or container) and that is located at a hazardous waste management facility that is otherwise subject to the permitting requirements of 40 CFR 270</li> <li>-a unit that is exempt from permitting under the provisions of 40 CFR 262.34(a) (i.e., a 90-day tank or container.)</li> </ul> <p>Verify that carbon removed from control devices that is a hazardous waste is managed in one of the following manners, regardless of the average VOC concentration of the carbon:</p> <ul style="list-style-type: none"> <li>-regenerated or reactivated in a thermal treatment unit that meets one of the following: <ul style="list-style-type: none"> <li>-the unit has a final permit under 40 CFR 270 which implements the requirements of 40 CFR 264, subpart X</li> <li>-the unit is equipped with and operating air emission controls in accordance with applicable requirements</li> </ul> </li> </ul>

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- incinerated in a hazardous waste incinerator for which the operator either:
  - has a final permit under 40 CFR 270 which implement the requirements of 40 CFR 264, subpart O
  - has designed and operates the incinerator in accordance with the interim status required of 40 CFR 265, subpart O
- burned in a boiler or industrial furnace for which the operator either:
  - has been issued a final permit under 40 CFR 270 implementing 40 CFR 266
  - has designed and operates the boiler or industrial furnace in accordance with the interim status requirements of 40 CFR 266, Subpart H.





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Verify that pumps equipped with a dual mechanical seal system, which do not have to be monitored monthly or visually checked weekly, meet the following design and operation requirements:

- the dual mechanical seal system is operated with barrier fluid at a pressure that is at all times greater than the pump stuffing box, or equipped with a barrier fluid degassing reservoir that is connected by a closed-vent system to a control device, or equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emission to the atmosphere
- the barrier fluid system has no hazardous waste with organic concentrations 10 percent or greater by weight
- the barrier fluid system is equipped with a sensor that will detect failure if the seal is broken
- pumps are checked by visual inspection weekly
- sensors are checked daily or equipped with an audible alarm that is checked monthly.

(NOTE: Each owner or operator must determine, based on design considerations and operating experience, a criterion that indicate failure of the seal system, the barrier fluid system, or both.)

Verify that pumps designated for no detectable emissions, as indicated by an instrument reading of 500 ppm above background or less, meet the following:

- they are operated with no detectable emissions
- they are tested for compliance initially upon designation, annually, and at other times as requested by the Regional Administrator
- no externally actuated shaft penetrates the pump housing.

(NOTE: Any pump that is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal or seals to a control device is exempt from these requirements.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.90.2.</b> Generators of hazardous waste with compressors that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific standards (40 CFR 262.34(a)(1)(i), 265.178, and 265.1053) [December 1996].</p>	<p>Verify that each compressor is equipped with a seal system which includes a barrier fluid system and prevents leakage of total organic emissions to the atmosphere except if:</p> <ul style="list-style-type: none"> <li>- it is equipped with a closed-vent system capable of capturing and transporting any leakage from the seal to a control device</li> <li>- it is designated for no detectable emission, and:               <ul style="list-style-type: none"> <li>- it operates at an instrument reading of less than 500 ppm above background</li> <li>- it is tested for compliance initially upon designation, annually, and at times as requested by the Regional Administrator.</li> </ul> </li> </ul> <p>Verify that compressor seal systems meet one of the following:</p> <ul style="list-style-type: none"> <li>- it is operated with the barrier fluid at a pressure that is at all times greater than the compressor stuffing box pressure</li> <li>- it is equipped with a barrier fluid system that is connected to a closed-vent system or a control device</li> <li>- it is equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.</li> </ul> <p>Verify that the barrier fluid is not a hazardous waste with organic concentrations 10 percent or greater by weight.</p> <p>Verify that each barrier fluid system is equipped with a sensor which will detect failure of the seal system, barrier fluid system, or both.</p> <p>Verify that each sensor is checked daily or it is equipped with an audible alarm that is checked monthly.</p> <p>(NOTE: Sensors on compressors located within the boundary of an unmanned site must be checked daily.)</p> <p>(NOTE: Each owner or operator must determine, based on design considerations and operating experience, a criterion that indicate failure of the seal system, the barrier fluid system, or both.)</p> <p>Verify that, when a leak is detected, the first attempt at repair is made within 5 calendar days and the repair is made within 15 calendar days.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.90.3.</b> Generators of hazardous waste with pressure relief devices in gas/vapor service that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific standards (40 CFR 262.34(a)(1)(i), and 265.178, 265.1054) [December 1996].</p> <p><b>HW.90.4.</b> Generators of hazardous waste with sampling connecting systems that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific standards (40 CFR 262.34(a)(1)(i), 265.178, and 265.1055) [December 1996].</p>	<p>Verify that, except during pressure releases, each pressure relief device in gas/vapor service is operated with no detectable emissions as indicated by an instrument reading of less than 500 ppm above background.</p> <p>Verify that if there is a pressure release, the device is returned to a no detect able emission status within 5 calendar days and the device is monitored to ensure compliance.</p> <p>(NOTE: Any pressure relief device that is equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device is exempt from these requirements.)</p> <p>Verify that each sampling connection system is equipped with a closed-purge, closed loop system or closed-vent system.</p> <p>Verify that each system collects the sample purge for return to the processing or for routing to the appropriate treatment system.</p> <p>(NOTE: Gases displaced through filling of the sample container are not required to be collected or captured.)</p> <p>Verify that each closed-purge, closed-loop system, or closed-vent system does one of the following:</p> <ul style="list-style-type: none"> <li>- returns the purged process fluid directly to the process line</li> <li>- collects and recycles the purged process fluid</li> <li>- is designed and operated to capture and transport all the purged process fluid to a waste management unit that is in compliance or a control device that is in compliance.</li> </ul> <p>(NOTE: In-situ sampling systems are exempt from these requirements.)</p>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.90.5.</b> Generators of hazardous waste with open-ended valves or lines that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight are required to meet specific operation standards (40 CFR 262.34(a)(1)(i), 265.178, and 265.1056) [December 1996].</p> <p><b>HW.90.6.</b> Generators with valves in gas/vapor service or light liquid service, that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight, are required to meet specific monitoring and repair standards (40 CFR 262.34(a)(1)(i), 265.178, 265.1057, and 265.1062) [December 1997].</p>	<p>Verify that each open-ended valve or line is equipped with a cap, blind flange, plug, or a second valve.</p> <p>Verify that the cap, blind flange, plug, or second valve seals the open end at all times, except during operations requiring hazardous waste stream flow through the open-ended valve or line.</p> <p>Verify that each open-ended valve or line equipped with a second valve is operated so the valve on the hazardous waste stream end is closed before the second valve is closed.</p> <p>Verify that, when a double block and bleed system is being used, the bleed valve is shut or plugged except during operations that require venting the line between the block valves.</p> <p>Verify that valves in gas/vapor service or light liquid service are monitored monthly to detect leaks.</p> <p>(NOTE: A leak is detected if an instrument reading of 10,000 ppm or greater is measured. But, if a leak is not detected for 2 consecutive months, monitoring may be cut back to quarterly until a leak is detected.)</p> <p>(NOTE: Valves that are designated for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, do not have to be monitored monthly if:</p> <ul style="list-style-type: none"> <li>- the valve has no external actuating mechanism in contact with the hazardous waste stream</li> <li>- the valve is operated with emissions less than 500 ppm above background</li> <li>- the valve is tested initially upon designation, annually, and at the request of the Regional Administrator.)</li> </ul> <p>(NOTE: Valves that are designated as unsafe to monitor are exempt from the requirement for monthly monitoring if:</p> <ul style="list-style-type: none"> <li>- the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger</li> <li>- a written monitoring plan is followed that requires monitoring as often as is reasonably practicable during safe to monitor times.)</li> </ul> <p>(NOTE: The generator may elect to have all valves within a hazardous waste management unit comply with an alternative standard of no greater than 2 percent of the valves to leak.)</p>

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(NOTE: Valves that are designated as difficult to monitor are exempt from monthly monitoring requirements if:

- the valve cannot be monitored without elevating the monitoring personnel more than 2 m above a support surface
- the hazardous waste management unit within which the valve is located was in operation before 21 June 1990
- a written monitoring plan is followed that requires the monitoring of the valve at least once per calendar year.)

(NOTE: The following are alternatives to the prescribed monitoring schedule which can be used until the percentage of valves leaking is greater than 2 percent:

- after two consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2 percent, an owner or operator may begin to skip one of the quarterly leak detection periods for the valves subject to 40 CFR 265.1057
- after five consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2 percent, an owner or operator may begin to skip three of the quarterly leak detection periods for the valves subject to 40 CFR 265.1057.

Verify that the first attempt at repairing a leak is done within 5 calendar days after detection and leak repair is completed within 15 days after detection.

(NOTE: First attempts at repair include, but are not limited to:

- tightening of bonnet bolts
- replacement of bonnet bolts
- tightening of packing gland nuts
- injection of lubricant into lubricated packing.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.90.7.</b> Generators of hazardous waste with pumps and valves in heavy liquid service, pressure relief devices in light liquid service or heavy liquid service, and other connectors that contain or contact hazardous wastes with organic concentrations of at least 10 percent by weight, are required to meet specific monitoring and repair standards (40 CFR 262.34(a)(1)(i), 265.178, and 265.1058) [December 1996].</p> <p><b>HW.90.8.</b> Generators are required to keep specific records pertaining to the valves, pumps, pressure relief devices, and connecting systems being monitored for leaks and submit certain reports (40 CFR 262.34(a)(1)(i), 265.178, 265.1058(e) and 265.1064) [December 1997].</p>	<p>Verify that pumps and valves in heavy liquid service, pressure relief devices in light liquid service or heavy liquid service, and other connectors are monitored within 5 days if evidence of a potential leak is found by visual, olfactory, audible, or other detection method.</p> <p>(NOTE: Any connector that is inaccessible or is ceramic or ceramic lined is exempt from the monitoring requirements.)</p> <p>(NOTE: A leak is detected if an instrument reading of 10,000 ppm or greater is measured.)</p> <p>Verify that, when a leak is detected, the first attempt at repair occurs within 5 days and repair is done within 15 days after discovery.</p> <p>(NOTE: First attempts at repair include, but are not limited to:</p> <ul style="list-style-type: none"> <li>- tightening of bonnet bolts</li> <li>- replacement of bonnet bolts</li> <li>- tightening of packing gland nuts</li> <li>- injection of lubricant into lubricated packing.)</li> </ul> <p>Verify that the following information is maintained in the generator's operating record:</p> <ul style="list-style-type: none"> <li>- equipment identification number and hazardous management unit identification</li> <li>- approximate locations</li> <li>- type of equipment</li> <li>- percent-by-weight total organics in the hazardous waste stream at the equipment</li> <li>- hazardous waste state at the equipment (gas, liquid, vapor)</li> <li>- method of compliance</li> <li>- implementation schedule if needed</li> <li>- a performance plan for control devices as needed</li> <li>- documentation of compliance</li> <li>- documentation of repair, including: <ul style="list-style-type: none"> <li>- the instrument and operator identification numbers and the equipment identification number</li> <li>- the date evidence of a potential leak was found</li> <li>- the date the leak was detected and the date of each attempt to repair the leak</li> <li>- repair methods applied in each attempt</li> <li>- "Above 10,000" if the maximum instrument reading after each repair attempt is greater than 10,000 ppm</li> <li>- "Repair Delayed" and the reason for delay if the leak is not repaired within 15 calendar days after discovery</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- documentation supporting the delay of repair of a valve</li> <li>- signature of the owner or operator whose decision it was that repair could not be affected without a hazardous waste management unit shutdown</li> <li>- the expected date of successful repair of the leak when it is not repaired within 15 calendar day</li> <li>- the date of successful repair of the leak</li> <li>- design documentation and monitoring, operating, and inspection information for each closed vent system control device required to comply with the provisions of 40 CFR 265.1060</li> <li>- monitoring and inspection information indicating proper operation and maintenance of the control device for a control device other than a thermal vapor incinerator, catalytic vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system</li> <li>- the following information for all equipment subject to 40 CFR 265.1052 through 265.1060:               <ul style="list-style-type: none"> <li>- a list of identification numbers for equipment (except welded fittings)</li> <li>- a list of identification numbers for equipment that the owner or operator elects to designate for no detectable emissions</li> <li>- a list of equipment identification numbers for pressure relief devices</li> <li>- the dates of required compliance tests, background levels, and maximum instrument reading measured during the compliance test</li> <li>- a list of identification numbers for equipment in vacuum service</li> <li>- identification either by list or location (area or group) of equipment that contains or contacts hazardous waste with an organic concentration of at least 10 percent by weight for less than 300 h per calendar year.</li> </ul> </li> </ul> <p>Verify that the following information is kept for all valves subject to 40 CFR 265.1057(g) and (h):</p> <ul style="list-style-type: none"> <li>- a list of identification numbers for valves listed as unsafe to monitor, an explanation for each valve stating why it is unsafe to monitor, and the plan for monitoring each valve</li> <li>- a list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why it is difficult to monitor, and the plan for monitoring each valve</li> <li>- the following for all valves complying with 40 CFR 265.1062:               <ul style="list-style-type: none"> <li>- a schedule of monitoring</li> <li>- the percent of valves found leaking in each monitoring period.</li> </ul> </li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.90.9.</b> Each piece of equipment subject to the requirements in 40 CFR 265.1050 through 265.1064 is required to be marked so that it can be distinguished from other equipment (40 CFR 262.34(a)(1)(i), 265.178, and 265.1050(c)) [December 1996].</p> <p><b>HW.90.10.</b> When a generator has elected to comply with alternative standards, specific actions are required (40 CFR 262.34(a)(1)(i) and 265.1061) [May 1997].</p>	<p>Verify that the following information is kept for use in determining exemptions:</p> <ul style="list-style-type: none"> <li>- an analysis determining the design capacity of the unit</li> <li>- a statement listing the hazardous waste influent to and effluent from each unit subject to 40 CFR 265.1052 through 265.1060 and an analysis determining whether these hazardous wastes are heavy liquids</li> <li>- an up-to-date analysis and the supporting information and data used to determine if equipment is subject to the requirements.</li> </ul> <p>(NOTE: Any connector that is inaccessible or is ceramic or ceramic lined is exempt from the recordkeeping requirements.)</p> <p>Verify that each piece of equipment subject to the requirements in 40 CFR 265.1050 through 265.1064 (see checklist items HW.90.1 through HW.90.8) is marked so that it can be distinguished from other equipment.</p> <p>Determine if the owner/operator subject to 40 CFR 265.1057 (see checklist item HW.90.6) has elected to have all valves within a hazardous waste management unit comply with an alternative standard of allowing 2 percent of the valves to leak.</p> <p>Verify that the following actions have been taken if comply with the 2 percent alternative:</p> <ul style="list-style-type: none"> <li>- the Regional Administrator has been notified of the choice to comply with the alternative standards</li> <li>- a performance test was conducted initially upon designation, annually, and at other times as required by the Regional Administrator</li> <li>- if a valve leak is detected, first attempt at repair is within 5 calendar days and leak repair is completed within 15 days after detection.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	Verify that, if the owner/operator has decided to no longer comply with the 2 percent rule, they have notified the Regional Administrator.

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GENERATORS</b></p> <p><b>HW.95 Storage Tanks</b></p> <p><b>HW.95.1.</b> Secondary containment is required for specific types of tank systems used to store or treat hazardous waste at generators (40 CFR 262.34(a)(1)(ii), 265.190(a), 265.190(b), and 265.193(a)).</p> <p><b>HW.95.2.</b> Secondary containment on tank systems at generators must meet specific requirements (40 CFR 262.34(a)(1)(ii), 265.190(a), 265.193(b) through 265.193(d)).</p>	<p>(NOTE: A Generator generates more than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Verify that tanks that store or treat material that becomes hazardous waste after 12 January 1987 have secondary containment as follows:</p> <ul style="list-style-type: none"> <li>- for those existing tank systems of known and documentable age, within 2 yr of the date the material becomes a hazardous waste</li> <li>- for those existing tank systems for which the age cannot be documented, within 8 yr of the date the material becomes a hazardous waste; but if the age of the facility is greater than 7 yr, by the time the facility reaches 15 yr of age or within 2 yr of the date the material becomes a hazardous waste, whichever comes later.</li> </ul> <p>(NOTE: The following are exempt from these requirements:</p> <ul style="list-style-type: none"> <li>- tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor</li> <li>- tank systems, including sumps, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes.)</li> </ul> <p>Verify that secondary containment meets the following criteria:</p> <ul style="list-style-type: none"> <li>- it is designed, installed, and operated to prevent the migration of liquid out of the system</li> <li>- it is capable of detecting and collecting releases and accumulated liquids until removal is possible</li> <li>- it is constructed of or lined with materials compatible with the wastes</li> <li>- it is placed on a foundation or base that can provide appropriate support and prevent failure due to settlement, compression, or upset</li> <li>- a leak-detection system is present that is designed and operated to detect the failure of either the primary or secondary containment structure or the release of any hazardous waste within 24 h or the earliest practicable time</li> <li>- it is sloped or designed to drain and remove liquids from leaks, spills, or precipitation.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.95.3.</b> External liners, vaults and double-walled tanks at generators are required to meet specific standards (40 CFR 262.34(a)(1)(ii), 265.190(a), and 265.193(e)).</p>	<p>Verify that spilled or leaked wastes are removed from secondary containment within 24 h or as timely as possible.</p> <p>Verify that secondary containment for tanks includes one or more of the following:</p> <ul style="list-style-type: none"> <li>- a liner (external to the tank)</li> <li>- a vault</li> <li>- a double-walled tank</li> <li>- an equivalent approved device.</li> </ul> <p>(NOTE: Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)</p> <p>Verify that external liner systems meet the following requirements:</p> <ul style="list-style-type: none"> <li>- they are designed and operated so that 100 percent of the capacity of the largest tank within the boundary would be contained</li> <li>- they prevent runoff and infiltration of precipitation into the secondary containment unless the collection system has sufficient capacity to handle runoff or infiltration</li> <li>- it is free of cracks or gaps</li> <li>- it surrounds the tank completely and covers all surrounding earth likely to come into contact with the waste if there is a release</li> <li>- capacity is sufficient to contain precipitation from a 25-yr, 24-h rainfall event.</li> </ul> <p>Verify that vault systems meet the following criteria:</p> <ul style="list-style-type: none"> <li>- it will contain 100 percent of the capacity of the largest tank within its boundary</li> <li>- it prevents runoff and infiltration of precipitation unless there is sufficient excess capacity</li> <li>- it is constructed with chemical-resistant water stops at all joints</li> <li>- it has an impermeable interior coating that is compatible with the wastes it contains</li> <li>- has a means to protect against the formation and ignition of vapors within the vault if the waste is ignitable or reactive</li> <li>- it has an exterior moisture barrier or otherwise operated to prevent migration of moisture into the vault.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.95.4.</b> Tank ancillary equipment at generators must also be provided with secondary containment (40 CFR 262.34(a)(1)(ii), 265.190(a), and 265.193(f)).</p> <p><b>HW.95.5.</b> Existing tank systems that do not have secondary containment are required to meet specific requirements 40 CFR 262.34.(a)(1)(ii), 265.190(a), 265.191(a) through 265.191(c), and 265.193(ii)).</p>	<p>Verify that double-walled tanks meet the following criteria:</p> <ul style="list-style-type: none"> <li>-it is designed as an integral structure so that any release is contained by the outer shell</li> <li>-it is protected from both corrosion of the primary tank and the external surface of the outer shell if constructed of metal</li> <li>-it has a built-in continuous leak detection system capable of detecting a release within 24 h.</li> </ul> <p>(NOTE: Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)</p> <p>Verify that ancillary equipment, except for the following, has secondary containment:</p> <ul style="list-style-type: none"> <li>-aboveground piping that is visually inspected for leaks on a daily basis</li> <li>-welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis</li> <li>-sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis</li> <li>-pressurized aboveground piping systems with automatic shutoff valves that are visually inspected for leaks on a daily basis.</li> </ul> <p>(NOTE: Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)</p> <p>Verify that existing tank systems without secondary containment meet the following:</p> <ul style="list-style-type: none"> <li>-for nonenterable underground tanks, a leak test is conducted annually</li> <li>-for other than nonenterable underground tanks, either a leak test is done annually or the facility develops a schedule and procedure for an assessment of the overall condition by an independent, qualified, registered, professional engineer.</li> </ul> <p>Verify that the facility maintains a record of the results of testing and assessments.</p> <p>Verify that tank systems, which store or treat materials that become hazardous waste after 14 July 1986, are assessed within 12 mo after the waste becomes hazardous.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.95.6.</b> Generators with new tank systems must submit to the Regional Administrator a written assessment review certified by an independent, qualified, registered professional engineer to certify that the tank was installed according to specific standards (40 CFR 262.34(a)(1)(ii) and 265.192).</p> <p><b>HW.95.7.</b> Tanks used for hazardous waste treatment or storage at generators must follow certain operating requirements (40 CFR 262.34(a)(1)(ii) and 265.194).</p> <p><b>HW.95.8.</b> Tank systems at generators must comply with requirements for ignitable, reactive, or incompatible wastes (40 CFR 262.34(a)(1)(ii), 265.198, and 265.199).</p>	<p>(NOTE: Tank systems that are used to store or treat hazardous waste that contains no free liquids and are situated inside a building with an impermeable floor are exempt from these requirements.)</p> <p>Determine if the facility has any new tank systems.</p> <p>Verify that, when the tanks are installed they are handled, so as to prevent damage to the tank and any backfill material that is used is a noncorrosive, porous, homogeneous substance.</p> <p>Verify that the facility keeps on file the written assessments from the individuals required to certify the tank and supervise the installation of the tank.</p> <p>Verify that hazardous wastes or treatment reagents are not placed in tanks if they could cause the tank system (including ancillary equipment, or containment system) to fail.</p> <p>Verify that appropriate measures are taken to prevent overfill, including:</p> <ul style="list-style-type: none"> <li>- spill prevention controls</li> <li>- overfill prevention controls</li> <li>- maintenance of sufficient freeboard to prevent overtopping by wave, wind action or precipitation for uncovered tanks.</li> </ul> <p>Verify that ignitable or reactive wastes are not placed in a tank system, unless one of the following is met:</p> <ul style="list-style-type: none"> <li>- the waste is treated, rendered, or mixed before or immediately after placement in the tank system so that it is no longer reactive or ignitable and the minimum requirements for reactive and ignitable wastes are met</li> <li>- the waste is treated or stored in such a way that it is protected from any material or conditions that may cause the waste to ignite or react</li> <li>- the tank system is used solely for emergencies.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.95.9.</b> Generators must conduct inspections of tank systems and associated equipment (40 CFR 262.34(a)(1)(ii) and 265.195) [May 1997].</p>	<p>Verify that the minimum protective distances between waste management areas and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2-1 through 2-6 of the National Fire Protection Association's (NFPA's) <i>Flammable and Combustible Liquids Code</i> are maintained.</p> <p>Verify that incompatible waste, or incompatible wastes and materials, are not placed in the same tank system unless minimum safety requirements are met.</p> <p>Verify that hazardous waste is not placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material unless minimum safety requirements are met.</p> <p>Verify that a schedule and procedure have been developed and are followed to inspect overfill controls.</p> <p>Determine if the following inspections are conducted at least once a day:</p> <ul style="list-style-type: none"> <li>- data gathered from monitoring and detection equipment</li> <li>- overfill/spill control equipment facilities to ensure it is in good working order</li> <li>- aboveground portions of the tank to detect corrosion or releases</li> <li>- data gathered from tank monitoring equipment and leak detection equipment (e.g., pressure and temperature gauges and monitoring wells)</li> <li>- construction materials and the area surrounding tank including the secondary containment system for signs of leakage (wet spots, dead vegetation).</li> </ul> <p>Verify that the proper operation of cathodic protection systems are inspected within 6 mo after initial installation and annually thereafter.</p> <p>Verify that all sources of impressed current are inspected and/or tested every other month.</p> <p>Verify that inspections are documented.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.95.10.</b> Tank systems or secondary containment systems at generators from which there has been a leak or spill or which have been declared unfit for use must be removed from service immediately and meet specific requirements (40 CFR 262.34(a)(1)(ii) and 265.196)[June 1996].</p>	<p>Verify that the following steps are taken:</p> <ul style="list-style-type: none"> <li>- the flow or addition of hazardous wastes to the tank is stopped</li> <li>- the hazardous waste is removed from the tank:               <ul style="list-style-type: none"> <li>- within 24 h of leak detection (or other reasonable time as demonstrated by the owner/operator) remove as much waste from the tank as necessary to prevent further release and allow inspection and repair</li> <li>- within 24 h (or in as timely a manner as is possible to prevent harm to human health and the environment) remove waste released to secondary containment system</li> </ul> </li> <li>- a visual inspection of the release is done and:               <ul style="list-style-type: none"> <li>- action is taken to prevent further migration to soils or surface</li> <li>- visible contamination of soil and surface water is removed and disposed.</li> </ul> </li> </ul> <p>Verify that notification is made within 24 h for any release to the environment to the regional administrator except for releases of 0.45 kg (1 lb) or less that are immediately contained and cleaned up.</p> <p>Verify that a report is submitted within 30 days containing the following information:</p> <ul style="list-style-type: none"> <li>- likely route of migration</li> <li>- characteristics of the surrounding soil</li> <li>- results of any monitoring or sampling</li> <li>- proximity to downgradient drinking water, surface water, and population areas</li> <li>- description of response actions taken or planned.</li> </ul> <p>Verify that the tank and/or secondary containment is repaired prior to its return to service and that extensive repairs are certified by an independent, qualified, registered, professional engineer.</p> <p>Verify that when the release was from a component that was without secondary containment, secondary containment features were installed before the tank was returned to service.</p> <p>Verify that if leaking components are replaced, the replacement complies with the relevant requirements for new tank systems.</p> <p>(NOTE: Reports of hazardous waste releases made pursuant to 40 CFR 302 will satisfy the reporting requirements of this part.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.95.11.</b> Hazardous waste generators are required to follow specific procedures when closing a tank system (40 CFR 262.34(a)(1)(ii), 265.197(a), and 265.197(b)).</p>	<p>Determine if the facility has closed any tank systems.</p> <p>Verify that all waste residues, contaminated containment system components, contaminated soils, and structures and equipment contaminated with waste have been removed or decontaminated.</p> <p>Verify that, if it is not possible and/or practicable to remove or decontaminate all soils, the facility closes the tank and performs postclosure care as required for landfills.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GENERATORS</b></p> <p><b>HW.100</b> <b>Storage Tank Emissions</b></p> <p><b>HW.100.1.</b> Certain tanks used for the storage of hazardous waste are required to meet Level 1 control standards for air emissions control (40 CFR 262.34(a)(1)(ii), 265.202, and 265.1085(a) through 265.1085(c)(3) [Revised December 1997].</p>	<p>(NOTE: See Appendix 4-8 for guidance on the schedule for implementation of air emissions standards in 40 CFR 265.1080 through 265.1091.)</p> <p>(NOTE: A Generator generates more than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>(NOTE: See the definition of <i>Exempted Waste Management Unit</i> and <i>Exempted Hazardous Waste Storage Tanks</i> for exemptions to these requirements.)</p> <p>Verify that the following tanks meet the requirements for Tank Level 1 controls:</p> <ul style="list-style-type: none"> <li>- the hazardous waste in the tank has a maximum organic vapor pressure which is less than the maximum organic vapor pressure for the tank's design capacity category as follows: <ul style="list-style-type: none"> <li>- for a tank design capacity equal to or greater than 151 m<sup>3</sup> [≈ 39,890 gal], the maximum organic vapor pressure limit for the tank is 5.2 kPa</li> <li>- for a tank design capacity equal to or greater than 75 m<sup>3</sup> [≈ 39,890 gal] but less than 151 m<sup>3</sup> [≈ 39,890 gal], the maximum organic vapor pressure limits for the tank is 27.6 kPa</li> <li>- for a tank design capacity less than 75 m<sup>3</sup> [≈ 39,890 gal], the maximum organic vapor pressure limit for the tank is 76.6 kPa</li> </ul> </li> <li>- the hazardous waste in the tank is not heated to a temperature that is greater than the temperature at which the maximum organic vapor pressure of the hazardous waste is determined</li> <li>- the hazardous waste in the tank is not treated using a waste stabilization process.</li> </ul> <p>Verify that tanks not required to meet the requirements for Level 1 controls meet the requirements for Level 2 controls.</p> <p>Verify that, when required, the following Level 1 controls are met:</p> <ul style="list-style-type: none"> <li>- the maximum organic vapor pressure for a hazardous waste is determined before the first time the waste is placed in the tank</li> <li>- new maximum organic vapor pressure determinations are made each time there are changes to the hazardous waste which could cause the maximum organic vapor pressure to increase to a level that is equal to or greater than the maximum organic vapor pressure limit for the tank capacity.</li> </ul>

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Verify that tanks requiring Level 1 control are equipped with a fixed roof designed as follows:

- the roof and its closure devices are designed to form a continuous barrier over the entire surface area of the hazardous waste in the tank
- the fixed roof is installed so that there are no visible cracks, holes, gaps, or other open spaces between roof section joints or between the interface of the roof edge and the tank wall
- each opening in the fixed roof, and any manifold system associated with the fixed roof, meets one of the following:
  - it is equipped with a closure device designed to operate so that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other open spaces in the closure device or between the perimeter of the opening and the closure device
  - connected by a closed vent system that is vented to a control device which removes or destroys organics in the vent stream and operates whenever hazardous waste is managed in the tank except during periods when access is necessary
- the fixed roof and closure devices are made of suitable materials that minimize exposure of the hazardous waste to the atmosphere to the extent practical and maintain the integrity of the fixed roof and closure devices throughout their intended service life.

Verify that, for tanks requiring Level 1 control, whenever hazardous waste is in the tank, a fixed roof is installed with each closure device secured in the closed position except as follows:

- opening of the closure devices or removal of the fixed roof is allowed in order to:
  - provide access to the tank for performing routine inspections, maintenance, or other activities needed for normal operations
  - remove accumulated sludge or other residues at the bottom of the tank
- opening of spring loaded pressure vacuum relief valves, conservation vent, or similar type of pressure relief devices is allowed during normal operations in order to maintain the tanks internal pressure in accordance with design standards
- opening of a safety device in order to avoid unsafe conditions.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>HW.100.2.</b> Certain tanks are required to use Level 2 control standards for air emissions control (40 CFR 262.34(a)(1)(ii), 265.202, 265.1085(b)(2), 265.1085(d) through 265.1085(e)(2), 265.1085(f)(1) and 265.1085(f)(2), 265.1085(g)(1), 265.1085(g)(2), 265.1085(h), and 265.1085(i)(1) through 265.1085(i)(3)) <b>[Revised August 1999]</b>.</p>	<p>(NOTE: See the definition of <i>Exempted Waste Management Unit</i> and <i>Exempted Hazardous Waste Storage Tanks</i> for exemptions to these requirements.)</p> <p>Verify that tanks not required to meet the requirements for Level 1 controls meet the requirements for Level 2 controls.</p> <p>Verify that, when using Level 2 controls, the following types of tanks are used:</p> <ul style="list-style-type: none"> <li>- a fixed roof tank equipped with an internal floating roof</li> <li>- a tank equipped with an external floating roof</li> <li>- a tank vented through a closed vent system to a control device</li> <li>- a pressure tank</li> <li>- a tank located inside an enclosure that is vented through a closed vent system to an enclosed combustion control device.</li> </ul> <p>Verify that, when a fixed roof with an internal floating roof is used, the following requirements are met:</p> <ul style="list-style-type: none"> <li>- the internal floating roof is designed to float on the liquid surface except when the floating roof is supported by the leg supports</li> <li>- the internal floating roof is equipped with a continuous seal between the wall of the tank and the floating roof edge that meets one of the following requirements: <ul style="list-style-type: none"> <li>- a single continuous seal that is either a liquid mounted seal or a metallic shoe seal</li> <li>- two continuous seals mounted one above the other</li> </ul> </li> <li>- the internal floating roof meets the following specifications: <ul style="list-style-type: none"> <li>- each opening in a noncontact internal floating roof, except for automatic bleeder vents and rim space vents, provides a projection below the liquid surface</li> <li>- each opening in the internal floating roof is equipped with a gasketed cover or a gasketed lid except for leg sleeves, automatic bleeder vents, rim space vents, column wells, ladder wells, sample wells, and stub drains</li> <li>- each penetration of the internal floating roof for sampling has a slit fabric cover that covers at least 90 percent of the opening</li> <li>- each automatic bleeder vent and rim space vent is gasketed</li> <li>- each penetration of the internal floating roof that allows for passage of a ladder has a gasketed sliding cover</li> <li>- each penetration of the internal floating roof that allows for passage of a column supporting the fixed roof has a flexible fabric sleeve seal or a gasketed sliding cover</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- the tank is operated such that, when the floating roof is resting on the leg supports, the process of filling, emptying, or refilling is continuous and is completed as soon as practical</li> <li>- automatic bleeder vents are set at "closed" at all times when the roof is floating, except when the roof is being floated off or is being landed on the leg supports</li> <li>- before filling the tank, each cover, access hatch, gauge float well, or lid on any opening in their internal floating roof is bolted or fastened closed</li> <li>- rim space vents are set to "open" only when the internal floating roof is not floating or when the pressure beneath the rim exceeds recommended settings.</li> </ul> <p>Verify that, when an external floating roof is used to control air emissions, the following requirements are met:</p> <ul style="list-style-type: none"> <li>- the external floating roof is designed to float on the liquid surface except when the floating roof is supported by leg supports</li> <li>- the floating roof is equipped with two continuous seals, one above the other, between the wall of the tank and the roof edge</li> <li>- the primary seal is a liquid mounted seal or a metallic shoe seal and the total area of the gaps between the tank wall and the primary seal do not exceed 21.2 cm<sup>2</sup>/m of tank diameter and the width of any portion of these gaps does not exceed 3.8 cm</li> <li>- if a metallic shoe seal is used for the primary seal, it is designed so that one end extends into the liquid in the tank and the other end extends a vertical distance of at least 61 cm above the liquid surface</li> <li>- the secondary seal is mounted above the primary seal and covers the annular space between the floating roof and the wall of the tank, and the total area of the gaps between the tank wall and the secondary seal do not exceed 21.2 cm<sup>2</sup>/m of tank diameter, and the width of any portion of these gaps does not exceed 1.3 cm</li> <li>- the external floating roof meets the following:               <ul style="list-style-type: none"> <li>- each opening in a noncontact external floating roof provides a projection below the liquid surface except for automatic bleeder vents and rim space vents</li> <li>- each opening is equipped with a gasketed cover, seal, or lid except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves</li> <li>- each access hatch and each gauge float is equipped with a cover designed to be bolted or fastened when the cover is secured in the closed position</li> <li>- each automatic bleeder vent and each rim space vent is equipped with a gasket</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- each roof drain that empties into the liquid managed in the tank is equipped with a slotted membrane fabric cover that covers at least 90 percent of the area of the opening</li> <li>- each unslotted and slotted guide pole well is equipped with a gasketed sliding cover or a flexible fabric sleeve seal</li> <li>- each unslotted guide pole is equipped with a gasketed cap on the end of the pole</li> <li>- each slotted guide pole is equipped with a gasketed float or other device to close off the liquid surface from the atmosphere</li> <li>- each gauge hatch and sample well is equipped with a gasketed cover.</li> </ul> <p>Verify that, when an external floating roof is used, the tank is operated as follows:</p> <ul style="list-style-type: none"> <li>- when the floating roof is resting on the leg supports, the process of filling, emptying, or refilling is continuous and completed as soon as practical</li> <li>- each opening in the roof, except for automatic bleeder vents, rim space vents, roof drains, and leg sleeves, is secured and maintained in a closed position at all times except when the closure device is opened for access</li> <li>- covers on each access hatch and each gauge float well are bolted or fastened when secured in the closed position</li> <li>- automatic bleeder vents are set at "closed" at all times when the roof is floating except when the roof is being floated off or is being landed on the leg supports</li> <li>- rim space vents are set to "open" only at those times that the roof is being floated off the roof leg supports or when the pressure beneath the rim seal exceeds the manufacturer's setting</li> <li>- the cap on the end of each unslotted guide pole is secured in the closed position at all times except when measuring the level or collecting samples of the liquid in the tank</li> <li>- the cover on each gauge hatch or sample well is secured in the closed position at all times except when the hatch or well must be opened for access</li> <li>- both the primary seal and the secondary seal completely cover the annular space between the external floating roof and the wall of the tank in a continuous fashion except during inspection.</li> </ul>

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Verify that, when air emissions are controlled from a tank by venting the tank to a control device, the following requirements are met:

- the tank is covered by a fixed roof and vented directly through a closed vent system to a control device as follows:
  - the fixed roof and its closure devices form a continuous barrier over the entire surface area of the liquid in the tank
  - each opening in the fixed roof not vented to a control device is equipped with a closure device
  - the fixed roof and the closure devices are made of suitable materials to minimize exposure of the hazardous waste to the atmosphere, and maintain the integrity of the fixed roof and closure devices throughout their intended service life
  - the closed vent system is designed according to the requirements in 40 CFR 265.1088
- whenever a hazardous waste is in the tank, the fixed roof is installed with each closure device secured in the closed position and the vapor headspace underneath the fixed roof is vented to the control device except as follows:
  - to provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations
  - to remove accumulated sludge or other residues from the bottom of the tank
  - opening of safety devices to avoid an unsafe condition.

Verify that, when a pressure tank is used to control emissions, the following requirements are met:

- the tank is designed not to vent to the atmosphere as a result of compression of the vapor headspace in the tank during the filling of the tank to capacity
- all tank openings are equipped with closure devices designed to operate with no detectable organic emissions
- whenever a hazardous waste is in the tank, it is operated as a closed system that does not vent to the atmosphere except when a safety device is opened to avoid an unsafe condition or when purging inerts from the tank is required and the purge stream is routed to a closed-vent system and there is an appropriate control device.



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.100.3.</b> Checklist item deleted [January 1997].</p> <p><b>HW.100.4.</b> Checklist item deleted [January 1997].</p> <p><b>HW.100.5.</b> Closed vent systems are required to be designed according to specific standards (40 CFR 262.34(a)(1)(ii), 265.202, and 265.1088) [December 1997].</p>	<p>Verify that, if air emissions are being controlled by using an enclosure vented through a closed vent system to an enclosed combustion control device, the following are met:</p> <ul style="list-style-type: none"> <li>- the tank is located inside an enclosure designed and operated according to the criteria for a permanent total enclosure as specified in 40 CFR 52.741, Appendix B</li> <li>- the enclosure is vented through a closed vent system to an enclosed, combustion control device that is designed and operated according to the standards in 40 CFR 265.1088.</li> </ul> <p>(NOTE: See the definition of <i>Exempted Waste Management Unit</i> for exemptions to these requirements.)</p> <p>Verify that closed vent systems:</p> <ul style="list-style-type: none"> <li>- route the gases, vapors, and fumes emitted from the hazardous waste to a control device</li> <li>- are designed according to 265.1033(j)</li> <li>- meet the following if they contain bypass devices, except for low leg drains, high point bleeds, analyzer vents, open ended valves or lines, spring loaded pressure relief valves, and other fittings used for safety devices, that could be used to divert the gas or vapor stream before entering the control device: <ul style="list-style-type: none"> <li>- it is equipped with a seal or locking device placed on the mechanism by which the bypass device is in the closed position so that the bypass device cannot be opened without breaking the seal or removing the lock</li> <li>- seals or closure mechanism are inspected at least once a month.</li> </ul> </li> </ul> <p>Verify that the control device is one of the following:</p> <ul style="list-style-type: none"> <li>- a control device designed and operated to reduce the total organic content of the inlet vapor stream vented to the control device by at least 95 percent weight</li> <li>- an enclosed combustion device</li> <li>- a flare.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that, when using a closed vent system and control device, periods of planned routine maintenance to the control device during which the control device does not meet specifications do not exceed 240 h/yr.</p> <p>Verify that the following are met when using a carbon adsorption system:</p> <ul style="list-style-type: none"> <li>- all activated carbon in the control device is replaced on a regular basis after start-up if carbon adsorption is used</li> <li>- all carbon that is a hazardous waste and that is removed from the control device is managed according to 40 CFR 265.1033(m) regardless of the average volatile organic concentration</li> <li>- operation and maintenance is done in accordance with 265.1033(j) or 265.1033(j) if a control device is used other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system</li> <li>- achievement of control device performance requirements is done by a performance test or design analysis for each control device except for the following: <ul style="list-style-type: none"> <li>- a flare</li> <li>- a boiler or process heater with a design heat input capacity of 44 MW or greater</li> <li>- a boiler or process heater into which the vent stream is introduced with the primary fuel</li> <li>- a boiler or industrial furnace burning hazardous waste for which a final permit has been issued and the unit is designed and operated in accordance with 40 CFR 266</li> <li>- a boiler or process heater for which the owner/operator has certified compliance</li> </ul> </li> <li>- carbon adsorption systems demonstrate achievement of performance requirements based on the total quantity of organics vented to the atmosphere from all carbon adsorption equipment that is used for organic adsorption, organic desorptions or carbon regeneration, organic recovery, and carbon disposal.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.100.6.</b> When transferring hazardous waste to a tank, specific requirements must be met (40 CFR 262.34(a)(1)(ii), 265.202, and 265.1085(j)) [Revised December 1997].</p>	<p>Verify that transfer of hazardous waste to the tank from another tank or from a surface impoundment is done using continuous hard piping or another closed system that does not allow exposure of the hazardous waste to the atmosphere.</p> <p>(NOTE: These requirements do not apply when transferring a hazardous waste to a tank under the following conditions:</p> <ul style="list-style-type: none"> <li>- the hazardous waste meets the average VO concentration of less than 500 ppm at the point of waste origination</li> <li>- the hazardous waste has been treated by an organic destruction or removal process</li> <li>- the hazardous waste meets the numerical concentrations limits for organic hazardous constituents as specified in 40 CFR 280</li> <li>- the hazardous waste has been treated by the treatment technology established by the USEPA or has been removed or destroyed by an equivalent method of treatment.)</li> </ul>
<p><b>HW.100.7.</b> Checklist item deleted [January 1997].</p>	
<p><b>HW.100.8.</b> Facilities are required to meet inspection and repair requirements for tanks (40 CFR 262.34(a)(1)(ii), 265.202, 265.1085(c)(4), 265.1085(e)(3), 265.1085(f)(3), 265.1085(g)(3), 265.1085(k) and 265.1085(l)) [January 1997].</p>	<p>Verify that fixed roofs and closure devices are inspected and managed as follows:</p> <ul style="list-style-type: none"> <li>- visually inspected for defects that could result in air pollutant emissions</li> <li>- initial inspection is on or before the date that the tank becomes subject to these requirements</li> <li>- inspected annually after the initial inspection.</li> </ul> <p>Verify that internal floating roofs are inspected and managed as follows:</p> <ul style="list-style-type: none"> <li>- visually inspected for defects that could result in air pollutant emissions</li> <li>- inspected through the openings in the fixed roof at least once every 12 mo</li> <li>- when the tank is emptied and degassed, inspected at least every 10 yr.</li> </ul> <p>(NOTE: As an alternative to the requirements for inspecting the internal floating roof, if an internal floating roof is equipped with two continuous seals, one above the other, visual inspection may be done of the internal floating roof, primary and secondary seals, gaskets, slotted membranes, and sleeve seals each time the tank is emptied and degassed and at least every 5 yr.)</p>

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Verify that inspection of external floating roofs are done and managed as follows:

- measurement of the gaps between the tank wall and the primary seal are done within 60 calendar days after initial operation of the tank following installation of the floating roof and thereafter at least once every 5 yr
- measurement of gaps between the tank wall and the secondary seal are done within 60 calendar day after initial operation of the tank following installation of the floating roof and thereafter at least once every year
- the floating roof and closure devices are visually inspected for defects that could result in air pollutant emissions initially on or before the date that the tank becomes subject to this regulation and thereafter annually.

(NOTE: If a tank ceases to hold hazardous waste for a period of 1 yr or more, subsequent introduction of hazardous waste into the tank will be considered an initial operation for inspection purposes.)

Verify that the Regional Administrator is notified prior to each of the inspections of the internal floating or the external floating roof as follows:

- prior to each visual inspection of the internal floating roof or the external floating roof in a tank that has been emptied and degassed, written notification is sent so that it is received by the Regional Administrator at least 30 calendar days before refilling the tank except when an inspection is not planned
- prior to each inspection to measure external floating roof seal gaps, written notification is sent so that it is received by the Regional Administrator at least 30 calendar days before the date the measurements are scheduled to be performed
- when a visual inspection is not planned and could not have been known about, the Regional Administrator is notified as soon as possible but no later than 7 calendar days before refilling the tank.

Verify that, for fixed roofs and associated closure devices, the air emission control equipment is visually inspected for defects that could result in air pollutant emissions initially before the tank becomes subject to these requirements and thereafter annually.

Verify that defects detected during inspections are repaired as follows:

- first efforts at repair are made no later than 5 calendar days after detection

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<p><b>HW.100.9.</b> Facilities are required to meet documentation requirements for tanks (40 CFR 262.34(a)(1)(ii), 265.202, 265.1090(a), 265.1090(b), and 265.1090(e) through 265.1090(i)) [December 1997].</p>	<ul style="list-style-type: none"> <li>- repair is completed no later than 45 days after detection unless it is determined that the repair requires emptying or temporary removal from service of the tank and no alternative capacity is available to accept the hazardous waste managed in the tank.</li> </ul> <p>(NOTE: After the initial inspections of the cover, following inspections may be performed at intervals longer than 1 yr under the following conditions:</p> <ul style="list-style-type: none"> <li>- when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions and the cover is designated as unsafe to inspect</li> <li>- when the tank is buried partially or entirely underground, only those portions aboveground are monitored annually.)</li> </ul> <p>Verify that the following records are kept for tanks using air emissions control:</p> <ul style="list-style-type: none"> <li>- a tank identification number or other unique identifying description</li> <li>- a record for each required inspection that includes the following:               <ul style="list-style-type: none"> <li>- date the inspection was done</li> <li>- location and description of defects</li> <li>- date of detection and corrective action to repair.</li> </ul> </li> </ul> <p>Verify that, for tanks using fixed roofs to meet Level 1 control standards, records are kept for each determination of the maximum organic vapor pressure of the hazardous waste, including the date and time the samples were collected, analysis method used, and analysis results.</p> <p>Verify that, for tanks using internal floating roofs to meet Level 2 control standards, documentation is maintained describing the floating roof design.</p> <p>Verify that, for tanks using external floating roofs to comply with Level 2 control standards, the following records are maintained:</p> <ul style="list-style-type: none"> <li>- documentation describing the floating roof design and the dimensions of the tank</li> <li>- records for each seal gap inspection, including the date, results, and calculations.</li> </ul> <p>Verify that, for situations where an enclosure is being used to comply with Level 2 control requirements, the following are maintained:</p> <ul style="list-style-type: none"> <li>- records for the most recent set of calculations and measurements performed by the owner or operator to verify that the enclosure meets the criteria for a permanent total enclosure</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- all records required for closed vent systems and control devices.</li> </ul> <p>Verify that, if using a closed-vent system and control device, the following records are maintained:</p> <ul style="list-style-type: none"> <li>- certification that is signed and dated by the owner/operator stating that the control device is designed to operate at the performance level documented by a design analysis or by performance tests when the tank is operating at capacity or the highest level reasonably expected to occur</li> <li>- design documents if design analysis is used, including information describing the control device design and certification that the equipment meets the applicable specification</li> <li>- a performance test plan if performance tests are used</li> <li>- description and date of each modification, as applicable</li> <li>- identification of operating parameters, description of monitoring devices, and diagrams of monitoring sensor locations, as applicable</li> <li>- semiannual records of the following for those planned routine maintenance operations that would require the control device to exceed limitations:             <ul style="list-style-type: none"> <li>- a description of the planned routine maintenance that is anticipated to be performed for the control device during the next 6-mo period, including the type of maintenance needed, planned frequency, and lengths of maintenance periods</li> <li>- a description of the planned routine maintenance that was performed for the control device during the previous 6-mo period, including the type of maintenance performed and the total number of hours during those 6 mo that the control device did not meet applicable requirements</li> </ul> </li> <li>- records of the following for those unexpected control device system malfunctions that would cause the control device to not meet specifications:             <ul style="list-style-type: none"> <li>- the occurrence and duration of each malfunction of the control device system</li> <li>- the duration of each period during a malfunction when gases, vapors, or fumes are vented from the waste management unit through the closed vent system to the control device while the control device is not properly functioning</li> <li>- actions taken during periods of malfunction to restore a malfunctioning control device to its normal or usual manner of operation</li> </ul> </li> <li>- records of the management of the carbon removed from a carbon adsorption system.</li> </ul>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that, for exempted tanks (see the definition of Exempted Hazardous Waste Storage Tanks), the following records are prepared and maintained as applicable:</p> <ul style="list-style-type: none"> <li>-if exempted under the hazardous waste concentration conditions, information used for the waste determination in the facility operating log and/or the date, time, and location of each waste sample if analysis results for samples are used</li> <li>-if exempted under incineration use or process destruction use, the identification number for the incinerator, boiler, or industrial furnace in which the hazardous waste is treated.</li> </ul> <p>Verify that the covers which are designated as unsafe to monitor, are listed in a log kept in the facility operating record with an explanation of why they are unsafe to inspect and monitor and a plan and schedule of inspection and monitoring is recorded.</p> <p>Verify that, for tanks not using the air emissions controls specified in 40 CFR 265.1085 through 265.1088, the following information is maintained:</p> <ul style="list-style-type: none"> <li>- a list of the individual organic peroxide compounds manufactured at the facility if it produces more than one functional family of organic peroxides or multiple organic peroxides within one functional family, and one or more of these organic peroxides could potentially undergo self-accelerating thermal decomposition at or below ambient temperatures</li> <li>- a description of how the hazardous waste containing the organic peroxide compounds identified in the above list are managed, including: <ul style="list-style-type: none"> <li>- a facility identification number for the tank or group of tanks</li> <li>- the purpose and placement of this tank or group of tanks in the management train of this hazardous waste</li> <li>- the procedures used to ultimately dispose of the hazardous waste handled in the tanks</li> </ul> </li> <li>- an explanation why managing these tanks would be an undue safety hazard</li> <li>- certification that the tank is not using inappropriate emissions control devices</li> <li>- identification of the requirements in 40 CFR 60, 61, or 63 that the tank is in compliance with.</li> </ul>

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**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
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Verify that all records, except design information records, are kept for at least 3 yr.

Verify that design information records are maintained in the operating record until the air emissions control equipment is replaced or otherwise no longer in service.



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**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
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**GENERATORS**

**HW.105  
Containment Buildings**

**HW.105.1.** Generators with containment buildings that are in compliance are not subject to the definition of land disposal if specific requirements are met (40 CFR 262.34(a)(1)(iv) and 265.1100).

(NOTE: According to the Background Information published on page 37211 of the 18 August 1992 edition of the Federal Register, a hazardous waste containment building involves the management of a hazardous waste inside a unit designed and operated to contain the hazardous waste within the unit. This is not a building that holds drums or tanks filled with hazardous waste but a building that holds the hazardous waste itself.)

(NOTE: A Generator generates more than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)

Verify that the containment building meets the following:

- it is a completely enclosed, self-supporting structure that is designed and constructed of manmade materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit
- it is designed to prevent failure due to pressure gradients, settlement, compression or uplift, physical contact with the hazardous wastes, climatic conditions, and the stress of daily operations
- it has a primary barrier that is designed to be sufficiently durable to with stand the movement of personnel, wastes, and handling of equipment within the unit
- if the unit is used to manage liquids:
  - there is a primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier
  - there is a liquid collection system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier
  - there is a secondary containment system designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time
- it has controls sufficient to prevent fugitive dust emissions
- it is designed and operated to ensure containment and prevent the tracking of materials from the unit by personnel and equipment.

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.105.2.</b> Containment buildings are required to be designed according to specific standards (40 CFR 262.34(a)(1)(iv), 265.1101(a)(1) through 265.1101(a)(2), and 265.1101(b)).</p>	<p>Verify that the containment building meet the following design standards:</p> <ul style="list-style-type: none"> <li>- it is completely enclosed with a floor, walls, and a roof to prevent exposure to the elements and to assure containment of wastes</li> <li>- the floor and containment walls, including any required secondary containment system, are designed and constructed of man-made materials of sufficient strength and thickness to support themselves, the waste contents, and any personnel and heavy equipment that operate within the unit</li> <li>- it is designed to prevent failure due to pressure gradients, settlement, compression or uplift, physical contact with the hazardous wastes, climatic conditions, and the stress of daily operations</li> <li>- it has sufficient structural strength to prevent collapse or other failure</li> <li>- all surfaces in contact with hazardous wastes are compatible with the wastes</li> <li>- it has a primary barrier that is designed to be sufficiently durable to withstand the movement of personnel, wastes, and handling of equipment within the unit and is appropriate for the chemical and physical characteristics of the waste.</li> </ul> <p>Verify that, if the containment building is going to manage hazardous wastes with free liquids or be treated with free liquids, the following design requirements are also met:</p> <ul style="list-style-type: none"> <li>- there is a primary barrier designed and constructed of materials to prevent migration of hazardous constituents into the barrier (e.g., a geomembrane covered by a concrete wear surface)</li> <li>- there is a liquid collection and removal system designed and constructed of materials to minimize the accumulation of liquid on the primary barrier: <ul style="list-style-type: none"> <li>- the primary barrier is sloped to drain liquids to the associated collection system</li> <li>- liquids and wastes are collected and removed to minimized hydraulic head on the containment system at the earliest practicable time</li> </ul> </li> <li>- there is a secondary containment system, including a secondary barrier, designed and constructed of materials to prevent migration of hazardous constituents into the barrier, with a leak detection and liquid collection system capable of detecting, collecting, and removing leaks of hazardous constituents at the earliest practicable time</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.105.3.</b> Containment buildings are required to be operated according to specific standards (40 CFR 262.34(a)(1)(iv), 265.1101(a)(3), 265.1101(c)(1), and 265.1101(c)(4)).</p>	<ul style="list-style-type: none"> <li>- the leak detection component of the secondary containment system meets the following:               <ul style="list-style-type: none"> <li>- it is constructed with a bottom slope of 1 percent or more</li> <li>- it is constructed of a granular drainage materials with a hydraulic conductivity of <math>1 \times 10^{-2}</math> cm/s or more and a thickness of 12 in. (30.5 cm) or more, or constructed of synthetic or geonet drainage materials with a transmissivity of <math>3 \times 10^{-5}</math> m<sup>2</sup>/s or more</li> </ul> </li> <li>- if treatment is to be conducted in the building, the treatment area is designed to prevent the release of liquids, wet materials, or liquid aerosols to other portions of the building</li> <li>- the secondary containment system is constructed of materials that are chemically resistant to the waste and liquids managed in the building and of sufficient strength and thickness to prevent collapse under pressure exerted by overlaying materials and by any equipment used.</li> </ul> <p>(NOTE: An exception to the structural strength requirement may be made for light-weight doors and windows based on the nature of the waste management operations if the following criteria are met:</p> <ul style="list-style-type: none"> <li>- the doors and windows provide an effective barrier against fugitive dust emissions</li> <li>- the unit is designed and operated in a manner that ensures the waste will not come in contact with the doors or windows.)</li> </ul> <p>(NOTE: A containment building can serve as an external liner or a secondary containment system for tanks within the building if:</p> <ul style="list-style-type: none"> <li>- it meets the requirements of 265.193(d)(1)</li> <li>- it meets the requirements of 265.193(b), 265.193(c)(1), and 265.193 (c)(2)).</li> </ul> <p>Verify that incompatible wastes or treatment reagents are not placed in the building or its secondary containment system if they could cause the unit or the secondary containment system to leak, corrode, or otherwise fail.</p> <p>Verify that the following operational procedures are done:</p> <ul style="list-style-type: none"> <li>- controls and practices are used to ensure the containment of the waste within the building</li> <li>- the primary barrier is maintained so it is free of significant cracks, gaps, corrosion, or other deterioration that could cause hazardous waste to be released from the primary barrier</li> <li>- the level of the stored/treated hazardous waste is maintained so the height of any containment wall is not exceeded</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.105.4.</b> Containment buildings are required to be certified by a registered professional engineer (40 CFR 262.34(a)(1)(iv) and 265.1101(c)(2)).</p> <p><b>HW.105.5.</b> Leaks in containment buildings must be repaired and reported (40 CFR 262.34(a)(1)(iv) and 265.1101(c)(3)).</p>	<ul style="list-style-type: none"> <li>- measures are implemented to prevent the tracking of hazardous waste out of the unit by personnel or equipment used in the handling of the waste</li> <li>- there is a designated area for the decontamination of equipment and collection of rinsate</li> <li>- any collected rinsate is managed as needed according to its constituents</li> <li>- measures are implemented to control fugitive dust emissions so that no openings exhibit visible emissions</li> <li>- particulate collection devices are maintained and operated according to sound air pollution control practices.</li> </ul> <p>Verify that data is gathered from monitoring equipment and leak detection equipment, the site is inspected at least once every 7 days, and the results are recorded in the operating record.</p> <p>Verify that there is a written description of procedures to ensure that waste does not remain in the building for more than 90 days.</p> <p>Verify that there is documentation that the waste does not remain for more than 90 days.</p> <p>Verify that the building has been certified by reviewing the documentation.</p> <p>Verify that, if a condition is detected which could lead to a leak or has already caused a leak, it is repaired promptly.</p> <p>Verify that, when a leak is discovered:</p> <ul style="list-style-type: none"> <li>- the discovery is recorded in the facility operating record</li> <li>- the portion of the containment building that is affected is removed from service</li> <li>- a cleanup and repair schedule is established</li> <li>- within 7 days the regional administrator is notified and within 14 working days written notice is provided to the regional administrator</li> <li>- the regional administrator is notified upon the completion of all repairs, and that certification from a registered professional engineer is also submitted.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.105.6.</b> Containment buildings that contain both areas with and without secondary containment must meet specific requirements (40 CFR 262.34(a)(1)(iv) and 265.110(d)).</p> <p><b>HW.105.7.</b> When a containment building is closed, specific requirements must be met (40 CFR 262.34(a)(1)(iv) and 265.1102).</p>	<p>Verify that each area is designed and operated according to the appropriate requirements.</p> <p>Verify that measures are taken to prevent the release of liquids or wet materials into areas without secondary containment.</p> <p>Verify that a written description is maintained in the facilities operating log of operating procedures used to maintain the integrity of areas without secondary containment.</p> <p>Determine if the facility has closed a containment building recently.</p> <p>Verify that, at closure, all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate were removed or decontaminated.</p> <p>Verify that the containment building is closed in accordance with closure and post-closure requirements for TSDFs as outlined in the sections titled Closure and Documentation Requirements.</p> <p>Verify that, if it is found that not all contaminated subsoils can be practicably removed or decontaminated, the site is closed and landfill postclosure requirements are implemented.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GENERATORS</b></p> <p><b>HW.110 Disposal of Restricted Waste</b></p> <p><b>HW.110.1.</b> Facilities that generate hazardous wastes must test their wastes or use process knowledge to determine if the wastes are restricted from land disposal (40 CFR 268.7(a)(1)) [June 1998].</p> <p><b>HW.110.2.</b> When a generator is managing a waste or soil that does not meet treatment standards, a written notice must be issued to the TSDf stating the appropriate treatment standards and prohibition levels (40 CFR 268.7(a)(2), and 268.7(a)(3)) [Revised April 2000].</p>	<p>(NOTE: See Appendix 4-6 for a summary of recordkeeping and notification requirements.)</p> <p>(NOTE: A Generator generates more than 1000 kg [≈ 2205 lb, 265 gal] of hazardous waste in any 1 mo of a calendar year.)</p> <p>Determine whether the generator tests for restricted wastes.</p> <p>Determine if the facility generates restricted wastes by reviewing test results (see Appendix 4-7).</p> <p>Verify that, for waste or soil that does not meet the applicable treatment standards or exceeds the applicable prohibition levels, the notice is issued and includes:</p> <ul style="list-style-type: none"> <li>- the USEPA hazardous waste number</li> <li>- waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 - F005, F039, D001, D002, D003, and D012 - D043</li> <li>- whether the waste is a nonwastewater or wastewater</li> <li>- the subcategory of the waste</li> <li>- for hazardous debris, the contaminants subject to treatment, and indication that the contaminants are being treated plus: <ul style="list-style-type: none"> <li>- the USEPA hazardous waste number</li> <li>- waste constituents that the treater will monitor, if monitoring will not include all regulated constituents, for wastes F001 - F005, F039, D001, D002, D003, and D012 - D043</li> <li>- whether the waste is a nonwastewater or wastewater</li> <li>- the subcategory of the waste</li> </ul> </li> <li>- a certification statement for contaminated soil.</li> </ul> <p>Verify a copy of the notice is placed on file as well.</p> <p>Verify that, for wastes or contaminated soil that meets the treatment standard at the original point of generation, the one-time written notice is issued and includes:</p> <ul style="list-style-type: none"> <li>- the USEPA hazardous waste and manifest number</li> <li>- the waste is subject to LDRs and the constituents of concern for F001 - F005 and F039, and underlying hazardous constituents (for wastes that are not managed in a CWA or CWA-equivalent</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.110.3.</b> Generators that are managing prohibited wastes in tanks, containers, or containment buildings and treating the waste to meet applicable treatment standards, must develop and follow a written waste analysis plan (40 CFR 268.7(a)(5)) [Revised June 1997].</p>	<p>facility), unless the waste will be treated and monitored for all constituents (NOTE: If all wastes will be treated and monitored, there is no need to put them on the LDR notice.)</p> <ul style="list-style-type: none"> <li>- whether the waste is a nonwastewater or wastewater and subdivision made within a waste code based on waste specific criteria</li> <li>- waste analysis data</li> <li>- a certification statement as outlined in 40 CFR 268.7(a)(3).</li> </ul> <p>Verify that, for waste or contaminated soil that meets the treatment standard at the original point of generation, if the waste changes, the generator sends a new notice and certification to the receiving facility and places a copy in their files.</p> <p>(NOTE: Generators of hazardous debris excluded from the definition of hazardous waste under 40 CFR 261.3(f) are not subject to the requirements for waste or contaminated soil which meets the treatment standard at the original point of generation.)</p> <p>Verify that, for restricted waste that is subject to an exemption from a prohibition of the type of land disposal used, the notice states that the waste is not prohibited from land disposal and includes:</p> <ul style="list-style-type: none"> <li>- the USEPA hazardous waste and manifest number</li> <li>- statement that this waste is not prohibited from land disposal</li> <li>- waste analysis data when available</li> <li>- date the waste is subject to the prohibition</li> <li>- for hazardous debris, when treating with alternative treatment technologies, the contaminants subject to treatment and an indication that these contaminants are being treated to comply with 40 CFR 268.45.</li> </ul> <p>Verify that the plan describes the procedures the generator will carry out to comply with treatment standards.</p> <p>(NOTE: Generators treating hazardous debris under the alternative treatment standards are not required to conduct waste analysis.)</p> <p>Verify that the plan is kept onsite and:</p> <ul style="list-style-type: none"> <li>- the plan is based on a detailed chemical and physical analysis of a representative sample of the prohibited waste being treated</li> <li>- contains all information necessary to treat the wastes in accordance with regulatory requirements, including the selected testing frequency</li> <li>- made available to inspectors.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.110.4.</b> Generators are required to keep specific documents pertaining to restricted wastes onsite (40 CFR 268.7(a)(6) through 268.7(a)(8)) [Revised June 1998].</p>	<p>Verify that, if the generator is using generator knowledge to determine whether a waste or contaminated soil meets land disposal restriction requirements, the supporting data used in making this determination is retained onsite in the facility files.</p> <p>Verify that, if the generator has determined whether a waste or contaminated soil is restricted using appropriate test methods, the waste analysis data is retained onsite.</p> <p>Verify that, if the generator has determined they are managing a restricted waste excluded from the definition of a hazardous waste or solid waste or exempt from RCRA Subtitle C, a one-time notice is placed in the generator's files stating that the generated waste is excluded and the disposition of the waste.</p> <p>Verify that a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation is kept for at least 3 yr from the date the waste was last sent to an onsite or offsite TSDF.</p>
<p><b>HW.110.5.</b> Generators who first claim that hazardous debris is excluded from the definition of hazardous waste are required to meet specific notification and certification requirements (40 CFR 268.7(d)) [June 1997].</p>	<p>Verify that a one-time notification is submitted to the director or authorized state including the following:</p> <ul style="list-style-type: none"> <li>- the name and address of the facility receiving the treated waste</li> <li>- a description of the hazardous debris as initially generated, including the applicable USEPA hazardous waste codes, treatability groups, and underlying hazardous constituents</li> <li>- for excluded debris, the technology used to treat the debris.</li> </ul> <p>Verify that the notification is updated if the debris is shipped to a different facility.</p> <p>Verify that, for debris which is excluded, if a different type of debris is treated or if a different technology is used to treat the debris, the notification is updated.</p>
<p><b>HW.110.6.</b> The storage of hazardous waste that is restricted from land disposal is not allowed unless specific conditions are met (40 CFR 268.50).</p>	<p>Verify that land disposal restricted waste is not stored at the facility unless the generator is storing the wastes in tanks, containers, or containment buildings onsite only for the purpose of accumulating enough quantity of hazardous waste to facilitate proper recovery, treatment, or disposal and all appropriate standards for containers, tanks, and containment buildings are met.</p> <p>(NOTE: If the 90-day storage period is exceeded, the generator is required to be permitted as a TSDF.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that transporters do not store manifested shipments of land disposal restricted wastes for more than 10 days.</p> <p>(NOTE: The prohibition on storage does not apply to hazardous wastes that have met treatment standards.)</p> <p>Verify that liquid hazardous wastes containing PCBs at concentrations greater than 50 ppm are stored at a site which meets the requirements of 40 CFR 761.65(b) (see the section titled Special Pollutants Management) and is removed from storage within 1 yr of the date it was first placed into storage.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.120</b></p> <p><b>TRANSPORTATION OF HAZARDOUS WASTE</b></p> <p><b>HW.120.1.</b> Transporters of hazardous waste that is required to be manifested must have a USEPA identification number and must comply with manifest management requirements (40 CFR 263.10(a), 263.10(b), 263.11, 263.20(a) through 263.20(d), 263.21, and 263.22(a)) [December 1997].</p> <p><b>HW.120.2.</b> Before transporting hazardous waste or offering hazardous waste for transportation offsite in the United States, the facility must package and label the waste in accordance with DOT regulations contained in 49 CFR 172, 173, 178, and 179 (40 CFR 262.30 through 262.33).</p>	<p>(NOTE: These requirements do not apply to the onsite transportation of hazardous waste. Nor do they apply to CESQGs.)</p> <p>Determine if the facility transports hazardous waste offsite using its vehicles or a contractor.</p> <p>Verify that the transporter has a USEPA identification number.</p> <p>Verify that all waste accepted, transported, or offered for transport is accompanied by a manifest.</p> <p>Verify that, prior to transport, the transporter signs and dates the manifest and returns a copy to the generator prior to leaving the facility.</p> <p>Verify that, if the facility is transporter, a copy of the manifest is retained after delivery.</p> <p>Verify that manifests are kept on file for 3 yr.</p> <p>(NOTE: Special issues involved in the transportation of hazardous waste by air, rail, or water are not addressed in this guide.)</p> <p>Determine what pretransport procedures for hazardous waste are used.</p> <p>Verify that containers are properly constructed and contain no leaks, corrosion, or bulges by inspecting a sample of containers awaiting transport.</p> <p>Examine end-seams for minor seeping that indicates drum failure.</p> <p>Verify that labeling and marking on each container is appropriate for the contents.</p> <p>Verify that the following information is displayed on a random sample of containers of 110 gal or less in accordance with 49 CFR 172.304:</p> <p><b>HAZARDOUS WASTE FEDERAL LAW PROHIBITS IMPROPER DISPOSAL. IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY.</b></p> <ul style="list-style-type: none"> <li>- GENERATOR'S NAME AND ADDRESS</li> <li>- MANIFEST DOCUMENT NUMBER ____.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.120.3.</b> Transporters of waste offsite must take immediate notification and cleanup action if a discharge occurs during transport (40 CFR 263.30 and 263.31).</p> <p><b>HW.120.4.</b> The facility should ensure that transportation of hazardous wastes between buildings is accomplished in accordance with good management practices to help prevent spills, releases, and accidents (MP).</p> <p><b>HW.120.5.</b> Transporters must not store manifested shipments in containers meeting DOT packaging requirements for more than 10 days at a transfer facility (40 CFR 263.12).</p>	<p>Verify that proper DOT placarding is available for the transporter.</p> <p>Verify that facility transport operators have instructions to notify local authorities and take cleanup action so the discharge does not present a hazard.</p> <p>Verify that facility transporters give notice to the NRC and report in writing as required by 49 CFR 171.15 and 171.16.</p> <p>Determine if procedures exist to manage movement of hazardous wastes throughout the facility.</p> <p>Determine if drivers are trained in spill control procedures.</p> <p>Determine if provisions have been made for securing wastes in vehicles when transporting.</p> <p>Determine if the facility has a transfer facility.</p> <p>Verify the following:</p> <ul style="list-style-type: none"> <li>- transfer facility storage is for 10 days or less</li> <li>- DOT packaging requirements are met</li> <li>- shipments are manifested and manifests accompany shipments</li> <li>- storage is consistent with good management practices.</li> </ul> <p>(NOTE: Storage for more than 10 days will require a TSDF permit.)</p>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.122</b></p> <p><b>MILITARY MUNITIONS</b></p> <p><b>HW.122.1.</b> Unless specific requirements are met, waste military munitions in storage that exhibit a hazardous waste characteristic, or are listed as hazardous waste, must be managed according to the requirements in 40 CFR 260 through 40 CFR 279 (40 CFR 266.205(a), 266.205(c), and 40 CFR 266.205(d)). <b>[Revised January 1999].</b></p>	<p>(NOTE: See the definition of Military Munitions and the definition of Waste Munitions. These regulations are effective 12 August 1997.)</p> <p>Verify that, when waste military munitions in storage that exhibit a hazardous waste characteristic, or are listed as hazardous waste, are not managed according to the requirements in 40 CFR 260 through 40 CFR 279, all of the following conditions are met:</p> <ul style="list-style-type: none"> <li>- the waste military munitions are not chemical agents or chemical munitions</li> <li>- the waste military munitions are subject to the jurisdiction of the Department of Defense Explosives Safety Board (DDESB)</li> <li>- the waste military munitions are stored in accordance with DDESB storage standards applicable to waste military munitions</li> <li>- within 90 days of 12 August 1997, or within 90 days of when a storage unit is first used to store waste military munitions, whichever is later, the USEPA Director is notified of the location of any waste storage unit used to store waste military munitions for which the exemption is claimed</li> <li>- oral notice is provided to the USEPA Director within 24 h from the time the installation becomes aware of any loss or theft of the waste military munitions or of any failure to meet the conditions of this exemption</li> <li>- written submission of the theft circumstances is provided within 5 days from the time of theft awareness or any failure to meet the conditions of the exemption</li> <li>- inventory the waste military munitions annually</li> <li>- inspect the waste military munitions at least quarterly</li> <li>- maintain records of findings of inventories and inspections for at least 3 yr.</li> <li>- limit access to the stored waste military munitions to appropriately trained and authorized personnel.</li> </ul> <p>(NOTE: This exemption only applies to storage requirements, not transportation, treatment, or disposal.)</p> <p>(NOTE: If a facility loses its conditional exemption, an application may be filed with the USEPA Director of reinstatement.)</p>

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.122.2.</b> The USEPA Director must be notified when a facility previously identified to the Director will no longer be used to store waste military munitions (40 CFR 266.205(b)) [February 1997].</p> <p><b>HW.122.3.</b> Checklist item deleted [Deleted January 1999].</p> <p><b>HW.122.4.</b> The treatment and disposal of hazardous waste military ammunition must meet the applicable permitting, procedures, and technical standards in 40 CFR parts 260 through 270 (40 CFR 266.206) [February 1997].</p>	<p>Verify that, if all of the above requirements are not met for waste military munitions in storage that exhibit a hazardous waste characteristic, or are listed as hazardous waste, the munitions are managed according to the requirements in 40 CFR 260 through 40 CFR 279.</p> <p>(NOTE: Waste military munitions that are chemical agents or chemical munitions and that exhibit a hazardous waste characteristic or are listed as hazardous waste are required to be managed according to the requirements of RCRA Subtitle C, except that they are not subject to the prohibitions on storage of restricted wastes found in 40 CFR 268.50.)</p> <p>Verify that the USEPA Director has been notified if a facility previously identified to the Director will no longer be used to store waste military munitions.</p> <p>Checklist item incorporated into HW.122.1.</p> <p>Verify that the treatment and disposal of hazardous waste military munitions meets the applicable permitting, procedures, and technical standards in 40 CFR parts 260 through 270.</p>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SMALL QUANTITY UNIVERSAL WASTE HANDLERS</b></p> <p><b>HW.125 General</b></p> <p><b>HW.125.1.</b> Small quantity handlers of universal waste, less than 5000 kg [11,111 lb] at any time, are prohibited from disposing or treating universal wastes (40 CFR 273.11).</p> <p><b>HW.125.2.</b> Small quantity handlers of universal waste are required to meet specific accumulation time limits (40 CFR 273.15).</p>	<p><b>[NOTE: This Section was Reviewed July 2000]</b></p> <p>(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined at 273.6</li> <li>- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>Determine if the facility is a small quantity handler of universal waste.</p> <p>Verify that the facility does not dispose of universal wastes onsite.</p> <p>Verify that, except when responding to a release or performing waste management activities outlined in 40 CFR 273.13 (see checklist items HW.130.1 through HW.130.5), the facility does not dilute or treat universal waste.</p> <p>Verify that universal waste is not accumulated for more than 1 yr from the date that the universal waste is generated, or received from another handler.</p> <p>(NOTE: The 1 yr limit may be exceeded if the cause is waiting for the accumulation of quantities necessary to facilitate proper recovery, treatment, or disposal.)</p> <p>Verify that the handler can demonstrate the length of time that the universal waste has been accumulated by one of the following methods:</p> <ul style="list-style-type: none"> <li>- placing the universal waste in a container and marking or labeling the container with the earliest date that any universal waste in the container became a waste or was received</li> <li>- marking or labeling each individual item of universal waste with the date it became waste or was received</li> </ul>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.125.3.</b> Small quantity handlers of universal waste are required to handle releases according to specific procedures (40 CFR 273.17).</p> <p><b>HW.125.4.</b> Small quantity handlers of universal waste managing imported universal waste are required to meet specific parameters. (40 CFR 273.70(b) and 273.70(d)) [Added July 2000].</p>	<ul style="list-style-type: none"> <li>- maintaining an inventory system onsite that identifies the date each universal waste became a waste or was received</li> <li>- maintaining an inventory system onsite that identifies the earliest date that any universal waste in a group of universal waste items or a group of containers of universal waste became a waste or was received</li> <li>- placing the universal waste in a specific accumulation area and identifying the earliest date that any universal waste in the area became a waste or was received</li> <li>- any other method which clearly demonstrates the length of time that the universal waste has been accumulated from the date that it becomes a waste or was received.</li> </ul> <p>Verify that all releases of universal waste and other universal waste residues are immediately contained.</p> <p>Verify that the facility determines if the material resulting from the release is a hazardous waste.</p> <p>Determine if the small quantity handler of universal waste is receiving universal waste from a foreign country.</p> <p>Verify that the universal waste is handled according to all requirements applicable to small quantity handlers of universal waste (40 CFR 273, Subpart B) immediately after the waste enters the United States.</p> <p>(NOTE: If the universal waste was imported from an Organization for Economic Cooperation and Development (OECD) country as specified in 40 CFR 262.58(a)(1), the requirements of 40 CFR 262, Subpart H apply. The designated OECD countries are: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. Canada and Mexico are considered OECD countries only for the purpose of transit.)</p>



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**REGULATORY  
REQUIREMENTS:**

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**SMALL QUANTITY  
UNIVERSAL WASTE  
HANDLERS**

**HW.130  
Specific Wastes**

**HW.130.1.** Small quantity handlers of universal waste are required to manage universal waste batteries according to specific parameters (40 CFR 273.12, 273.13(a)(1), and 273.13(a)(2)).

[NOTE: This section was Reviewed July 2000.]

(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:

- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6
- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)

(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:

- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6
- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)

(NOTE: A small quantity handler of universal waste is not required to notify the USEPA of universal waste handling activities.)

(NOTE: Refer to the definition of "battery" and "waste battery".)

Verify that universal waste batteries are managed in a way that prevents releases of any universal waste or component of a universal waste to the environment.

Verify that batteries, which show evidence of leakage, spillage, or damage, that could cause leakage under reasonably foreseeable condition, are contained in a container.

Verify that containers are closed, structurally sound, compatible with the contents of the battery, and lack evidence of leakage, spillage or damage that could cause leakage.

Verify that, when conducting any of the following activities, the casing of each individual battery cell is not breached and remains intact and closed:

- sorting batteries by type
- mixing battery types in one container
- discharging batteries so as to remove the electric charge
- regenerating used batteries

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.130.2.</b> Small quantity handlers of universal waste are required to manage the electrolyte from universal waste batteries and other solid wastes generated from battery management activities according to specific parameters (40 CFR 273.13(a)(3)) [Revised July 2000].</p> <p><b>HW.130.3.</b> Small quantity handlers of universal waste are required to manage universal waste pesticides according to specific parameters (40 CFR 273.12 and 273.13(b)).</p>	<ul style="list-style-type: none"> <li>- disassembling batteries or battery packs into individual batteries or cells</li> <li>- removing batteries from consumer products</li> <li>- removing electrolyte from batteries.</li> </ul> <p>(NOTE: Cells may be opened to remove electrolyte but must be immediately closed after removal.)</p> <p>Verify that, if the small quantity universal waste handler removes electrolyte from batteries or generates other solid waste (e.g., battery pack materials, discarded consumer products) as a result of battery management activities, the handler determines if any of the wastes exhibit the characteristics of a hazardous waste.</p> <p>Verify that, if it does exhibit the characteristics of a hazardous waste, it is treated and handled as a hazardous waste.</p> <p>Verify that, if the electrolyte or other solid waste is not a hazardous waste, it is managed in accordance with any other applicable state and federal laws and regulations.</p> <p>(NOTE: A small quantity handler of universal waste is not required to notify the USEPA of universal waste handling activities.)</p> <p>(NOTE: Refer to the definition of "pesticide" and "waste pesticides".)</p> <p>Verify that universal waste pesticides are managed in a way that prevents releases of any universal waste or component of a universal waste to the environment.</p> <p>Verify that the pesticides are contained in one or more of the following:</p> <ul style="list-style-type: none"> <li>- a container that remains closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions</li> <li>- an inappropriate container that is overpacked in an appropriate container</li> <li>- a tank that meets the requirements of 40 CFR 265, Subpart J except for 265.197(c) (tank closure plans), 265.200 (waste analysis and trial tests), and 265.201 (requirements for SQGs)</li> <li>- a transport vehicle or vessel that is closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.</li> </ul>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.130.4.</b> Small quantity handlers of universal waste are required to manage universal waste thermostats according to specific parameters (40 CFR 273.12 and 273.13(c)(1) and (c)(2)) [Revised July 2000].</p>	<p>(NOTE: A small quantity handler of universal waste is not required to notify the USEPA of universal waste handling activities.)</p> <p>(NOTE: Refer to the definition of "thermostat" and "waste thermostat".)</p> <p>Verify that universal waste thermostats are managed in a way that prevents releases of any universal waste or component of a universal waste to the environment.</p> <p>Verify that the thermostats are contained in a container that remains closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.</p> <p>Verify that, if the handler removes the mercury containing ampules, the following are met:</p> <ul style="list-style-type: none"> <li>- the ampules are removed in a manner designed to prevent breakage of the ampule</li> <li>- ampules are removed only over, or in, a containment device</li> <li>- a mercury cleanup system is readily available to immediately transfer any mercury spills or leaks from the containment device to an appropriate container</li> <li>- there is immediate transfer of any mercury spills or leaks from broken ampules to an appropriate container</li> <li>- the area in which ampules are removed is well ventilated and monitored to ensure compliance with OSHA</li> <li>- employees removing ampules are thoroughly familiar with proper waste mercury handling and emergency procedures</li> <li>- removed ampules are stored in closed, non-leaking containers that are in good condition</li> <li>- removed ampules are packed in the container with packing materials adequate to prevent breakage during storing, handling, and transportation.</li> </ul>
<p><b>HW.130.5.</b> Small quantity handlers of universal waste are required to manage the wastes from universal waste thermostats according to specific parameters (40 CFR 273.12 and 273.13(c)(3)).</p>	<p>Verify that, if the small quantity universal waste handler removes mercury containing ampules, the handler determines if the mercury or cleanup residues resulting from spills or leaks exhibit the characteristics of a hazardous waste.</p> <p>Verify that, if the small quantity universal waste handler removes mercury containing ampules, the handler determines if the solid waste generated (e.g. remaining thermostat units) exhibit the characteristics of a hazardous waste.</p>

**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.130.6.</b> Small quantity handlers of universal waste are required to manage universal waste lamps according to specific parameters (40 CFR 273.13(d)) [Added April 2000].</p>	<p>Verify that, if it does exhibit the characteristics of a hazardous waste, it is treated and handled as a hazardous waste.</p> <p>Verify that, if the mercury, residues, or other solid waste is not a hazardous waste, it is managed in accordance with any other applicable state and Federal laws and regulations.</p> <p>Verify that a small quantity handler of universal waste contains any lamp in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps.</p> <p>Verify that containers and packages remain closed and lack evidence of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions.</p> <p>Verify that a small quantity handler of universal waste immediately cleans up and places in a container any lamp that is broken and any lamp that shows evidence of breakage, leakage, or damage that could cause the release of mercury or other hazardous constituents to the environment.</p> <p>Verify that containers are closed, structurally sound, compatible with the contents of the lamps and lack evidence of leakage, spillage, or damage that could cause leakage or releases of mercury or other hazardous constituents to the environment under reasonably foreseeable conditions.</p>

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**REGULATORY  
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**SMALL QUANTITY  
UNIVERSAL WASTE  
HANDLERS**

**HW.135  
Personnel Training**

**HW.135.1.** Employees who handle or have responsibility for managing universal wastes are required to be trained (40 CFR 273.16).

**[NOTE: This section was Reviewed July 2000.]**

(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:

- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6
- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)

(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:

- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6
- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)

Verify that employees have been trained in the proper handling and emergency response procedures.



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**SMALL QUANTITY  
UNIVERSAL WASTE  
HANDLERS**

**HW.140  
Containers**

**HW.140.1.** Universal wastes at small quantity universal waste handlers are required to be labeled according to specific parameters (40 CFR 273.14) [Revised April 2000].

[This section was Reviewed July 2000.]

(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:

- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6
- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)

(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:

- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6
- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)

Verify that universal waste batteries (each battery), or a container in which the batteries are contained, are labeled or marked clearly with any one of the following phrases:

- UNIVERSAL WASTE - BATTERY(IES)
- WASTE BATTERY(IES)
- USED BATTERY(IES).

Verify that containers or multiple container package units, tanks, transport vehicles, or vessels in which recalled universal waste pesticides are contained are marked clearly with:

- the label that was on or accompanied the product as sold or distributed
- the words UNIVERSAL WASTE PESTICIDE(S) or WASTE PESTICIDE(s).

Verify that the container, tanks, or transport vehicles or vessels in which unused pesticide products are contained are labeled or marked clearly with:

- the label that was on the product when purchased, if still legible, or, if this is not feasible, the appropriate DOT label
- an alternate label prescribed or designated by the waste pesticide collection program administered or recognized by a state

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- the words UNIVERSAL WASTE - PESTICIDE(S) or WASTE PESTICIDE(S).

Verify that universal waste thermostats or containers in which the thermostats are contained are labeled or marked clearly with one of the following phrases:

- UNIVERSAL WASTE - MERCURY THERMOSTAT(S)
- WASTE MERCURY THERMOSTAT(S)
- USED MERCURY THERMOSTAT(S).

Verify that each lamp or a container or package in which lamps are contained is labeled or marked clearly with one of the following phrases:

- UNIVERSAL WASTE - LAMP(S)
- WASTE LAMP(S)
- USED LAMP(S).



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS:</b> <b>SEPTEMBER 2000</b>
<p><b>SMALL QUANTITY UNIVERSAL WASTE HANDLERS</b></p> <p><b>HW.150</b> Transportation</p>                     <b>HW.150.1.</b> Offsite shipments of universal waste from small quantity handlers is required to be done according to specific parameters (40 CFR 273.18 and 273.19) [Revised July 2000].	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:</p> <ul style="list-style-type: none"><li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li><li>- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li></ul> <p>(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:</p> <ul style="list-style-type: none"><li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li><li>- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li></ul> <p>Verify that small quantity handlers of universal waste do not send or take universal waste to anyplace other than another universal waste handler, a destination facility, or a foreign destination.</p> <p>(NOTE: If the handler self-transporters universal waste, they have to comply with the requirements for transportation in 40 CFR 273.50 through 273.56 (see checklist items HW.185.1 through HW.185.6).)</p> <p>Verify that, if the universal waste being offered for offsite transportation meets the definition of hazardous materials under 49 CFR 171 through 180, it is placarded, packaged, and shipped according to DOT requirements.</p> <p>Verify that, prior to sending the waste offsite, the originating handler has ensured that the receiving handler agrees to receive the waste.</p> <p>Verify that, if the receiving handler rejects a waste shipment, the originating handler does one of the following:</p> <ul style="list-style-type: none"><li>- receives the waste back when notified the shipment was rejected</li><li>- agrees with the receiving handler on a destination facility to which the shipment will be sent.</li></ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.150.2.</b> Small quantity handlers of universal waste that send universal waste to a foreign destination are required to meet specific requirements (40 CFR 273.20) [Revised July 2000].</p>	<p>Verify that, if the receiving handler rejects a shipment or a portion of the shipment, the receiving handler notifies the originating handler to discuss reshipment of the load, and either:</p> <ul style="list-style-type: none"> <li>- sends the shipment back to the originating handler</li> <li>- if agreed by both originating and receiving handlers, sends the shipment to a destination facility.</li> </ul> <p>Verify that, if a small quantity handler of universal waste receives a shipment containing hazardous waste that is not universal waste, the handler immediately notifies the regional USEPA office of the illegal shipment and provides the name, phone numbers, and address of the originating shipper.</p> <p>(NOTE: If the handler receives a shipment of nonhazardous nonuniversal waste the handler may manage the waste in any way that is in compliance with federal, state, or local regulations.)</p> <p>(NOTE: A small quantity handler of universal waste is not required to keep records of shipments of universal waste.)</p> <p>Verify that, for universal waste being sent to a foreign destination other than an OECD country, the requirements in 40 CFR 262.53 (notification of intent to export), 40 CFR 262.56(a)(1) through 262.56(a)(4), 262.56(a)(6) and 262.56(b) (annual reports), and 40 CFR 262.57 (recordkeeping) are met.</p> <p>Verify that, for universal waste being sent to an OECD country, the requirements of 40 CFR 262, Subpart H are met.</p> <p>Verify that the receiving country has consented to accept the waste through an Acknowledgment of Consent.</p> <p>Verify that a copy of the USEPA Acknowledgment of Consent for the shipment has been provided to the transporter.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>LARGE QUANTITY UNIVERSAL WASTE HANDLER</b></p> <p><b>HW.155 General</b></p> <p><b>HW.155.1.</b> Large quantity handlers of universal waste, more than 5000 kg [11,111 lb] at any time, are prohibited from disposing or treating universal wastes (40 CFR 273.31).</p> <p><b>HW.155.2.</b> Large quantity handlers of universal waste are required to meet specific accumulation time limits (40 CFR 273.35) [Revised July 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>Determine if the facility is a large quantity handler of universal waste.</p> <p>Verify that the facility does not dispose of universal wastes onsite.</p> <p>Verify that, except when responding to a release or performing waste management activities outlined in 40 CFR 273.13 (see checklist items HW.130.1 through HW.130.5), the facility does not dilute or treat universal waste.</p> <p>Verify that universal waste is not accumulated for more than 1 yr from the date that the universal waste is generated, or received from another handler.</p> <p>(NOTE: The 1 yr limit may be exceeded if the sole purpose is to accumulate such quantities as are necessary to facilitate proper recovery, treatment, or disposal. However, the handler must be able to prove that this is so.)</p> <p>Verify that the handler can demonstrate the length of time that the universal waste has been accumulated by one of the following methods:</p> <ul style="list-style-type: none"> <li>- placing the universal waste in a container and marking or labeling the container with the earliest date that any universal waste in the container became a waste or was received</li> </ul>

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<p><b>HW.155.3.</b> Large quantity handlers of universal waste are required to handle releases according to specific procedures (40 CFR 273.37).</p> <p><b>HW.155.4.</b> Large quantity handlers of universal waste managing imported universal waste are required to meet specific parameters. (40 CFR 273.70(b) and 273.70(d)) [Added July 2000].</p>	<ul style="list-style-type: none"> <li>- marking or labeling each individual item of universal waste with the date it became waste or was received</li> <li>- maintaining an inventory system onsite that identifies the date each universal waste became a waste or was received</li> <li>- maintaining an inventory system onsite that identifies the earliest date that any universal waste in a group of universal waste items or a group of containers of universal waste became a waste or was received</li> <li>- placing the universal waste in a specific accumulation area and identifying the earliest date that any universal waste in the area became a waste or was received</li> <li>- any other method which clearly demonstrates the length of time that the universal waste has been accumulated from the date that it becomes a waste or was received.</li> </ul> <p>Verify that all releases of universal waste and other universal waste residues are immediately contained.</p> <p>Verify that the facility determines if the material resulting from the release is a hazardous waste.</p> <p>Determine if the large quantity handler of universal waste is receiving universal waste from a foreign country.</p> <p>Verify that the imported universal waste is handled according all requirements applicable to large quantity handlers of universal waste immediately after the waste enters the United States.</p> <p>(NOTE: If the universal waste was imported from an OECD country as specified in 40 CFR 262.58(a)(1), the requirements of 40 CFR 262, Subpart H apply. The designated OECD countries are: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. Canada and Mexico are considered OECD countries only for the purpose of transit.)</p>

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>LARGE QUANTITY UNIVERSAL WASTE HANDLERS</b></p> <p><b>HW.160 Specific Wastes</b></p> <p><b>HW.160.1.</b> Large quantity handlers of universal waste are required to manage universal waste batteries and other solid waste generated from battery management activities according to specific parameters (40 CFR 273.33(a)(1) and 273.33(a)(2)) [Revised July 2000].</p>	<p>[NOTE: This section was Reviewed July 2000].</p> <p>(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- conditionally exempt small quantity generator wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>(NOTE: Refer to the definition of "battery" and "waste battery".)</p> <p>Verify that universal waste batteries are managed in a way that prevents releases of any universal waste or component of a universal waste to the environment.</p> <p>Verify that batteries that show evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable condition are contained in a container.</p> <p>Verify that containers are closed, structurally sound, compatible with the contents of the battery, and lack evidence of leakage, spillage or damage that could cause leakage.</p> <p>Verify that, when conducting any of the following activities, the casing of each individual battery cell is not breached and remains intact and closed:</p> <ul style="list-style-type: none"> <li>- sorting batteries by type</li> <li>- mixing battery types in one container</li> <li>- discharging batteries so as to remove the electric charge</li> <li>- regenerating used batteries</li> <li>- disassembling batteries or battery packs into individual batteries or cells</li> <li>- removing batteries from consumer products</li> <li>- removing electrolyte from batteries.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.160.2.</b> Large quantity handlers of universal waste are required to manage the electrolyte from universal waste batteries according to specific parameters (40 CFR 273.33(a)(3)).</p> <p><b>HW.160.3.</b> Large quantity handlers of universal waste are required to manage universal waste pesticides according to specific parameters (40 CFR 273.33(b)).</p>	<p>(NOTE: Cells may be opened to remove electrolyte but must be immediately closed after removal.)</p> <p>Verify that, if the large quantity universal waste handler removes electrolyte from batteries or generates other solid waste (e.g., battery pack materials, discarded consumer products) as a result of battery management activities, the handler determines if any of the wastes exhibit the characteristics of a hazardous waste.</p> <p>Verify that, if it does exhibit the characteristics of a hazardous waste, it is treated and handled as a hazardous waste.</p> <p>Verify that, if the electrolyte or other solid waste is not a hazardous waste, it is managed in accordance with any other applicable state and federal laws and regulations.</p> <p>(NOTE: Refer to the definition of "pesticide" and "waste pesticides".)</p> <p>Verify that universal waste pesticides are managed in a way that prevents releases of any universal waste or component of a universal waste to the environment.</p> <p>Verify that the pesticides are contained in one or more of the following:</p> <ul style="list-style-type: none"> <li>-a container that remains closed, structurally sound, compatible with the pesticide, and lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions</li> <li>-an inappropriate container that is overpacked in an appropriate container</li> <li>-a tank that meets the requirements of 40 CFR part 265, Subpart J except for 265.197(c) (tank closure plans), 265.200 (waste analysis and trial tests), and 265.201 (requirements for SOGs)</li> <li>-a transport vehicle or vessel that is closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.160.4.</b> Large quantity handlers of universal waste are required to manage universal waste thermostats according to specific parameters (40 CFR 273.33(c)(1) and 273.33(c)(2)).</p> <p><b>HW.160.5.</b> Large quantity handlers of universal waste are required to manage the wastes from universal waste thermostats according to specific parameters (40 CFR 273.33(c)(3)).</p>	<p>(NOTE: Refer to the definition of "thermostat" and "waste thermostat".)</p> <p>Verify that universal waste thermostats are managed in a way that prevents releases of any universal waste or component of a universal waste to the environment.</p> <p>Verify that the thermostats are contained in a container that remains closed, structurally sound, compatible with the pesticide, and that lacks evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions.</p> <p>Verify that, if the handler removes the mercury containing ampules, the following are met:</p> <ul style="list-style-type: none"> <li>-the ampules are removed in a manner designed to prevent breakage of the ampule</li> <li>-ampules are removed only over, or in, a containment device</li> <li>-a mercury cleanup system is readily available to immediately transfer any mercury spills or leaks from the containment device to an appropriate container</li> <li>-there is immediate transfer of any mercury spills or leaks from broken ampules to an appropriate container</li> <li>-the area in which ampules are removed is well ventilated and monitored to ensure compliance with OSHA</li> <li>-employees removing ampules are thoroughly familiar with proper waste mercury handling and emergency procedures</li> <li>-removed ampules are stored in closed, non-leaking containers that are in good condition</li> <li>-removed ampule are packed in the container with packing materials adequate to prevent breakage during storing, handling, and transportation.</li> </ul> <p>Verify that, if the large quantity universal waste handler removes mercury containing ampules, the handler determines if the mercury or cleanup residues resulting from spills or leaks exhibits the characteristics of a hazardous waste.</p> <p>Verify that, if the large quantity universal waste handler removes mercury containing ampules, the handler determines if the solid waste generated (e.g., remaining thermostat units) exhibits the characteristics of a hazardous waste.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.160.6.</b> Large quantity handlers of universal waste are required to manage universal waste lamps according to specific parameters (40 CFR 273.33(d)) [Added April 2000].</p>	<p>Verify that, if it does exhibit the characteristics of a hazardous waste, it is treated and handled as a hazardous waste.</p> <p>Verify that, if the mercury, residues, or other solid waste is not a hazardous waste, it is managed in accordance with any other applicable state and federal laws and regulations.</p> <p>Verify that a large quantity handler of universal waste contains any lamp in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps.</p> <p>Verify that containers and packages remain closed and lack evidence of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions.</p> <p>Verify that a large quantity handler of universal waste immediately cleans up and places in a container any lamp that is broken and places in a container any lamp that shows evidence of breakage, leakage, or damage that could cause the release of mercury or other hazardous constituents to the environment.</p> <p>Verify that containers are closed, structurally sound, compatible with the contents of the lamps and lack evidence of leakage, spillage, or damage that could cause leakage or releases of mercury or other hazardous constituents to the environment under reasonably foreseeable conditions.</p>



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**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**LARGE QUANTITY  
UNIVERSAL WASTE  
HANDLERS**

**[NOTE: This section was Reviewed July 2000].**

**HW.165  
Personnel Training**

(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:

- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6
- CESQG wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)

(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:

- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6
- CESQG wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)

**HW.165.1.** Employees who handle or have responsibility for managing universal wastes are required to be trained (40 CFR 273.36) **[Revised July 2000].**

Verify that all employees have been trained in the proper handling and emergency response procedures relative to their responsibilities during normal facility operations and emergencies.



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>LARGE QUANTITY UNIVERSAL WASTE HANDLERS</b></p> <p><b>HW.170 Containers</b></p> <p><b>HW.170.1.</b> Universal wastes at large quantity universal waste handlers are required to be labeled according to specific parameters (40 CFR 273.34) [Revised April 2000].</p>	<p>[NOTE: This section was Reviewed July 2000].</p> <p>(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- CESQG wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- CESQG wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>Verify that universal waste batteries (each battery), or a container in which the batteries are contained, are labeled or marked clearly with any one of the following phrases:</p> <ul style="list-style-type: none"> <li>- UNIVERSAL WASTE - BATTERY(IES)</li> <li>- WASTE BATTERY(IES)</li> <li>- USED BATTERY(IES).</li> </ul> <p>Verify that containers or multiple container package units, tanks, transport vehicles, or vessels in which recalled universal waste pesticides are contained are marked clearly with:</p> <ul style="list-style-type: none"> <li>- the label that was on or accompanied the product as sold or distributed</li> <li>- the words UNIVERSAL WASTE PESTICIDE(S) or WASTE PESTICIDE(s).</li> </ul> <p>Verify that the container, tanks, or transport vehicles or vessels in which unused pesticide products are contained are labeled or marked clearly with:</p> <ul style="list-style-type: none"> <li>- the label that was on the product when purchased, if still legible, or, if this is not feasible, the appropriate DOT label</li> <li>- an alternate label prescribed or designated by the waste pesticide collection program administered or recognized by a state</li> <li>- the words UNIVERSAL WASTE - PESTICIDE(S) or WASTE PESTICIDE(S).</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that universal waste thermostats or containers in which the thermostats are contained are labeled or marked clearly with one of the following phrases:</p> <ul style="list-style-type: none"><li>- UNIVERSAL WASTE - MERCURY THERMOSTAT(S)</li><li>- WASTE MERCURY THERMOSTAT(S)</li><li>- USED MERCURY THERMOSTAT(S).</li></ul> <p>Verify that each lamp or a container or package in which lamps are contained is labeled or marked clearly with one of the following phrases:</p> <ul style="list-style-type: none"><li>- UNIVERSAL WASTE - LAMP(S)</li><li>- WASTE LAMP(S)</li><li>- USED LAMP(S).</li></ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>LARGE QUANTITY UNIVERSAL WASTE HANDLERS</b></p> <p><b>HW.175 Notification</b></p> <p><b>HW.175.1.</b> Large quantity handlers of universal waste are required to perform specific notification activities (40 CFR 273.32).</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- CESQG wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- CESQG wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>Verify that the handler has sent written notification of universal waste management to the Regional Administrator and received an USEPA identification number before meeting or exceeding the 5000 kg (11,111 lb) storage limit.</p> <p>(NOTE: In the following circumstances, the handler is not required to notify the USEPA:</p> <ul style="list-style-type: none"> <li>- the handler has already notified the USEPA of hazardous waste activity,</li> <li>- recalled pesticides are being managed and notification has already been sent in under 40 CFR 165.)</li> </ul> <p>Verify that the notification includes:</p> <ul style="list-style-type: none"> <li>- the universal waste handlers name and mailing address</li> <li>- the name and business phone of the POC at the facility</li> <li>- the address or physical location of the universal waste management activities</li> <li>- a list of all types of universal waste managed by the handler</li> <li>- a statement indicating that the handler is accumulating more than 5000 kg [11,111 lb] of universal waste at one time and the types of universal waste that are accumulated above this quantity.</li> </ul>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>LARGE QUANTITY UNIVERSAL WASTE HANDLERS</b></p> <p><b>HW.180 Transportation</b></p> <p><b>HW.180.1.</b> Offsite shipments of universal waste from large quantity handlers is required to be done according to specific parameters (40 CFR 273.38) [Revised July 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: The following waste may, at the option of the generator, be managed under the requirements of 40 CFR 273:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- CESQG wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>(NOTE: When the following wastes are commingled with universal wastes, the commingled wastes must be managed under 40 CFR 273 as universal waste:</p> <ul style="list-style-type: none"> <li>- household wastes that are exempt under 40 CFR 261.4(b)(1) and are also the same type as the universal wastes defined in 273.6</li> <li>- CESQG wastes that are exempt under 261.5 and are also the same types as the universal waste defined in 273.6.)</li> </ul> <p>Verify that large quantity handlers of universal waste do not send or take universal waste to anyplace other than another universal waste handler, a destination facility, or a foreign destination.</p> <p>(NOTE: If the handler self-transportes universal waste, they have to comply with the requirements for transportation in 40 CFR 273.50 through 273.56 (see checklist items HW.185.1 through HW.185.6).)</p> <p>Verify that, if the universal waste being offered for offsite transportation meets the definition of hazardous materials under 49 CFR 171 through 180, it is placarded, packaged and shipped according to DOT requirements.</p> <p>Verify that, prior to sending the waste offsite, the originating handler has ensured that the receiving handler agrees to receive the waste.</p> <p>Verify that, if the receiving handler rejects a waste shipment, the originating handler does one of the following:</p> <ul style="list-style-type: none"> <li>- receives the waste back when notified the shipment was rejected</li> <li>- agrees with the receiving handler on a destination facility to which the shipment will be sent.</li> </ul> <p>Verify that, if the receiving handler rejects a shipment or a portion of a shipment, the receiving handler notifies the originating handler to discuss reshipment of the load, and either:</p> <ul style="list-style-type: none"> <li>- sends the shipment back to the originating handler, or</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.180.2.</b> Large quantity handlers are required to track offsite shipments (40 CFR 273.39) [Revised July 2000].</p>	<p>-if agreed by both originating and receiving handlers, sends the shipment to a destination facility.</p> <p>Verify that, if a large quantity handler of universal waste receives a shipment containing hazardous waste that is not universal waste, the handler immediately notifies the regional USEPA office of the illegal shipment and provides the name, phone numbers, and address of the originating shipper.</p> <p>(NOTE: If the handler receives a shipment of non-hazardous non-universal waste the handler may manage the waste in any way that is in compliance with federal, state, or local regulations.)</p> <p>Verify that a record of each shipment of universal waste received at the facility is kept in one of the following:</p> <ul style="list-style-type: none"> <li>- a log</li> <li>- invoices</li> <li>- manifests</li> <li>- bill of lading</li> <li>- other shipping document.</li> </ul> <p>Verify that the record for each shipment received includes the following:</p> <ul style="list-style-type: none"> <li>- name and address of the originating handler or foreign shipper from who the waste was sent</li> <li>- the quantity of each type of universal waste received</li> <li>- the date of receipt of the shipment.</li> </ul> <p>Verify that a record of each shipment of universal waste shipped offsite is kept in one of the following:</p> <ul style="list-style-type: none"> <li>- a log</li> <li>- invoices</li> <li>- manifests</li> <li>- bill of lading</li> <li>- other shipping document.</li> </ul> <p>Verify that the record for each offsite shipment includes the following:</p> <ul style="list-style-type: none"> <li>- name and address of the handler, destination facility, or foreign destination to whom the universal waste was sent</li> <li>- the quantity of each type of universal waste shipped</li> <li>- the date the shipment left the facility.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.180.3.</b> Large quantity handlers of universal waste that send universal waste to a foreign destination are required to meet specific requirements (40 CFR 273.20) [Revised July 2000].</p>	<p>Verify that records are retained for at least 3 yr:</p> <ul style="list-style-type: none"> <li>-for shipments received at the facility, from the date of receipt of the shipment</li> <li>-for shipments sent off-site by the handler, from the date the shipment left the facility.</li> </ul> <p>Verify that, for universal waste being sent to a foreign destination other than an OECD country, the requirements in 40 CFR 262.53 (notification of intent to export), 40 CFR 262.56(a)(1) through 262.56(a)(4), 262.56(a)(6) and 262.56(b) (annual reports), and 40 CFR 262.57 (recordkeeping) are met.</p> <p>Verify that, for universal waste being sent to an OECD country, the requirements of 40 CFR 262, Subpart H are met.</p> <p>Verify that the receiving country has consented to accept the waste through an Acknowledgment of Consent.</p> <p>Verify that a copy of the USEPA Acknowledgment of Consent for the shipment has been provided to the transporter.</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.185</b></p> <p><b>UNIVERSAL WASTE TRANSPORTER</b></p> <p><b>HW.185.1.</b> Universal waste transporters are prohibited from disposing or treating universal wastes (40 CFR 273.51).</p> <p><b>HW.185.2.</b> Universal waste transporters are required to manage the waste they transport according to specific parameters (40 CFR 273.52).</p> <p><b>HW.185.3.</b> Universal waste transporters may only store the universal waste at a transfer facility for 10 days (40 CFR 273.53).</p> <p><b>HW.185.4.</b> Universal waste transporters are required to handle releases according to specific procedures (40 CFR 273.54).</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>Determine if the facility is a transporter of universal waste.</p> <p>Verify that the facility does not dispose of universal wastes onsite.</p> <p>Verify that, except when responding to a release or performing waste management activities outlined in 40 CFR 273.13 (see checklist items HW.130.1 through HW.130.5), the facility does not dilute or treat universal waste.</p> <p>Verify that the waste is managed according to applicable DOT regulations depending on whether it meets the criteria for definition as a hazardous material or as a hazardous waste.</p> <p>Verify that universal waste is not stored at a transfer facility for more than 10 days.</p> <p>(NOTE: If the waste is stored for more than 10 days, the transporter becomes a handler.)</p> <p>Verify that all releases of universal waste and other universal waste residues are immediately contained.</p> <p>Verify that the transporter determines if the material resulting from the release is a hazardous waste.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.185.5.</b> Offsite shipments of universal waste transporters are required to be done according to specific parameters (40 CFR 273.18 and 273.19).</p> <p><b>HW.185.6.</b> Transporters of universal waste that send universal waste to a foreign destination is required to meet specific requirements (40 CFR 273.56) [Revised July 2000].</p>	<p>Verify that transporters of universal waste do not send or take universal waste to anyplace other than a universal waste handler, a destination facility, or a foreign destination.</p> <p>Verify that, if the universal waste being offered for offsite transportation meets the definition of hazardous materials under 49 CFR 171 through 180, it is placarded, packaged and shipped according to DOT requirements.</p> <p>(NOTE: These requirements apply when shipping to other than those OECD countries specified in 40 CFR 262.58(a)(1). The designated OECD countries are: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. Canada and Mexico are considered OECD countries only for the purpose of transit.)</p> <p>Verify that the transporter has determined that the shipment conforms to the U.S. EPA Acknowledgment of Consent.</p> <p>Verify that a copy of the USEPA Acknowledgment of Consent accompanies the shipment.</p> <p>Verify that appropriate measures are taken to ensure the universal waste is delivered to the facility designated by the person initiating the shipment.</p>
<p><b>HW.185.7.</b> Universal waste transporters managing imported universal waste are required to meet specific parameters. (40 CFR 273.70(a) and 273.70(d)) [Added July 2000].</p>	<p>Determine if the universal waste transporter is managing universal waste from a foreign country.</p> <p>Verify that the universal waste is handled according all requirements applicable to universal waste transporters immediately after the waste enters the United States.</p> <p>(NOTE: If the universal waste was imported from an OECD country as specified in 40 CFR 262.58(a)(1), the requirements of 40 CFR 262, Subpart H apply. The designated OECD countries are: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. Canada and Mexico are considered OECD countries only for the purpose of transit.)</p>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.190</b></p> <p><b>UNIVERSAL WASTE DESTINATION FACILITIES</b></p> <p><b>HW.190.1.</b> Destination facilities are required to meet specific requirements (40 CFR 273.60) [Revised April 2000/Reviewed July 2000].</p> <p><b>HW.190.2.</b> Destination facilities are required to meet specific standards in relation to offsite shipments of universal waste (40 CFR 273.61) [Revised July 2000].</p>	<p>(NOTE: A destination facility has to meet all the applicable requirements in 40 CFR parts 264, 265, 266, 270, and 124 in addition to the requirements outlined here.)</p> <p>Verify that the owner or operator of a destination facility meets all applicable requirements of 40 CFR 264, 265, 266, 268, 270, and the notification requirement under section 3010 of RCRA.</p> <p>Verify that the owner/operator of a destination facility that recycles a particular universal waste without storing that universal waste before it is recycled complies with 40 CFR 261.6(c)(2).</p> <p>Verify that the destination facility does not send or take universal waste to a place other than a universal waste handler, another destination facility, or foreign destination.</p> <p>Verify that, if the destination facility reject a shipment or portion of a shipment containing universal waste, they contact the shipper to notify him of the rejection and discuss reshipment of the load.</p> <p>Verify that, if a shipment is rejected, the destination facility does one of the following:</p> <ul style="list-style-type: none"> <li>- sends the shipment back to the original shipper</li> <li>- sends the shipment to another destination facility if agreed upon by the shipper and the holding destination facility.</li> </ul> <p>Verify that, if a destination facility receives a shipment containing hazardous waste that is not universal waste, the facility immediately notifies the regional USEPA office of the illegal shipment and provides the name, phone numbers, and address of the originating shipper.</p> <p>(NOTE: If the facility receives a shipment of nonhazardous nonuniversal waste, the facility may manage the waste in any way that is in compliance with Federal, state, or local regulations.)</p>

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.190.3.</b> Destination facilities are required to track universal waste shipments (40 CFR 273.62) [Revised July 2000].</p>	<p>Verify that a record of each shipment of universal waste received at the facility is kept in one of the following:</p> <ul style="list-style-type: none"> <li>- a log</li> <li>- invoices</li> <li>- manifests</li> <li>- bill of lading</li> <li>- other shipping document.</li> </ul> <p>Verify that the record for each shipment received includes the following:</p> <ul style="list-style-type: none"> <li>- name and address of the originating universal waste handler, destination facility or foreign shipper from whom the waste was sent</li> <li>- the quantity of each type of universal waste received</li> <li>- the date of receipt of the shipment.</li> </ul> <p>Verify that records are retained for 3 yr from the date of receipt of a shipment of universal waste.</p>
<p><b>HW.190.4.</b> Universal waste destination facility managing imported universal waste are required to meet specific parameters. (40 CFR 273.70(c) and 273.70(d)) [Added July 2000].</p>	<p>Determine if the universal waste destination facility is managing universal waste from a foreign country.</p> <p>Verify that the universal waste is handled according all requirements applicable to universal waste destination facility immediately after the waste enters the United States.</p> <p>(NOTE: If the universal waste was imported from an OECD country as specified in 40 CFR 262.58(a)(1), the requirements of 40 CFR 262, Subpart H apply. The designated OECD countries are: Australia, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, and the United States. Canada and Mexico are considered OECD countries only for the purpose of transit.)</p>

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**CLEANUP SITES**

**HW.200  
General**

**HW.200.1.** When a facility has a hazardous substance contaminated site which might require CERCLA response actions, a removal site evaluation is required to be done (40 CFR 300.410).

Determine if the facility has a contaminated site which might need to undergo CERCLA response actions.

Verify that a removal site evaluation is done as quickly as possible.

(NOTE: In response to a petition by potentially affected people, the facility may perform a removal preliminary assessment based on readily available information.)

Verify that the removal site evaluation is not terminated until the following is determined:

- there is no release
- the source is neither a vessel or a facility (see definitions)
- the release involves neither a hazardous substance, nor a pollutant that may present an imminent and substantial danger to the public health or welfare
- the release is one of the following which is subject to limited response:
  - it is of a naturally occurring substance in its unaltered form, or altered solely through naturally occurring processes or phenomena, from a location where it is naturally found
  - it is from products that are a part of the structure of, and result in exposure within, residential buildings or business or community structures
  - it is into public or private drinking water supplies due to deterioration of the system of ordinary use
- the amount, quantity, or concentration released does not warrant federal response
- a party responsible for the release, or any other person, is providing appropriate response, and on-scene monitoring by the government is not required.

Verify that the results of the removal site evaluation are documented.

Verify that, if natural resources are or may be injured by the release, state and federal trustees of the property are notified.

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.200.2.</b> Sites which are going to undergo cleanup that pose a threat to human health should be identified or demarcated (MP).</p> <p><b>HW.200.3.</b> When removal actions are required as a result of the site evaluation, specific actions must be taken (40 CFR 300.415(a) through 300.415(f)).</p>	<p>(NOTE: The removal site evaluation may indicate that a removal action is not required but that remediation action may be necessary.)</p> <p>Verify that contaminated sites, which pose a threat to human health, are marked, fenced, or in some manner demarcated.</p> <p>(NOTE: The requirements listed here do not apply to removal studies and investigations conducted pursuant to Section 104(b) of CERCLA.)</p> <p>Verify that, when it is determined that removal actions are appropriate, the actions begin as soon as possible.</p> <p>Verify that, when there is a planning period of at least 6 mo before onsite activities are initiated, the following are done:</p> <ul style="list-style-type: none"> <li>- an engineering evaluation/cost analysis (EE/CA) or its equivalent is done</li> <li>- sampling and analysis plans are developed if environmental samples are going to be collected.</li> </ul> <p>(NOTE: Examples of removal actions include the following:</p> <ul style="list-style-type: none"> <li>- fences, warning signs, or other security and site control precautions</li> <li>- drainage controls</li> <li>- stabilization of berms, dikes, or impoundments or drainage or closing of lagoons</li> <li>- capping of contaminated soils or sludges</li> <li>- using chemicals or other materials to retard the spread of the contamination</li> <li>- excavation, consolidation, or removal of highly contaminated soils from drainage or other areas</li> <li>- removal of drums, barrels, tanks or other bulk containers</li> <li>- containment, treatment, disposal or incineration of hazardous materials</li> <li>- provision of alternate water supply.)</li> </ul>



**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.200.4.</b> After a decision has been made, the remedial design/remedial action (RD/RA) is required to be in conformance with the remedy selected and set forth in the record of decision (ROD) or other decision document (40 CFR 300.435).</p> <p><b>HW.200.5.</b> A remedial site evaluation consists of a remedial preliminary assessment (PA) and a remedial site inspection (SI) (40 CFR 300.420).</p>	<p>Verify that the RD/RA activities meet the requirements outlined in the ROD or interagency agreement (IAG), including meeting deadlines.</p> <p>(NOTE: The principal model for a PA is Guidance for Performing Preliminary Assessments Under CERCLA, EPA/540/G91-013.)</p> <p>Verify that the remedial PA includes the following:</p> <ul style="list-style-type: none"> <li>- a review of existing information about a release such as information on the pathways of exposure, exposure targets, and source</li> <li>- offsite reconnaissance as appropriate</li> <li>- onsite reconnaissance as appropriate.</li> </ul> <p>Verify that a remedial PA is done for all sites at the facility listed in CERCLIS.</p> <p>Verify that a PA report is developed that includes:</p> <ul style="list-style-type: none"> <li>- a description of the release</li> <li>- a description of the probable nature of the release</li> <li>- a recommendation on whether further action is warranted, which lead agency should conduct further action and whether a SI or removal action or both should be undertaken.</li> </ul> <p>Verify that a remedial SI is done when a PA is inconclusive in order to:</p> <ul style="list-style-type: none"> <li>- eliminate from further consideration releases that pose no significant threat</li> <li>- determine the potential need for removal action</li> <li>- collect or develop additional data to evaluate the release.</li> </ul> <p>Verify that the remedial SI builds upon information gathered in the remedial PA and involves, as appropriate both on and offsite field investigatory efforts and sampling.</p>

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.200.6.</b> When a remedial investigation/feasibility study (RI/FS) is done to assess site conditions and evaluate alternatives, specific tasks are required as a part of the RI/FS (40 CFR 300.430(a)(2)).</p>	<p>Verify that, prior to conducting field sampling as a part of the SI, a sampling and analysis plan is developed.</p> <p>Verify that, upon completion of the remedial SI, a report is generated that includes:</p> <ul style="list-style-type: none"> <li>- a description/history/nature of waste handling</li> <li>- a description of known contaminants</li> <li>- a description of known pathways of contaminated migration</li> <li>- an identification and description of human and environmental targets</li> <li>- a recommendation on whether further action is warranted.</li> </ul> <p>Verify that the RI/FS includes the following activities:</p> <ul style="list-style-type: none"> <li>- assembling and evaluating data on the site, including the results of any removal actions, remedial preliminary assessment and site inspections, and NPL listing process</li> <li>- evaluation of the data and development of conceptual site understanding or model</li> <li>- identification of response scenarios and potentially applicable technologies and operable units that may address site problems</li> <li>- identification of the need for treatability studies</li> <li>- identification of the type, quantity, and quality of data that will be collected to support decisions regarding remedial response activities</li> <li>- site specific health and safety plans</li> <li>- notification of state and Federal trustees if natural resources are or may be injured by the release</li> <li>- sampling and analysis plans</li> <li>- initial identification of potential state and Federal ARARs and as appropriate, other criteria, advisories, or guidance to be considered.</li> </ul> <p>Verify that the ROD and proposed plans have also been reviewed.</p> <p>Verify that the scope and timing of these activities is tailored to the nature and complexity of the problem and the response alternatives being considered.</p>

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
DRAFT FOR REVIEW**

**CLEANUP SITES**

**HW.205  
Administrative Record**

**HW.205.1.** The administrative record is required to be located at the office of the facility or other central location and made available for public review (40 CFR 300.805).

(NOTE: The requirements for an administrative record applies to all response actions taken under section 104 of CERCLA or sought, secured, or ordered administratively or judicially under section 106 of CERCLA as follows:

- remedial actions where a remedial investigation started after the promulgation of the regulations concerning the administrative record
- removal actions where the action memorandum is signed after the promulgation of these requirements.)

Verify that an administrative record has been established at the facility or other central location.

Verify that a copy of the documents are made available for public inspection at or near the site except in the following cases:

- sampling and testing data, quality control and quality assurance documents, and chain of custody forms need not be located at or near the site if the index to the administrative record indicates the location and availability of this information
- guidance documents not generated specifically for the site need not be located at or near the site if they are maintained at the central location and the index indicate the location and availability of these documents
- publicly available technical literature not specific to the site need not be located at or near the site if it is maintained in a central location and the index indicates the location and availability of the information
- documents included in the confidential portion of the administrative record
- the administrative record for a removal action where the release, or threat of a release, requires that onsite removal activity occurs within hours of the determination that removal is appropriate and onsite removal activities stop within 30 days of starting need be available only at the central location.

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: DRAFT FOR REVIEW</b>
<p><b>HW.205.2.</b> The administrative record must be made available for public inspection when the engineering evaluation/cost analysis (EE/CA) is made available for public comment (40 CFR 300.815 and 300.820).</p>	<p>(NOTE: This requirement is a part of a one-time critical removal action.)</p> <p>Verify that, if it is determined that a removal action is appropriate and that a planning period of 6 mo exists before onsite removal action, the following is done:</p> <ul style="list-style-type: none"> <li>- the administrative record is made available for public inspection when the EE/CA is made available</li> <li>- a notice of the availability of the administrative file is published in a newspaper of general circulation</li> <li>- a public comment period is provided for</li> <li>- a written response to significant comments is included in the administrative file</li> <li>- public participation procedures as outlined in 40 CFR 300.415(m) (see checklist item HW.210.1) are done.</li> </ul> <p>Verify that, if it is determined that a removal action is appropriate and there is not a planning period of 6 mo, the following is done:</p> <ul style="list-style-type: none"> <li>- the administrative record file is made public no later than 60 days after the start of onsite removal activity</li> <li>- a notice of availability is published in a local newspaper of general circulation</li> <li>- a public comment period of at least 30 days is provided for beginning at the time the administrative record is made available to the public</li> <li>- a written response to significant comments is placed in the administrative file.</li> </ul>

**COMPLIANCE CATEGORY:  
HAZARDOUS WASTE MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**CLEANUP SITES**

**HW.210  
Community Relations**

**HW.210.1.** In the case of a removal action, specific community relations activities are required to be done (40 CFR 300.415(m) and CERCLA Section 300.40(m)(1)).

Verify that, if the facility has conducted a removal action, the facility has appointed a spokesperson.

Verify that, when it is determined based on the site evaluation, that removal is appropriate and less than 6 mo exists before onsite removal activity begins, the following is done:

- a notice of availability of the administrative record is published in a major local newspaper of general circulation within 60 day of the start of removal activity
- a public comment period of not less than 30 days is provided from the time the administrative record file is made available for public inspection
- a written response is prepared for significant comments.

Verify that, for removal actions where onsite actions are expected to extend beyond 120 days from the start of onsite removal activities, the following is done by the end of the 120 day period:

- local officials, community residents, public interest groups, or other interested parties are interviewed to solicit their concerns and how they would like to be involved in the Superfund process
- prepare a formal community relations plan (CRP) specifying actions that will be taken
- establish at least one local information repository at or near the location of the response action.

Verify that, when there is a planning period of at least 6 mo prior to the start of onsite removal actions, the following are done:

- prior to the completion of the EE/CA:
  - local officials, community residents, public interest groups, or other interested parties are interviewed to solicit their concerns and how they would like to be involved in the Superfund process
  - prepare a formal CRP specifying actions that will be taken
  - establish at least one local information repository at or near the location of the response action no later than when the EE/CA approval memo is signed

**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.210.2.</b> Specific community relations activities are required to occur in relation to a remedial investigation (40 CFR 300.430(c)).</p> <p><b>HW.210.3.</b> During the process of selecting a remedy, specific community relations activities are required to occur (40 CFR 300.430(f)(3)).</p>	<ul style="list-style-type: none"> <li>- publish a notice of availability and brief description of the EE/CA in a major local newspaper of general circulation</li> <li>- provide a reasonable opportunity of not less than 30 days for comments</li> <li>- prepare a written response to comments.</li> </ul> <p>(NOTE: These community relations requirements apply to all remedial activities undertaken pursuant to CERCLA section 104 and to section 106 or section 122 consent orders or decrees, or section 106 administrative orders.)</p> <p>Verify that the following are done prior to starting field work for remedial investigations:</p> <ul style="list-style-type: none"> <li>- local officials, community residents, public interest groups, or other interested parties are interviewed to solicit their concerns and how they would like to be involved in the Superfund process</li> <li>- prepare a formal Community Relations Plan (CRP) specifying actions that will be taken</li> <li>- establish at least one local information repository at or near the location of the response action</li> <li>- inform the community of the availability of technical assistance grants.</li> </ul> <p>Verify that after preparation of the proposed plan, the following activities are done:</p> <ul style="list-style-type: none"> <li>- publication of a notice of availability of the proposed plan in a major local newspaper of general circulation</li> <li>- the proposed plan and supporting analysis and information are made available in the administrative record</li> <li>- at least 30 days is provided for oral and written comments</li> <li>- the opportunity for a public meeting is provided during the public comment period at or near the site at issue</li> <li>- creation of a transcript of the public meeting and the transcript is made available to the public</li> <li>- preparation of a written summary of the significant comments, criticisms, and new relevant information submitted during the comment period and the lead agency's response to each.</li> </ul>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>HW.210.4.</b> When the ROD/DD is signed, a notice of availability must be published and the record made available for public inspection (40 CFR 300.430(f)(6)).</p> <p><b>HW.210.5.</b> Specific community relations activities are required to occur during the remedial design/remedial action (RD/RA) phase (40 CFR 300.435(c)).</p>	<p>Verify that, if additional information which has a significant impact becomes available after the publication of the proposed plan and prior to the adoption of the selected remedy in the record decision, the facility:</p> <ul style="list-style-type: none"> <li>- includes a discussion in the ROD/decision document (DD) of the changes and reasons for changes</li> <li>- seeks additional public comment on the revised proposed plan.</li> </ul> <p>(NOTE: ROD is only appropriate for NPL, non-NPL sites still require a DD.)</p> <p>Verify that, when the ROD/DD was signed, a notice was published in a major local newspaper of general circulation.</p> <p>Verify that the ROD/DD is available for public inspection and copying at or near the facility prior to the start of any remedial activities.</p> <p>Verify that, if the RA or enforcement action taken, or the settlement or consent decree entered into, differs significantly from the remedy selected in the ROD with respect to cost, scope, or performance, one of the following is done:</p> <ul style="list-style-type: none"> <li>- publish an explanation of the significant differences</li> <li>- propose an amendment to the ROD/DD.</li> </ul> <p>Verify that, after the completion of the final engineering design, a fact sheet is issued and a public briefing is done, as appropriate, prior to the initiation of the remedial action.</p>





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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>CLEANUP SITES</b></p> <p><b>HW.215 NPL Sites</b></p> <p><b>HW.215.1.</b> Facilities with sites on the NPL are required to appoint a remedial project manager (40 CFR 300.120 (c) and 300.120(d)).</p> <p><b>HW.215.2.</b> Federal facilities on the NPL are required to have an IAG with the USEPA (CERCLA, Section 120(e)(2) and 120(e)(4)).</p>	<p>Verify that for releases of hazardous substances, pollutants, or contaminants on, or the sole source of the release is from, any FWS facility or vessel, the facility has an appointed remedial project manager and onscene coordinator.</p> <p>Verify that an IAG is in place and contains the following:</p> <ul style="list-style-type: none"> <li>- a review of alternative remedial actions and selection of a remedial action by the head of the relevant department, agency, or instrumentality and the administrator or, if unable to reach agreement on selection of a remedial action, selection of the administrator</li> <li>- a schedule for the completion of the remedial action</li> <li>- arrangements for long term operation and maintenance of the facility.</li> </ul> <p>Verify that the terms of the IAG are being met.</p>



**Appendix 4-1**  
**Hazardous Waste from Nonspecific Sources and from Specific Sources**  
**(40 CFR 261.31 and 261.32)**

**Table I**  
**Hazardous Waste from Nonspecific Sources**

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
<u>Generic</u>		
F001	The spent halogenated solvents used in degreasing. Trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and the chlorinated fluorocarbons; all spent solvent mixtures or blends used in degreasing containing before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents listed in F002, F004, F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(t)
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,1,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures or blends containing, before use, a total of 10 percent or more by volume, of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(t)
F003	The spent nonhalogenated solvents, xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; and the still bottoms from the recovery of these solvents and spent solvent mixtures.	(i)
F004	The spent nonhalogenated solvents, cresols and cresylic acid, and nitrobenzene; and the still bottoms from the recovery of these solvents.	(t)
F005	The following spent nonhalogenated solvents: toluene, methyl ethyl ketone, carbons disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures or blends containing, before use, a total of 10 percent or more by volume of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these solvents.	(i,t)
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating	(t)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
	(segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning strip ping associated with tin, zinc, and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	
F007	Spent cyanide plating bath solution from electroplating operations.	(r,t)
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(r,t)
F009	Spent stripping and cleaning bath solutions from electroplating operations when cyanides are used in the process.	(r,t)
F010	Quenching bath residues from oil baths from metal heat treating operations when cyanides are used in the process.	(r,t)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(r,t)
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.	(t)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.	(t)
F020	Wastes from use of tri-, or tetrachlorophenol, or intermediates used to produce its pesticide derivatives. **	(h)
F021	Wastes of pentachlorophenol or intermediates used to produce its derivatives. **	(h)
F022	Wastes, of tetra-, penta-, or hexachlorobenzenes under alkaline conditions. **	(h)
F023	Wastes, of tri and tetrachlorophenols. **	(t)
F024	Wastes, including but not limited to distillation residues, heavy ends, tars, and reactor cleanout wastes from the production of chlorinated aliphatic hydrocarbons, utilizing free radical catalyzed processes having carbon chain lengths from one to five (omits light ends, spent filters and filter aids, spent desiccants, wastewater, wastewater treatment sludges, spent catalysts and wastes listed in 40 CFR 261.32).	(t)
F025	Condensed light ends, spent filters aids, and spent desiccant wastes from the production of certain chlorinated aliphatic	(t)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
	hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.	
F026	Wastes of tetra-, penta-, or hexachlorobenzene under alkaline conditions.	(h)
F027	Discarded, unused formulations containing tri-, tetra-, or pentachlorophenol or discarded, unused formulations containing compounds derived from these chlorophenols (does not include hexachlorophene synthesized from prepurified 2,4,5-trichlorophenol as the sole component.	(h)
F028	Residues from incineration or thermal treatment of soil contaminated with USEPA hazardous waste Nos. F020, F021, F022, F023, F026, and F027.	(t)
F032	Wastewaters (except those that have not come into contact with process contaminants), process residue, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with 261.35 and the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	(t)
F034	Wastewaters (except those that have come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use cresote formulations. This listing does not include K001 bottom sludge from the treatment of wastewater from wood preserving processes that use creosote and or phentachlorophenol.	(t)
F035	Wastewaters (except those that have come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chormium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	(t)
F037	Petroleum refinery primary oil/water/solids separation sludge--any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process	(t)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
	wastewaters and oily cooling wastewaters from petroleum refiners. This includes, but is not limited to, sludges generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from noncontact once through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units*** (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing.	
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge--any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from noncontact once- through cooling waters segregated for treatment from other process or oily cooling waters, sludges, and floats generated in aggressive biological treatment units*** (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing.	(t)
F039	Leachate resulting from the management of one or more of the following wastes and no other hazardous waste retains its hazardous waste number(s): F020, F021, F022, F023, F026, F027, and/or F028.	

\* HAZARD CODES (Column 3)

t = toxic waste

i = ignitable waste

r = reactive waste

h = acute hazardous waste

\*\* (Except wastewater and spent carbon from hydrogen chloride purification); the manufacturing or production use: as a reactant, chemical intermediate, or component in a formulating process. The listing for F020 and F023 does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.

\*\*\* Aggressive biological treatment units are defined as units that employ one of the following treatment methods: activated sludge; trickling filter; rotating biological contactor for the

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
<p>continuous accelerated biological oxidation of wastewaters; or high-rate aeration. High-rate aeration is a system of surface impoundments or tanks, in which intense mechanical aeration is used to completely mix the wastes, enhance biological activity, and (A) the units employ a minimum of 6 hp per million gallons of treatment volume; and either (B) the hydraulic retention time of the unit is no longer than 5 days; (C) the hydraulic retention time is no longer than 30 days and the unit does not generate a sludge that is a hazardous waste by the toxicity characteristic.</p> <p>NOTE: The listing of wastewaters that have not come into contact with process contaminants is stayed administratively. The listing for plants that have previously used chlorophenolic formulations is administratively stayed whenever these wastes are covered by the F032, F034 or F035 listings. These stays will remain in effect until further administrative action is taken.</p>		

**Appendix 4-1**  
**Table 2**  
**Hazardous Wastes from Specific Sources**  
**(40 CFR 261.32)**  
**[Revised January 1999]**

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
<b><u>Wood Preservation</u></b>		
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and /or pentachlorophenol.	(t)
<b><u>Inorganic Pigments</u></b>		
K002	Wastewater treatment sludge from the production of chrome yellow and organe pigments.	(t)
K003	Wastewater treatment sludge from the production of molybdate orange pigments.	(t)
K004	Wastewater treatment sludge from the production of zinc yellow pigments.	(t)
K005	Wastewater treatment sludge from the production of chrome green pigments.	(t)
K006	Wastewater treatment sludge from the production of chrome green pigments (anhydrous and hydrated).	(t)
K007	Wastewater treatment sludge from the production of iron blue pigments.	(t)
K008	Oven residue from the production of chrome oxide green pigments.	(t)
<b><u>Organic Chemicals</u></b>		
K009	Distillation bottoms from the production of acetaldehyde from ethylene.	(t)
K010	Distillation side cuts from the production of acetaldehyde from ethylene.	(t)
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.	(r,t)



Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile.	(r,t)
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile.	(t)
K015	Still bottoms from the distillation of benzyl chloride.	(t)
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.	(t)
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.	(t)
K018	Heavy ends from fractionation in ethyl chloride production.	(t)
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.	(t)
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.	(t)
K021	Aqueous spent antimony catalyst waste from fluoromethanes production.	(t)
K022	Distillation bottom tars from the production of phenol/acetone from cumene.	(t)
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.	(t)
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.	(t)
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.	(t)
K026	Stripping still tails from the production of methyl ethyl pyridines.	(t)
K027	Centrifuge residue from toluene diisocyanate production.	(r,t)
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1- trichloroethane.	(t)
K029	Waste from the product stream stripper in the production of 1,1,1- trichloroethane.	(t)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.	(t)
K083	Distillation bottoms from aniline production.	(t)
K085	Distillation of fractionation column bottoms from the production of chlorobenzene.	(t)
K093	Distillation light ends from the production of phthalic anhydride from ortho- xylene.	(t)
K094	Distillation bottoms from the production of phthalic anhydride from ortho- xylene.	(t)
K095	Distillation bottoms from the production of 1,1,1-trichloroethane.	(t)
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.	(t)
K103	Process residues from aniline extraction from the production of aniline.	(t)
K104	Combined wastewater streams generated from nitrobenzene or aniline production.	(t)
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.	(t)
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid.	(C,T)
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	(I,T)
K109	Spent filter cartridges from product purification from production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	(T)
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.	(T)
K111	Product washwaters from the production of dinitrotoluene via nitration of toluene.	(c,t)
K112	Reaction byproduct water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.	(t)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(t)
K114	Vicinals from the purification of toluenediamine in the production of toluene diamine.	(t)
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.	(t)
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.	(t)
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.	(t)
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(t)
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.	(t)
K140	Floor sweepings, off-specification product and spent filter media from the production of 2,4,6-tribromophenol..	(t)
K149	Distillation bottoms from the production of alpha- (or methyl) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. (This waste does not include still bottoms for the distillation of benzyl chloride.)	(t)
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha- (or methyl) chlorinated toluenes, ring -chlorinated toluenes, benoyl chlorides, and compounds with mixtures of these functional groups.	(t)
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha- (or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzo; chlorides, and compounds with mixtures of these functional groups.	(t)
<b><u>Inorganic Chemicals</u></b>		
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.	(t)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.	(t)
K106	Wastewater treatment sludge from the mercury cell process in chlorine production.	(t)
<b>Hazardous Waste from Explosives Manufacturing</b>		
K044	Wastewater treatment sludge from the manufacturing and processing of explosives.	(r)
K045	Spent carbon from the treatment of wastewater containing explosives.	(r)
K046	Wastewater treatment sludges from the manufacturing, formulation, and loading of lead-based initiating compounds.	(t)
K047	Pink/red water from TNT operations.	(t)
NOTE: Hazardous waste created from the production of pesticides, petroleum refining, coking, ink formulation, the production of: iron and steel, primary copper, primary lead, primary zinc, primary aluminum, ferroalloys, veterinary pharmaceuticals, and secondary lead are not included in this table due to their nonapplicability at FWS facilities.		
<b>Petroleum Refining</b>		
K169	Crude oil storage tank sediment from petroleum refining operations.	(t)
K170	Clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations.	(t)
K171	Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media).	(i,t)
K172	Spent Hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media).	(i,t)
<p>* HAZARD CODES (Column 3)</p> <p>t = toxic waste</p> <p>i = ignitable waste</p> <p>r = reactive waste</p> <p>h = acute hazardous waste</p>		

Appendix 4-2

Commercial Chemical Products or Manufacturing Chemical  
Intermediates Identified as Toxic Wastes  
(40 CFR 261.33(f))  
[Revised June 1998]

(COMMENT: primary hazardous properties of these materials have been indicated by the letter (t) (toxicity), (r) (reactivity), (i) (ignitibility), and (c) (corrosivity); absence of a letter indicates that the compound is only listed for acute toxicity.)

USEPA Hazardous Waste Number	Substance
U394	A2213
U001	acetaldehyde (i)
U034	acetaldehyde, trichloro-
U187	acetamide, N-(4-ethoxyphenyl)-
U005	acetamide, N-9H-fluoren-2-y1-
U240	acetic acid, (2,4-dichloropheoxy)-, salts, and esters
U112	acetic acid, ethyl ester (i)
U144	acetic acid, lead(2 +) salt
U214	acetic acid, thallium(1 +) salt
see F027	acetic acid, (2,4,5-trichlorophenoxy)-
U002	acetone (i)
U003	acetonitrile (i, t)
U004	acetophenone
U005	2-acetylaminoflourene
U006	acetyl chloride (c, r, t)
U007	acrylamide
U008	acrylic acid (i)
U009	acrylonitrile

USEPA Hazardous Waste Number	Substance
U011	amitrole
U012	aniline (i, t)
U136	arsenic acid, dimethyl-
U014	auramine
U015	azaserine
U010	azirino(2,3,3,4(pyrrolo(1,2-a)indole -4,7-dione, 6-amino-8-(((aminocarbonyl)oxy)methyl)-1,1a,2,8,8a,8b- hexahydro-8a-methoxy-5-methyl-,
U280	barban
U278	bendiocarb
U364	bendiocarb phenol
U271	benomyl
U157	benz[j]aceanthrylene, 1,2-dihydro-3- methyl-
U016	benza[c]ridine
U017	benzal chloride
U192	benzamide, 3,5-dichloro-n- (1,1-diethyl-2-propynyl-
U018	benz[a]anthracene
U094	1,2-benzanthracene, 7,12-dimethyl-
U012	benzenamine (i,t)
U014	benzenamine, 4,4-carbonimidoylbis(N,N-dimethyl-
U049	benzenamine, 4-chloro-2-methyl-,hydrochloride
U093	benzenamine, N,N-dimethyl-4-(phenylazo)-
U328	benzenamine, 2-methyl-
U353	benzenamine, 4-methyl-
U158	benzenamine, 4,4-methylenebis(2-chloro-
U222	benzenamine, 2-methyl-, hydrochloride
U181	benzenamine, 2,-methyl-5-nitro

USEPA Hazardous Waste Number	Substance
U019	benzene (i, t)
U038	benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)- alpha-hydroxy, ethyl ester
U030	benzene, 1-bromo-4-phenoxy-
U035	benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-
U037	benzene, chloro-
U221	benzenediamine, ar-methyl-
U028	1,2-benzendicarboxylic acid, [bis(2-ethyl-hexyl)]ester
U069	1,2-benzenedicarboxylic acid, dibutyl ester
U088	1,2-benzenedicarboxylic acid, diethyl ester
U102	1,2-benzendicarboxylic acid, dimethyl ester
U107	1,2-benzenedicarboxylic acid, dioctyl ester
U070	benzene, 1,2-dichloro-
U071	benzene, 1,3-dichloro-
U072	benzene, 1,4-dichloro-
U060	benzene, 1,1'- (2,2-dichloroethylidene) bis[4-chloro-
U017	benzene, (dichloromethyl)-
U223	benzene, 1,3-diisocyanatomethyl- (r,t)
U239	benzene, dimethyl-(i,t)
U201	1,3-benzenediol
U127	benzene, hexachloro-
U056	benzene, hexahydro- (i)
U220	benzene, methyl-
U105	benzene, 1-methyl-2,4-dinitro-
U106	benzene, 2-methyl-1,3-dinitro-

USEPA Hazardous Waste Number	Substance
U055	benzene, (1-methylethyl)-(i)
U169	benzene, nitro- (i,t)
U183	Benzene, pentachloro-
U185	benzene, pentachloronitro-
U020	benzenesulfonic acid chloride (c,r)
U020	benzenesulfonyl chloride (c,r)
U207	benzene, 1,2,4,5-tetrachloro-
U061	benzene, 1,1'-(2,2,2- trichloroethylidene) bis[4-chloro
U247	benzene, 1,1'(2,2,2- trichloroethylidene)[4-methoxy-
U023	benzene, (trichloromethyl)-
U234	benzene, 1,3,5-trinitro-
U021	benzidine
U202	1,2-benzisothiazolin-3-one, 1,1-dioxide, and salts
U278	1,3-benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate
U364	1,3-benzodioxol-4-ol, 2,2-dimethyl-,
U203	1,3-benzodioxole, 5-(2-propenyl)-
U141	1,3-benzodioxole, 5-(1-propenyl)-
U090	1,3-benzodioxole, 5-propyl-
U367	benzofuranol, 2,3-dihydro-2,2-dimethyl-
U064	benzo[rst]pentaphene
U248	2-H-1-benzopyran-2-on2, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present at concentrations of 0.3% or less
U022	benzo[a]pyrene
U197	p-benzoquinone



USEPA Hazardous Waste Number	Substance
U023	benzotrichloride (c,r,t)
U085	2,2-bioxirane
U021	(1,1-biphenyl)-4,4-diamine
U073	(1,1-biphenyl)-4,4-diamine, 3,3-dichloro
U091	(1,1-biphenyl)-4,4-diamine, 3,3- dimethoxy-
U095	(1,1-biphenyl)4,4-diamine, 3,3- dimethyl-
U225	bromoform
U030	4-bromophenyl phenyl ether
U128	1,3-butadiene, 1,1,2,3,4,4- hexachloro
U172	1-butanamine, N-butyl-N-nitroso-
U031	1-butanol (i)
U159	2-butanone (i,t)
U160	2-butanone peroxide (r,t)
U053	2-butenal
U074	2-butene, 1,4-dichloro- (i,t)
U143	2-butenoic acid, 2-methyl-, 7- [(2,3-dihydroxy-2-(1-methoxyethyl) -3-methyl-1-oxobutoxy)methyl] - 2,3,5,7s-rytshyfto-1- pyrrolizin-1-yl ester, [1S-[alpha(Z),7(2S,3R), 7aalpha]]-
U031	n-Butyl alcohol (i)
U136	cacodylic acid
U032	calcium chromate
U372	carbamic acid, 1HObenzimidazol-2-yl, methyl ester
U271	carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester
U280	carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester
U238	carbamic acid, ethyl ester

USEPA Hazardous Waste Number	Substance
U178	carbamic acid, methylnitroso- ethyl ester
U373	carbamic acid, phenyl-, 1-methylethyl ester
U409	carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester
U097	carbamic chloride, dimethyl-
U114	carbamodithioic acid, 1,2- ethanediylbis-, salts and esters
U062	carbamoithioic acid, bis(1-methylethyl)-S- (2,3-dichloro-2- propenyl) ester
U389	carbamoithioic acid, bis(1-methylethyl)-S-(2,3,3-trichloro- 2-propenyl) ester
U387	carbamoithioic acid, dipropyl-, S-(phenylmethyl) ester
U279	carbaryl
U372	carbendazim
U367	carbofuran phenol
U215	carbonic acid, dithallium(1 +)salt
U033	carbonic difluoride
U156	carbonochlorodic acid, methyl ester (i,t)
U033	carbon oxyfluoride (r,t)
U211	carbon tetrachloride
U034	chloral
U035	chlorambucil
U036	chlordane, alpha and gamma isomers
U026	chlomaphazine
U037	chlorobenzene
U039	p-chloro-m-cresol
U042	2-chloroethyl vinyl ether

USEPA Hazardous Waste Number	Substance
U044	chloroform
U046	chloromethyl methyl ether
U047	beta-chloronaphthalene
U048	o-chlorophenol
U049	4-chloro-o-toluidine, hydrochloride
U032	chromic acid H <sub>2</sub> CrO <sub>4</sub> , calcium salt
U050	chrysene
U051	creosote
U052	cresols (cresylic acid)
U053	crotonaldehyde
U055	cumene (i)
U246	cyanogen bromide
U197	2,5-cyclohexadiene-1, 4-dione
U056	cyclohexane (i)
U129	cyclohexane 1,2,3,4,5,6- hexachloro-, (1alpha, 2alpha, 3beta, 4alpha, 6beta)-
U057	cyclohexanone (i)
U130	1,3-cyclopentadiene, 1,2,3,4,5,5- hexachloro-
U058	cyclophosphamide
U240	2,4-d, salts, and esters
U059	daunomycin
U060	DDD
U061	DDT
U062	diallate
U063	dibenz[a,h]anthracene
U064	dibenzo[a,i]pyrene

USEPA Hazardous Waste Number	Substance
U066	1,2-dibromo-3-chloropropane
U069	dibutyl phthalate
U070	o-Dichlorobenzene
U071	m-Dichlorobenzene
U072	p-Dichlorobenzene
U073	3,3'-dichlorobenzidine
U074	1,4-dichloro-2-butene (i,t)
U075	dichlorodifluoromethane
U078	1,1-dichloroethylene
U079	1,2-dichloroethylene
U025	dichloroethyl ether
U027	dichloroisopropyl ether
U024	dichloromethoxy ethane
U081	2,4-dichlorophenol
U082	2,6-dichlorophenol
U084	1,3-dichlorpropene
U085	1,2:3,4-diepoxybutane (i,t)
U395	diethylene glycol, dicarbamate
U108	1,4-diethyleneoxide
U028	diethylhexyl phthalate
U086	N,N-diethylhydrazine
U087	O,O-diethyl-s-methyl dithiophosphate
U088	diethyl phthalate
U089	diethylstilbestrol
U090	dihydrosafrole
U091	3,3'-dimethoxybenzidine

USEPA Hazardous Waste Number	Substance
U092	dimethylamine (i)
U093	dimethylaminoazobenzene
U094	7,12-dimethylbenz[a]anthracene
U095	3,3-dimethylbenzidine
U096	alpha,alpha-dimethylbenzylhydroperoxide (r)
U097	dimethylcarbamoyl chloride
U098	1,1-dimethylhydrazine
U099	1,2-dimethylhydrazine
U101	2,4-dimethylphenol
U102	dimethyl phthalate
U103	dimethyl sulfate
U105	2,4-dinitrotoluene
U106	2,6-dinitrotoluene
U107	di-n-octyl phthalate
U108	1,4-dioxane
U109	1,2-diphenylhydrazine
U110	dipropylamine (i)
U111	di-n-propylnitrosamine
U041	epichlorhydrin
U001	ethanal (i)
U404	ethanamine, N,N-diethyl-
U174	ethanamine, N-ethyl-N-nitroso-
U155	1,2-ethanediamine, n,n- dimethyl-n'-2-pyridinyl- n'- (2- thienylmethyl)-
U067	ethane, 1,2-dibromo-
U076	ethane, 1,1-dichloro-

USEPA Hazardous Waste Number	Substance
U077	ethane, 1,2-dichloro-
U131	ethane, hexachloro-
U024	ethane, 1,1-[methylenebis(oxy)] bis[2-chloro-
U117	ethane, 1,1-oxybis- (i)
U025	ethane 1,1-oxybis[2-chloro-
U184	ethane, pentachloro-
U208	ethane, 1,1,1,2-tetrachloro-
U209	ethane, 1,1,2,2-tetrachloro-
U218	ethanethioamide
U226	ethane, 1,1,1-trichloro
U359	ethane, 1,1,2-trichloro-
U227	ethane, trichloro
U410	ethanimidothioic acid, N,N'-[thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester
U394	ethanimidothioic acid, 2-(dimethylamino)-N- hydroxy-2-oxo-, methyl ester
U359	ethanol, 2-ethoxy-
U173	ethanol, 2,2'-(nitrosoimino)bis-
U395	Ethanol, 2,2'poxybis-, dicarbamate
U004	ethanone, 1-phenyl-
U043	ethene, chloro-
U042	ethene, (2-chloroethoxy-)
U078	ethene, 1,1-dichloro-
U079	ethene, 1,2-dichloro- (e)
U210	ethene, tetrachloro-
U228	ethene, trichloro
U112	ethyl acetate (i)

USEPA Hazardous Waste Number	Substance
U113	ethyl acrylate (i)
U238	ethyl carbamate (urethane)
U117	ethyl ether (i)
U114	ethylenebisdithiocarbamic acid, salts, and esters
U067	ethylene dibromide
U077	ethylene dichloride
U359	ethylene glycol monoethyl ether
U115	ethylene oxide (i,t)
U116	ethylenethiourea
U076	ethylidene dichloride
U118	ethyl methacrylate
U119	ethyl methanesulfonate
U120	fluoranthene
U122	formaldehyde
U123	formic acid (c,t)
U124	furan (i)
U125	2-furancarboxaldehyde (i)
U147	2,5-furandione
U213	furan, tetrahydro- (i)
U125	furfural (i)
U124	furfuran (i)
U206	glucopyranose, 2-deoxy-2 (3-methyl-3-nitrosoureido)-
U126	glycidylaldehyde
U163	guanidine, N-methyl-N'-nitro- N-nitroso-
U127	hexachlorobenzene

USEPA Hazardous Waste Number	Substance
U128	hexachlorobutadiene
U130	hexachlorocyclopentadiene
U131	hexachloroethane
U132	hexachlorophene
U243	hexachloropropene
U133	hydrazine (r,t)
U086	hydrazine, 1,2-diethyl-
U098	hydrazine, 1,1-dimethyl-
U099	hydrazine, 1,2-dimethyl-
U109	hydrazine, 1,2-diphenyl-
U134	hydrofluoric acid (c,t)
U134	hydrogen fluoride (c,t)
U135	hydrogen sulfide
U135	hydrogen sulfide
U096	hydroperoxide, 1-methyl-1-phenylethyl- (r)
U116	2-imidazolidinethione
U137	indeno(1,2,3-cd)pyrene
U190	1,3-isobenzofurandione
U140	isobutyl alcohol (i,t)
U141	isosafrole
U142	kepone
U143	lasiocarpine
U144	lead acetate
U146	lead, bis(acetato-O) tetrahydroxytri-
U145	lead phosphate
U146	lead subacetate



USEPA Hazardous Waste Number	Substance
U129	lindane
U163	mnng
U147	maleic anhydride
U148	maleic hydrazide
U149	malononitrile
U150	melphalan
U151	mercury
U152	methacrylonitrile (i,t)
U092	methanamine (N-methyl- (i)
U029	methane, bromo-
U045	methane, chloro- (i,t)
U046	methane, chloromethoxy-
U068	methane, dibromo-
U080	methane, dichloro-
U075	methane, dichlorodifluoro-
U138	methane, iodo-
U119	methanesulfonic acid, ethyl ester
U211	methane, tetrachloro-
U153	methanethiol (i,t)
U225	methane, tribromo-
U044	methane, trichloro-
U121	methane, trichlorofluoro-
U036	4-7-Methano-1Hindene, 1,2,4,5,6,7,8,8-ocachloro-2,3,3a,4,7,7a-hexahydro
U154	methanol (i)
U155	methapyrilene

USEPA Hazardous Waste Number	Substance
U142	1,3,4-metheno-2H-cyclobuta[cd]pentalen-2-one-1,1a,3,3a,4,5,5a,5b,6-decachlorooctahydro-
U247	methoxychlor
U154	methyl alcohol (i)
U029	methyl bromide
U186	1-methylbutadiene (i)
U045	methyl chloride (i,t)
U156	methyl chlorocarbonate (i,t)
U226	methyl chloroform
U157	3-methylcholanthrene
U158	4,4-methylenebis-(2-chloroaniline)
U068	methylene bromide
U080	methylene chloride
U159	methyl ethyl ketone (mek) (i,t)
U160	methyl ethyl ketone peroxide (r,t)
U138	methyl iodide
U161	methyl isobutyl ketone (i)
U162	methyl methacrylate (i,t)
U161	4-methyl-2-pentanone (i)
U164	methylthiouracil
U010	mitomycin C
U059	5,12-Naphthacenedione, (Bs(cis)8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxohexopyranosyl)oxyl]-7-8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-
U167	1-naphthalenamine
U168	2-naphthalenamine
U026	naphthalenamine, N,N'-bis (2-chloroethyl)-

USEPA Hazardous Waste Number	Substance
U165	naphthalene
U047	naphthalene, 2-chloro-
U166	1,4-naphthalenedione
U236	2,7-naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)-bis(azo)bis(5-amino-4-hydroxy)-, tetrasodium salt
U279	1-Naphthalenol, methylcarbamate
U166	1,4-Naphthoquinone
U167	alpha-naphthylamine
U168	beta-naphthylamine
U217	nitric acid, thallium(1 +) salt (2-chloromethyl)-
U169	nitrobenzene (i,t)
U170	p-nitrophenol
U171	2-nitropropane (i,t)
U172	n-nitrosodi-n-butylamine
U173	n-nitrosodiethanolamine
U174	n-nitrosodiethylamine
U176	n-nitroso-n-ethylurea
U177	n-nitroso-n-methylurea
U178	n-nitroso-n-methylurethane
U179	n-nitrosopiperidine
U180	n-nitrosopyrrolidine
U181	5-nitro-o-toluidine
U193	1,2-oxathiolane, 2,2-dioxide
U058	2H-1,3,2-Oxazaphosphorine,2[bis(2-chloroethyl)amino]tetrahydro-, 2-oxide.
U115	oxirane (i,t)

USEPA Hazardous Waste Number	Substance
U126	oxiranecarboxyaldehyde
U041	oxirane, 2-(chloromethyl)-
U182	paraldehyde
U183	pentachlorobenzene
U184	pentachloroethane
U185	pentachloronitrobenzene
see F027	pentachlorophenol
U161	pentanol, 4-methyl-
U186	1,3-pentadiene (i)
U187	phenacetin
U188	phenol
U048	phenol, 2-chloro-
U039	phenol, 4-chloro-3-methyl-
U081	phenol, 2,4-dichloro-
U082	phenol, 2,6-dichloro-
U089	phenol, 4,4'-(1,2-diethyl- 1,2-ethenediyl)bis-,
U101	phenol, 2,4-dimethyl-
U052	phenol, methyl
U132	phenol, 2,2'-methylenebis [3,4,6-trichloro-
U411	phenol, 2-(1-methylethoxy)-, methylcarbamate
U170	phenol, 4-nitro-
see F027	phenol, pentachloro-
see F027	phenol, 2,3,4,6-tetrachloro-
see F027	phenol, 2,4,5-trichloro-
see F027	phenol, 2,4,6-trichloro-
U150	l-phenylalanine, 4- [bis(2-chloroethyl)amino]-

USEPA Hazardous Waste Number	Substance
U145	phosphoric acid, lead salt
U087	phosphorodithioic acid, O,O-diethyl S-methyl ester
U189	phosphorus sulfide (r)
U190	phthalic anhydride
U191	2-picoline
U179	piperidine, 1-nitroso-
U192	pronamide
U194	1-propanamine (i,t)
U111	1-propanamine, n-nitroso-n-propyl-
U110	1-propanamine, n-propyl- (i)
U066	propane, 1,2-dibromo-3-chloro-
U083	propane, 1,2-dichloro-
U149	propanedinitrile
U171	propane, 2-nitro- (i,t)
U027	propane, 2,2-oxybis[2-chloro-
U193	1,3-propane sultone
see F027	propanoic acid, 2-(2,4,5- trichlorophenoxy)-
U235	1-propanol, 2,3-dibromo-, phosphate (3:1)
U140	1-propanol, 2-methyl- (i,t)
U002	2-propanone (i)
U007	2-propenamide
U084	1-propene, 1,3-dichloro-
U243	1-propene, 1,1,2,3,3,3-hexachloro-
U009	2-propenenitrile
U152	2-propanenitrile, 2-methyl- (i,t)
U008	2-propenoic acid (i)

USEPA Hazardous Waste Number	Substance
U113	2-propenic acid, ethyl ester (i)
U118	2-propenoic acid, 2-methyl-, ethyl ester
U162	2-propenoic acid, 2-methyl-, methyl ester (i,t)
U373	Propham
U411	Propoxur
U194	n-propylamine (i,t)
U083	propylene dichloride
U387	Prosulfocarb
U148	3,6-pyridazinedione, 1,2-dihydro-
U196	pyridine
U191	pyridine, 2-methyl-
U237	2,4(1H,3H)-pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U164	4(1H)-pyrimidinone, 2,3-dihydro-6-methyl 2-thioxo-
U180	pyrrolidine, 1-nitroso-
U200	reserpine
U201	resorcinol
U202	saccharin and salts
U203	safrole
U204	selenious acid
U204	selenium dioxide
U205	selenium sulfide
U205	selenium sulfide SeS <sub>2</sub> (r,t)
U015	l-serine, diazoacetate (ester)
see F027	silvex (2,4,5-tp)
U206	streptozotocin

USEPA Hazardous Waste Number	Substance
U103	sulfuric acid, dimethyl ester
U189	sulfur phosphide (r)
see FO27	2,4,5-T
U207	1,2,4,5-tetrachlorobenzene
U208	1,1,1,2-tetrachloroethane
U209	1,1,2,2-tetrachloroethane
U210	tetrachloroethylene
see FO27	2,3,4,6-tetrachlorophenol
U213	tetrahydrofuran (i)
U214	thallium (i) acetate
U215	thallium (i) carbonate
U216	thallium chloride
U216	thallium chloride TlCl
U217	thallium (i) nitrate
U218	thioacetamide
U410	thiodicarb
U153	thiomethanol (i,t)
U244	thioperoxydicarbonic diamide, tetramethyl-
U409	thiophanate-methyl
U219	thiourea
U244	thiuram
U220	toluene
U221	toluenediamine
U223	toluene diisocyanate (r,t)
U328	o-toluidine
U353	p-toluidine

USEPA Hazardous Waste Number	Substance
U222	o-toluidine hydrochloride
U389	triallate
U011	1H-1,2,4-triazol-3-amine
U408	2,4,6. tribromophenol
U227	1,1,2-trichloroethane
U228	trichloroethylene
U121	trichloromonofluoromethane
See F023	2,4,5-trichlorophenol
See F023	2,4,6-trichlorophenol
U404	triethylamine
U234	1,3,5-trinitrobenzene (r,t)
U182	1,3,5-trioxane, 2,4,6-trimethyl-
U235	tris(2,3-dibromopropyl)phosphate
U236	trypan blue
U237	uracil mustard
U176	urea, n-ethyl-n-nitroso-
U177	urea, n-methyl-n-nitroso-
U043	vinyl chloride
U248	Warfarin, when present at concentrations of .3% or less
U239	xylene (i)
U200	yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4, 5-trimethoxy-benzoyl)oxy], methyl ester
U249	Zinc phosphide, when present at concentrations of 10% or less



Appendix 4-3

Toxicity Characteristics Constituents and Regulatory Levels  
(40 CFR 261.24)

USEPA HW No.	Constituent	CAS No	Regulatory level (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.0 <sup>1</sup>
D024	m-Cresol	108-39-4	200.0 <sup>1</sup>
D025	p-Cresol	106-44-5	200.0 <sup>1</sup>
D026	Cresol		200.0 <sup>1</sup>
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13 <sup>2</sup>
D012	Endrin	72-20-8	0.02
D031	Heptachlor (and its hydroxide)	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13 <sup>2</sup>
D033	Hexachloro-1,3-butadiene	87-68	0.50
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methyl ethyl ketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.0 <sup>2</sup>
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP (Silvex)	93-72-1	1.0
D043	Vinyl chloride	75-01-4	0.2

<sup>1</sup> If o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used.

<sup>2</sup> Quantitation limit is greater than the calculated regulatory level. Therefore, the quantitation limit becomes the regulatory level.

Appendix 4-4

Commercial Chemical Products or Manufacturing Chemical Intermediates Identified as Acute Hazardous Waste (40 CFR 261.33(a) through 261.33(e))

(COMMENT: Primary hazardous properties of these materials have been indicated by the letters (t) (toxicity), and (r) (reactivity); absence of a letter indicates that the compound only is listed for acute toxicity.)

Hazardous Waste Number	Substance	
P023	Acetaldehyde, chloro-	
P002	Acetamide, N-(aminothioxomethyl)-	
P057	Acetamide, 2-fluoro-	
P058	Acetic acid, fluoro-, sodium salt	
P002	1-Acetyl-2-thiourea	
P003	Acrolein	
P070	Aldicarb	
P203	Aldicarb sulfone	
P004	Aldrin	
P005	Allyl alcohol	
P006	Aluminum phosphide	(r,t)
P007	5-(Aminomethyl)-3-isoxazolol	
P008	4-Aminopyridine	
P009	Ammonium picrate	(r)
P119	Ammonium vanadate	
P099	Argebtate(1), bis(cyano-C)-, potassium	
P010	Arsenic acid $H^3AsO^4$	
P012	Arsenic oxide $As^2O^3$	
P011	Arsenic oxide $As^2O^5$	
P011	Arsenic pentoxide	
P012	Arsenic trioxide	
P038	Arsine, diethyl	
P036	Arsonous dichloride, phenyl	
P054	Aziridine	
P067	Aziridine, 2-methyl	
P013	Barium cyanide	
P024	Benzenamine, 4-chloro-	
P077	Benzenamine, 4-nitro-	
P028	Benzene, (chloromethyl)-	
P042	1,2-Benzenediol, 4-[1-hydroxy- 2-(methylamino)ethyl]-	(r)
P046	Benzeneethanamine, alpha,alpha-dimethyl-	(r)
P014	Benzenethiol	
P127	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl)-, methylcarbamate	
P188	Benzoic Acid	
P001	2H-1-Benzopyran-2-one,4-hydroxy-3-(3-oxo- 1-phenylbutyl)-, and salts when	

Hazardous Waste Number	Substance	
	present at concentrations greater than 0.3%	
P028	Benzyl chloride	
P015	Beryllium powder	
P016	Bis(chloromethyl)ether	
P017	Bromoacetone	
P018	Brucine	
P045	2-Butanone, 3,3-dimethyl-1-(methylthio)- , O-(methylamino)carbonyl) oxime	
P021	Calcium cyanide	
P021	Calcium cyanide Ca(CN) <sub>2</sub>	
P189	Carbamic acid	
P191	Carbamic acid, dimethyl,	
P192	Carbamic Acid, dimethyl, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5y) ester	
P193	Carbamic Acid, methyl, 3-methylphenyl ester	
P127	Carbofuran	
P022	Carbon disulfide	
P095	Carbonic dichloride	
P189	Carbosulfan	
P023	Chloroacetaldehyde	
P024	p-Chloroaniline	
P026	1-(o-Chlorophenyl)thiourea	
P027	3-Chloropropionitrile	
P029	Copper cyanide	
P029	Copper cyanide Cu(CN)	
P202	m-Cumenyl methylcarbamate	
P030	Cyanides (soluble cyanide salts), n.o.s.	
P031	Cyanogen	
P033	Cyanogen chloride	
P033	Cyanogen chloride (CN)Cl	
P034	2-Cyclohexyl-4,6-dinitrophenol	
P016	Dichloromethyl ether	
P036	Dichlorophenylarsine	
P037	Dieldrin	
P038	Diethylarsine	
P041	Diethyl-p-nitrophenyl phosphate	
P040	O,O-Diethyl O-pyrazinyl phosphorothioate	
P043	Diisopropyl fluorophosphate (DEP)	
P004	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10- hexachloro-	
	1,4,4a,5,8,8a- hexahydro-, (1alpha, 4alpha,4abeta,5alpha, 8alpha,8abeta)-	
P060	1,4:5,8-Dimethanonaphthalene, 1,2,3,4,10,10- hexachloro-	
	1,4,4a,5,8,8a- hexahydro-, (1alpha, 4alpha,4abeta,5beta, 8beta,8abeta)-	
P037	2,7:3,6-Dimethanonaphth[2,3b]oxirane,	

Hazardous Waste Number	Substance	
P051	3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-,(1-aalpha,2beta,2alpha,3beta,6beta,6alpha,7beta,7alpha)-2,7:3,6-Dimethanonaph[2,3b]oxirane, octahydro-	
P044	, (1alpha,2beta,2alpha,3alpha,6alpha,6beta,7beta,7alpha)-	
P045	Dimethoate	
P046	3,3-Dimethyl-1-(methylthio)-2-butanone,	
P191	O- [(methylamino)carbonyl]oxime	
P047	alpha,alpha-Dimethylphenethylamine	
P048	Dimetilan	
P020	4,6-Dinitro-o-cresol and salts	
P085	2,4-Dinitrophenol	
P111	Dinoseb	
P039	Diphosphoramidate, octamethyl-	
P049	Diphosphoric acid, tetraethyl ester	
P185	Disulfoton	
P050	Dithiobiuret	
P088	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)-carbonyl]oxime	
P051	Endosulfan	
P051	Endothall	
P042	Endrin	
P031	Endrin and metabolites	
P066	Epinephrine	
P194	Ethanedinitrile	
P101	Ethanimidothioic acid,	
P054	N-[(methylamino)carbonyl]oxy]-, methyl ester	
P097	Ethanimidothioic acid,	
P056	2-(dimethylamino)-N- [(methylamino)carbonyl]oxy]-2-oxo-, methyl ester	
P057	Ethyl cyanide	
P058	Ethyleneimine	
P198	Famphur	
P197	Fluorine	
P065	Fluoroacetamide	
P059	Fluoroacetic acid, sodium salt	
P062	Formetanate hydrochloride	
P116	Formparanate	
P068	Fulminic acid, mercury(2+) salt	(r,t)
P063	Heptachlor	
P063	Hexaethyl tetraphosphate	
P063	Hydrazinecarbothioamide	
P063	Hydrazine, methyl-	
P063	Hydrocyanic acid	
P063	Hydrogen cyanide	

Hazardous Waste Number	Substance	
P096	Hydrogen phosphide	
P064	Isocyanic acid, methyl ester	
P060	Isodrin	
P192	Isolan	
P202	3-Isopropylphenyl N-methylcarbamate	
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-	
P196	Manganese, bis(dimethylcarbam	
P196	Manganese dimethyldithiocarbamate	
P092	Mercury (acetato-O)phenyl-	
P065	Mercury fulminate	(r,t)
P082	Methanamine, N-methyl-N-nitroso	
P197	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4- [[[(methylamino)carbonyl]oxy]phenyl)	
P064	Methane, isocyanato-	
P016	Methane, oxybis[chloro-	
P112	Methane, tetranitro-	(r)
P118	Methanethiol, trichloro-	
P050	6,9-Methano-2,4,3-benzodioxathlepen, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a- hexahydro-,3-oxide	
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8- heptachloro-3a,4,7,7a-tetrahydro-	
P199	Methiocarb	
P066	Methomyl	
P068	Methyl hydrazine	
P064	Methyl isocyanate	
P069	2-Methylactonitrile	
P071	Methyl parathion	
P190	Metolcarb	
P199	Mexacarbate	
P072	alpha-Naphthylthiourea	
P073	Nickel carbonyl	
P073	Nickel carbonyl, (T-4)-	
P074	Nickel cyanide	
P074	Nickel cyanide Ni (CN)2	
P075	Nicotine and salts	
P076	Nitric oxide	
P077	p-Nitroaniline	
P078	Nitrogen dioxide	
P076	Nitrogen oxide NO	
P078	Nitrogen oxide	
P081	Nitroglycerine	(r)
P082	N-Nitrosodimethylamine	
P084	N-Nitrosomethylvinylamine	
P074	Nickel cyanide	
P085	Octamethylpyrophosphoramide	
P087	Osmium oxide	
P087	Osmium tetroxide	

Hazardous Waste Number	Substance	
P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	
P194	Oxamyl	
P089	Parathion	
P034	Phenol, 2-cyclohexyl-4,6-dinitro	
P128	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)	
P199	Phenol, (3,5-dimethyl-4-methylthio)-, methylcarbamate	
P048	Phenol, 2,4-dinitro	
P047	Phenol, 2-methyl-4,6-dinitro- and salts	
P202	Phenol, 3-(1-methylethyl)-, methyl carbamate	
P201	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate	
P020	Phenol, 2-(1-methylpropyl)-4,6-dinitro	
P009	Phenol, 2,4,6-trinitro-, ammonium salt	(r)
P092	Phenylmercury acetate	
P093	Phenylthiourea	
P094	Phorate	
P095	Phosgene	
P096	Phosphine	
P041	Phosphoric acid, diethyl 4- nitrophenyl ester	
P039	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester	
P094	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester	
P044	Phosphorodithioic acid, O,O-dimethyl S[2- (methylamino)-2-oxoethyl] ester	
P043	Phosphorofluoric acid, bis(1-methylethyl)-ester	
P089	Phosphorothioic acid, O,O-diethyl O- (4-nitrophenyl) ester	
P040	Phosphorothioic acid, O,O-diethyl O- pyrazinyl ester	
P097	Phosphorothioic acid, O-[4-[(dimethylamino) sulfonyl]phenyl] O,O-dimethyl ester	
P071	Phosphorothioic acid, O,O-dimethyl O- (4- nitrophenyl) ester	
P204	Physostigmine	
P188	Phosostigmine salicylate	
P110	Plumbane, tetraethyl-	
P098	Potassium cyanide	
P098	Potassium cyanide K(CN)	
P099	Potassium silver cyanide	
P201	Promecarb	
P203	Propanol, 2-methyl-2-(methyl-sulfonyl)-, O- [(methylamino)carbonyl] oxime	

Hazardous Waste Number	Substance	
P070	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	(r)
P101	Propanenitrile	
P027	Propanenitrile, 3-chloro-	
P069	Propanenitrile, 2-hydroxy-2-methyl	
P081	1,2,3-Propanetriol, trinitrate	
P017	2-Propanone, 1-bromo-	
P102	Propargyl alcohol	
P003	2-Propenal	
P005	2-Propen- 1 -ol	
P067	1,2-Propylenimine	
P102	2-Propyn-1 -ol	
P008	4-Pyridinamine	
P075	Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, (S)-, and salts	
P204	Pyrrolo(2,3-b)indol-5-ol, 1,2,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)	
P114	Selenious acid, dithallium(1 +) salt	
P103	Selenourea	
P104	Silver cyanide	
P104	Silver cyanide Ag(CN)	
P105	Sodium azide	
P106	Sodium cyanide	
P106	Sodium cyanide Na(CN)	
P108	Strychnidin-10-one, and salts	
P018	Strychnidin 10-one, 2,3-dimethoxy-	
P108	Strychnine and salts	
P115	Sulfuric acid, dithallium(I) salt	
P109	Tetraethyldithiopyrophosphate	
P110	Tetraethyl lead	
P111	Tetraethylpyrophosphate	
P112	Tetranitromethane (r)	
P062	Tetraphosphoric acid, hexaethyl ester	
P113	Thallic oxide	
P113	Thallium(III) oxide	
P114	Thallium(I) selenite	
P115	Thallium(I) sulfate	
P109	Thiodiphosphoric acid, tetraethyl ester	
P045	Thiofanox	
P049	Thiomidodicarbonic diamide	
P014	Thiophenol	
P116	Thiosemicarbazide	
P026	Thiourea, (2-chlorophenyl)-	
P072	Thiourea, 1-naphthalenyl-	
P093	Thiourea, phenyl-	
P185	Tirpate	
P123	Toxaphene	
P118	Trichloromethanethiol	
P119	Vanadic acid, ammonium salt	



Hazardous Waste Number	Substance	
P120	Vanadium oxide V2O3	
P120	Vanadium pentoxide	
P084	Vinylamine, N-methyl-N-nitroso	
P001	Warfarin, and salts, when present at concentrations greater than 0.3%	
P205	Zinc, bis(dimethylcarbamo-dithioato-S,S')	
P121	Zinc cyanide	
P121	Zinc cyanide Zn(CN)2	
P122	Zinc phosphide Zn3P2, when present at concentrations greater than 0.10%	
P205	Ziram	



## Appendix 4-5

### Potentially Incompatible Hazardous Wastes (40 CFR 264, Appendix V)

**Substances in bold have detailed example lists on the next page.**

If the material contains:	It may not be stored with any of the following:
Acid (pH below 2.0)	<b>Caustics</b> (pH above 12.5) <b>Reactive Metals</b> Alcohol Water Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b> Spent Cyanide and Sulfide Solutions <b>Oxidizers</b>
Caustic (pH above 12.5)	<b>Acid</b> (pH below 2.0) <b>Reactive Metals</b> Alcohol Water Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b>
<b>Reactive Metals</b>	<b>Caustics</b> <b>Acids</b> Alcohol Aldehydes Halogenated, Nitrated, or Unsaturated Hydrocarbons <b>Reactive Organic Compounds and Solvents</b> <b>Oxidizers</b>
<b>Reactive Organic Compounds and Solvents</b>	<b>Caustics</b> <b>Acids</b> <b>Reactive Metals</b>
<b>Spent Cyanide and Sulfide Solutions</b>	<b>Acids</b>
<b>Oxidizers</b>	Acetic or Other Organic Acids Concentrated Mineral Acids <b>Reactive Metals</b> <b>Reactive Organic Compounds and Solvents</b> <b>Ignitable [Flammable/Combustible] Wastes*</b>

\* "Ignitable" in this context refers to substances with a flashpoint below 140 × °F, and includes:  
 Combustible substances, with a flashpoint below 140 × °F  
 Flammable substances, with a flashpoint below 100 × °F.

#### Some Deadly Combinations

Acids + Oil or Grease = Fire      Flammable Liquids + Hydrogen Peroxide = Fire/Explosion  
 Acids + Caustics = Heat/Spattering      Aluminum Powder + Ammonium Nitrate = Explosion  
 Caustics + Epoxies = Extreme Heats      Sodium Cyanide + Sulfuric Acid = Lethal Hydrogen Cyanide  
 Chlorine Gas + Acetylene = Explosion      Ammonia + Bleach = Noxious Fumes

In general: **Reactives** must be segregated from **Ignitables**  
**Acids** must be segregated from **Caustics**  
**Corrosives** should be segregated from **Flammables**  
**Oxidizers** should be segregated from **EVERYTHING**  
**Many Corrosives** are "Water Reactive"  
**Most Organic Reactives** must be segregated from **Inorganic Reactives** (metals)

Ignitables (Flammables/Combustibles)	Corrosives	
	Acids	Caustics
Carburetor Cleaners Engine Cleaners Epoxy, Resins, Adhesives, and Rubber Cements Finishes Fuels Lacquers Paints Paint Thinners Paint Wastes Pesticides that contain Solvents (such as Methyl Alcohol, Ethyl Alcohol, Isopropyl Alcohol, Toluene, Xylene). Petroleum Solvents (Drycleaning Fluid) Solvents: Acetone Benzene Carbon Tetrachloride (Carbon Tet) Ethanol (Ethyl Alcohol) Ethyl Benzene Isopropanol (Isopropyl Alcohol) Kerosene (Fuel Oil #1) Methanol (Wood Alcohol) Methyl Ethyl Ketone (MEK) Petroleum Distillates Tetrahydrofuran (THF) Toluene (Methacide, Methylbenzene, Methylbenzol, Phenylmethane, Toluol, Antisal 1A) White Spirits (White Spirits, Mineral Spirits, Naptha) Xylene (Xylol) Stains Stripping Agents Varsol Waste Fuels Waste Ink Wax Removers Wood Cleaners	Battery Acids Degreasers and Engine Cleaners Etching Fluids Hydrobromic Acid Hydrochloric Acid (Muriatic Acid) Nitric Acid (<40%) (Aquafortis) Phosphoric Acid Rust Removers Sulfuric Acid (Oil of Vitriol)	Acetylene Sludge Alkaline Battery Acids Alkaline Cleaners Alkaline Degreasers Alkaline Etching Fluids Lime and Water Lime Wastewater Potassium Hydroxide (Caustic Potash) Rust Removers Sodium Hydroxide (Caustic Soda, Soda Lye)
	<b>Reactive Metals</b>	<b>Reactive Organic Compounds and Solutions</b>
	<b>Oxidizers</b> Chlorine Gas Nitric Acid (>40%), aka Red Fuming Nitric Nitrates (Sodium Nitrate, Ammonium Nitrate) Perchlorates Perchloric Acid Peroxides Calcium Hypochlorite (>60%)	Alcohols Aldehydes Chromic Acids (from chrome plating, copper stripping and aluminum anodizing) Cyanides (from electroplating operations) Hypochlorides (from water treatment plants, swimming pools, sanitizing operations) Organic Peroxides (including Hydrogen Peroxide) Perchlorates Permanganates Sulfides

Appendix 4-6

Recordkeeping, Notification, and/or Certification Requirements for 40 CFR 268  
(40 CFR 268, Appendix X)

Entity	Scenario	Frequency	Recipient of notification	Recordkeeping, and/or requirements	notification, certification
Generator	A. Waste does not meet applicable treatment standards, or exceeds applicable prohibition levels (see 268.7(a)(1))	Each shipment	Treatment or storage facility	Notice must include:	
				<ul style="list-style-type: none"> <li>- USEPA hazardous waste number</li> <li>- constituents of concern</li> <li>- treatability group</li> <li>- manifest number\</li> <li>- waste analysis data (where avail.)</li> </ul>	
	B. Waste can be disposed of without further treatment (meets applicable treatment standards or does not exceed prohibition levels upon generation (see 268.7(a)(2)).	Each shipment	Land disposal facility	Notice and certification statement that wastes meets applicable treatment standards or applicable prohibited levels.	
				<p>Notice must include:</p> <ul style="list-style-type: none"> <li>- USEPA hazardous waste number</li> <li>- constituents of concern</li> <li>- treatability group</li> <li>- manifest number\</li> <li>- waste analysis data (where avail.)</li> </ul> <p>Certification statement required under 268.7(a)(2)(ii) that waste complies with treatment standards and prohibitions.</p>	
	C. Waste is subject to exemption from a prohibition on the type of land disposal utilized for the waste, such as a case-by- case extension under 268.5, an exemption under 268.6, or a nation-wide capacity variance (see 268.7(a)(3)).	Each shipment	Receiving facility	Notice must include:	
				<ul style="list-style-type: none"> <li>- statement that the waste is not prohibited from land disposal</li> <li>-USEPA hazardous waste number</li> <li>- constituents of concern</li> <li>- treatability group</li> <li>- manifest number</li> <li>- waste analysis data (where avail.)</li> <li>- date the waste is subject ton prohibitions.</li> </ul>	

Entity	Scenario	Frequency	Recipient of notification	Recordkeeping, and/or requirements	notification, or certification
Generator	D. Waste is being accumulated in tanks or containers regulated under 40 CFR 262.34 and is being treated in such tanks or containers to meet applicable treatment standards (see 268.7(a)(4)).	Minimum of 30 days prior to treatment activity	USEPA Regional Administrator (or designated representative, or authorized State. Delivery must be verified	Generator must develop, keep onsite, and follow a written waste analysis plan describing procedures used to comply with the treatment standards.	
	E. Generator is managing a lab pack containing certain wastes and wishes to use an alternative treatment standard (see 268.7(a)(8)).	Each shipment	Treatment facility	If waste is shipped offsite, generator must also comply with notification requirement in 268.7(a)(2). Notice in accordance with 268.7(a)(1), (a)(5), and (a)(6), where applicable.	
	F. SQGs with tolling agreements	Initial shipment	Treatment facility	Must comply with applicable notification and certification requirements in 268.7(a)	Certification in accordance with 268.7(a)(8).
				Generator must also retain copy of the notification and certification together with tolling agreement onsite for at least 3 yr after termination or expiration of the agreement.	
	G. Generator has determined waste is a restricted waste based solely on his knowledge of the waste (see 268.7(a) (5)).	NA	Generator's file	All supporting data must be retained onsite in generator's files.	
	H. Generator has determine waste is restricted based on testing waste or an extract (see 268.7(a) 5)).	NA	Generator's file	All waste analysis data must be retained onsite in generators files.	
	I. Generator has determined that waste is excluded from the definition of hazardous or solid waste or	One time	Generator's file	Notice of generation and subsequent exclusion from the definition of hazardous or solid waste, or exemption from Subtitle C regulation, and	

Entity	Scenario	Frequency	Recipient of notification	Recordkeeping, and/or requirements	notification, or certification
	exempt from Subtitle C regulation (see 268.7(a)(6)).				information regarding the disposition of the waste.
	J. Generator (or treater) claims that hazardous debris is excluded from the definition of hazardous waste under 40 CFR 261.3(f)(1) (see 268.7(d)).	One time	USEPA Regional Administrator or authorized State. notification must be updated as necessary under 268.7(d)(2).	Notice must include: <ul style="list-style-type: none"> <li>-- name and address of Subtitle D facility receiving treated debris</li> <li>- USEPA hazardous waste number and description of debris as initially generated</li> <li>- technology used to treat the debris.</li> </ul> Certification and recordkeeping is in accordance with 268.7(d)(3).	
Generator	K. Generator (or treater) claims that characteristic wastes are no longer hazardous (see 268.9(d)).	One time	Generator's (or treater's) files and USEPA Regional, Administrator or authorized State. Notifications must be updated as necessary under 268.9(d).	Notice must include: <ul style="list-style-type: none"> <li>- name and address of Subtitle D facility receiving treated debris</li> <li>- USEPA hazardous waste number and description of debris as initially generated</li> <li>- treatability group</li> <li>- underlying hazardous constituents.</li> </ul> Certification in accordance with 268.9(d)(2).	
	L. Other recordkeeping requirements (see 268.7(a)(7)).	NA	Generator's files	Generator must retain a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to 268.7 onsite for at least 5 yr from the date that the waste was last sent to onsite or offsite treatment, storage, or disposal. This period is automatically extended during enforcement actions or as requested by the Administrator.	

Entity	Scenario	Frequency	Recipient of notification	Recordkeeping, and/or requirements	notification, or certification
Treatment Facility	A. Waste shipped from treatment facility to land disposal facility (see 268.7(b)(4) and (b)(5)).	Each shipment	Land disposal facility	Notice must include: <ul style="list-style-type: none"> <li>- USEPA hazardous waste number</li> <li>- constituents of concern</li> <li>- treatability group</li> <li>- manifest number</li> <li>- waste analysis data (where avail.)</li> </ul>	
	B. Waste treatment residue from a treatment or storage facility will be further managed at a different treatment or storage facility (see 268.7(b)(6)).	Each shipment	Receiving facility	Applicable certification in accordance with 268.7(b)(5)(i), (ii), or (iii), stating that the waste or treatment residue has been treated in compliance with applicable treatment standards and prohibitions.	Treatment, storage, or disposal facility must comply with all notices and certification requirements applicable to generators.
Treatment Facility	C. Where wastes are recyclable materials used in a manner consisting disposal subject to 266.20(b) (see 268.7(b)(7)).	Each shipment	Regional Administrator (or delegated representative)	No notification to receiving facility required pursuant to 269.7(b)(4).  Certification as described in 268.7(b)(5) and notice with information listed in 268.7(b)(4), except manifest number.	Recycling facility must keep records of the name and location of each entity receiving hazardous waste-derived products.
Land Disposal Facility	A. Wastes accepted by land disposal facility (see 268.7(c)).	NA	NA	Maintain copies of notice and certification specified in 268.7(a) and (b).	



Appendix 4-7

Land Disposal Restricted Wastes and Their Effective Dates  
(40 CFR 268, Appendix VII)

Part 1--Land Disposal Restricted Wastes and Their Effective Dates

Waste Code	Waste Category	Effective Date
California list	Liquid hazardous wastes, including free liquids associated with solid or sludge, containing free cyanides at concentrations greater than or equal to 1000 mg/L or certain metals or compounds of these metals greater than or equal to the prohibition levels.	8 July 1987
California list	Liquid (aqueous) hazardous wastes having a pH less than or equal to 2.	8 July 1987
California list	Dilute HOC wastewaters, defined as HOC-waste mixtures that are primarily water and that contain greater than or equal to 1000 mg/L but less than 10,000 mg/L.	8 July 1987
California list	Liquid hazardous waste containing PCBs greater than or equal to 50 ppm.	8 July 1987
California list	Other liquid and nonliquid hazardous wastes containing HOCs in total concentration greater than or equal to 1000 mg.	8 Nov 1988
D001 <sup>c</sup>	All (except High TOC Ignitable Liquids)	9 Aug 1993
D001	High TOC Ignitable Liquids	8 Aug 1990
D002 <sup>c</sup>	All	9 Aug 1993
D003 <sup>c</sup>	All	8 July 1996
D004	Wastewater	8 Aug 1992
D004	Nonwastewaters	8 May 1992
D005	All	8 Aug 1990
D006	All	8 Aug 1990
D007	All	8 Aug 1990
D008	Lead materials before secondary smelting	8 May 1992
D008	All others	8 Aug 1990
D009	Nonwastewater	8 May 1992
D009	All others	8 Aug 1990
D010	All	8 Aug 1990
D011	All	8 Aug 1990
D012 (that exhibit the toxicity characteristic based on the TCLP) <sup>d</sup>	All	14 Dec 1994
D013(that exhibit the toxicity characteristic based on the TCLP) <sup>d</sup>	All	14 Dec 1994
D014(that exhibit the toxicity characteristic based on the TCLP) <sup>d</sup>	All	14 Dec 1994

Waste Code	Waste Category	Effective Date
D015 (that exhibit the toxicity characteristic based on the TCLP) <sup>d</sup>	All	14 Dec 1994
D016 (that exhibit the toxicity characteristic based on the TCLP) <sup>d</sup>	All	14 Dec 1994
D017 (that exhibit the toxicity characteristic based on the TCLP) <sup>d</sup>	All	14 Dec 1994
D018	Mixed with radioactive wastes	19 Sept 1996
D018	All others	19 Dec 1994
D019	Mixed with radioactive wastes	19 Sept 1996
D019	All others	19 Dec 1994
D020	Mixed with radioactive wastes	19 Sept 1996
D020	All others	19 Dec 1994
D021	Mixed with radioactive wastes	19 Sept 1996
D021	All others	19 Dec 1994
D022	Mixed with radioactive wastes	19 Sept 1996
D022	All others	19 Dec 1994
D023	Mixed with radioactive wastes	19 Sept 1996
D023	All others	19 Dec 1994
D024	Mixed with radioactive wastes	19 Sept 1996
D024	All others	19 Dec 1994
D025	Mixed with radioactive wastes	19 Sept 1996
D025	All others	19 Dec 1994
D026	Mixed with radioactive wastes	19 Sept 1996
D026	All others	19 Dec 1994
D027	Mixed with radioactive wastes	19 Sept 1996
D027	All others	19 Dec 1994

Waste Code	Waste Category	Effective Date
D028	Mixed with radioactive wastes	19 Sept 1996
D028	All others	19 Dec 1994
D029	Mixed with radioactive wastes	19 Sept 1996
D029	All others	19 Dec 1994
D030	Mixed with radioactive wastes	19 Sept 1996
D030	All others	19 Dec 1994
D031	Mixed with radioactive wastes	19 Sept 1996
D031	All others	19 Dec 1994
D032	Mixed with radioactive wastes	19 Sept 1996
D032	All others	19 Dec 1994
D033	Mixed with radioactive wastes	19 Sept 1996
D033	All others	19 Dec 1994
D034	Mixed with radioactive wastes	19 Sept 1996
D034	All others	19 Dec 1994
D035	Mixed with radioactive wastes	19 Sept 1996
D035	All others	19 Dec 1994
D036	Mixed with radioactive wastes	19 Sept 1996
D036	All others	19 Dec 1994
D037	Mixed with radioactive wastes	19 Sept 1996
D037	All others	19 Dec 1994
D038	Mixed with radioactive wastes	19 Sept 1996
D038	All others	19 Dec 1994
D039	Mixed with radioactive wastes	19 Sept 1996
D039	All others	19 Dec 1994

Waste Code	Waste Category	Effective Date
D040	Mixed with radioactive wastes	19 Sept 1996
D040	All others	19 Dec 1994
D041	Mixed with radioactive wastes	19 Sept 1996
D041	All others	19 Dec 1994
D042	Mixed with radioactive wastes	19 Sept 1996
D042	All others	19 Dec 1994
D043	Mixed with radioactive wastes	19 Sept 1996
D043	All others	19 Dec 1994
F001	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent- containing sludges and solids.	8 Nov 1988.
F001	All others	8 Nov 1986.
F002 (1,1,2 trichloroethane)	Wastewater and nonwastewater	8 Aug 1990
F002	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent- containing sludges and solids.	8 Nov 1988
F002	All others	8 Nov 1986
F003	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent- containing sludges and solids.	8 Nov 1988
F003	All others	8 Nov 1986
F004	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent- containing sludges and solids.	8 Nov 1988
F004	All others	8 Nov 1986
F005 (benzene, 2-ethoxy ethanol, 2-nitropropane)	Wastewater and nonwastewater	8 Aug 1990
F005	Small quantity generators, CERCLA response/RCRA corrective action, initial generator's solvent-water mixtures, solvent- containing sludges and soils.	8 Nov 1988
F005	All others	8 Nov 1986
F006	Wastewater	8 Aug 1990
F006	Nonwastewater	8 Aug 1988
F006 (cyanides)	Nonwastewater	8 July 1989
F007	All	8 July 1989
F008	All	8 July 1989
F009	All	8 July 1989
F010	All	8 June 1989
F011 (cyanides)	Nonwastewater	8 Dec 1989

Waste Code	Waste Category	Effective Date
F011	All others	8 July 1989
F012 (cyanides)	Nonwastewater	8 Dec 1989
F012	All others	8 July 1989
F019	All	8 Aug 1990
F020	All	8 Nov 1988
F021	All	8 Nov 1988
F025	All	8 Aug 1990
F026	All	8 Nov 1988
F027	All	8 Nov 1988
F028	All	8 Nov 1988
F032	Mixed with radioactive wastes	12 May 1999
F032	All others	12 May 1997
F033	Mixed with radioactive wastes	12 May 1999
F033	All others	12 May 1997
F034	Mixed with radioactive wastes	12 May 1999
F034	All others	12 May 1997
F037	Not generated from surface impoundment cleanouts or closures	30 June 1993
F037	Generated from surface impoundment cleanouts or closures	30 June 1994
F037	Mixed with radioactive wastes	30 June 1994
F038	Not generated from surface impoundment cleanouts or closures	30 June 1993
F038	Generated from surface impoundment cleanouts or closures	30 June 1994
F038	Mixed with radioactive wastes	30 June 1994
F039	Wastewater	8 Aug 1990
F039	Nonwastewater	8 May 1992
K001 (organics) <sup>b</sup>	All	8 Aug 1988
K001	All others	8 Aug 1988
K002	All	8 Aug 1990
K003	All	8 Aug 1990
K004	Wastewater	8 Aug 1990
K004	Nonwastewater	8 Aug 1988
K005	Wastewater	8 Aug 1990
K005	Nonwastewater	8 June 1989
K006	All	8 Aug 1990
K007	Wastewater	8 Aug 1990
K007	Nonwastewater	8 June 1989

Waste Code	Waste Category	Effective Date
K008	Wastewater	8 Aug 1990
K008	Nonwastewater	8 Aug 1988
K009	All	8 June 1989
K010	All	8 June 1989
K011	Wastewater	8 Aug 1990
K011	Nonwastewater	8 June 1989
K013	Wastewater	8 Aug 1990
K013	Nonwastewater	8 June 1989
K014	Wastewater	8 Aug 1990
K014	Nonwastewater	8 June 1989
K015	Wastewater	8 Aug 1988
K015	Nonwastewater	8 Aug 1990
K016	All	8 Aug 1988
K017	All	8 Aug 1990
K018	All	8 Aug 1988
K019	All	8 Aug 1988
K020	All	8 Aug 1988
K021	Wastewater	8 Aug 1990
K021	Nonwastewater	8 Aug 1988
K022	Wastewater	8 Aug 1990
K022	Nonwastewater	8 Aug 1988
K023	All	8 June 1989
K024	All	8 Aug 1988
K025	Wastewater	8 Aug 1990
K025	Nonwastewater	8 Aug 1988
K026	All	8 Aug 1990
K027	All	8 June 1989
K028 (metals)	Nonwastewater	8 Aug 1990
K028	All others	8 June 1989
K029	Wastewater	8 Aug 1990
K029	Nonwastewater	8 June 1989
K030	All	8 Aug 1988
K031	Wastewater	8 Aug 1990
K031	Nonwastewater	8 May 1992
K032	All	8 Aug 1990
K033	All	8 Aug 1990
K034	All	8 Aug 1990
K035	All	8 Aug 1990
K036	Wastewater	8 June 1989
K036	Nonwastewater	8 Aug 1988
K037 <sup>b</sup>	Wastewater	8 Aug 1988
K037	Nonwastewater	8 Aug 1988
K038	All	8 June 1989
K039	All	8 June 1989
K040	All	8 June 1989
K041	All	8 Aug 1990
K042	All	8 Aug 1990
K043	All	8 June 1989
K044	All	8 Aug 1988

Waste Code	Waste Category	Effective Date
K045	All	8 Aug 1988
K046 (nonreactive)	Nonwastewater	8 Aug 1988
K046	All others	8 Aug 1990
K047	All	8 Aug 1988
K048	Wastewater	8 Aug 1990
K048	Nonwastewater	8 Nov 1990
K049	Wastewater	8 Aug 1990
K049	Nonwastewater	8 Nov 1990
K050	Wastewater	8 Aug 1990
K050	Nonwastewater	8 Nov 1990
K051	Wastewater	8 Aug 1990
K051	Nonwastewater	8 Nov 1990
K052	Wastewater	8 Aug 1990
K052	Nonwastewater	8 Nov 1990
K060	Wastewater	8 Aug 1990
K060	Nonwastewater	8 Aug 1988
K061	Wastewater	8 Aug 1990
K061	Nonwastewater	30 Jun 1992
K062	All	8 Aug 1988
K069 (noncalcium sulfate)	Nonwastewater	8 Aug 1988
K069	All others	8 Aug 1990
K071	All	8 Aug 1990
K073	All	8 Aug 1990
K083	All	8 Aug 1990
K084	Wastewater	8 Aug 1990
K084	Nonwastewater	8 May 1992
K085	All	8 Aug 1990
K086 (organics) <sup>b</sup>	All	8 Aug 1988
K086	All others	8 Aug 1988
K087	All	8 Aug 1988
K088	All others	8 Jan 1997
K093	All	8 June 1989
K094	All	8 June 1989
K095	Wastewater	8 Aug 1990
K095	Nonwastewater	8 June 1989
K096	Wastewater	8 Aug 1990
K096	Nonwastewater	8 June 1989
K097	All	8 Aug 1990
K098	All	8 Aug 1990
K099	All	8 Aug 1988
K100	Wastewater	8 Aug 1990
K100	Nonwastewater	8 Aug 1988
K101 (organics)	Wastewater	8 Aug 1988
K101 (metals)	Wastewater	8 Aug 1990
K101 (organics)	Nonwastewater	8 Aug 1988
K101 (metals)	Nonwastewater	8 May 1992
K102 (organics)	Wastewater	8 Aug 1988
K102 (metals)	Wastewater	8 Aug 1990
K102 (organics)	Nonwastewater	8 Aug 1988

Waste Code	Waste Category	Effective Date
K102 (metals)	Nonwastewater	8 May 1992
K103	All	8 Aug 1988
K104	All	8 Aug 1988
K105	All	8 Aug 1990
K106	Wastewater	8 Aug 1990
K106	Nonwastewater	8 May 1992
K107	Mixed with radioactive wastes	30 June 1994
K107	All others	9 Nov 1992
K108	Mixed with radioactive wastes	30 June 1994
K108	All others	9 Nov 1992
K109	Mixed with radioactive wastes	30 June 1994
K109	All others	9 Nov 1992
K110	Mixed with radioactive wastes	30 June 1994
K110	All others	9 Nov 1992
K111	Mixed with radioactive wastes	30 June 1994
K111	All others	9 Nov 1992
K112	Mixed with radioactive wastes	30 June 1994
K112	All others	9 Nov 1992
K113	All	8 June 1989
K114	All	8 June 1989
K115	All	8 June 1989
K116	All	8 June 1989
K117	Mixed with radioactive wastes	30 June 1994
K117	All others	9 Nov 1992
K118	Mixed with radioactive wastes	30 June 1994
K118	All others	9 Nov 1992
K123	Mixed with radioactive wastes	30 June 1994
K123	All others	9 Nov 1992
K124	Mixed with radioactive wastes	30 June 1994
K124	All others	9 Nov 1992
K125	Mixed with radioactive wastes	30 June 1994
K125	All others	9 Nov 1992
K126	Mixed with radioactive wastes	30 June 1994
K126	All others	9 Nov 1992
K131	Mixed with radioactive wastes	30 June 1994
K131	All others	9 Nov 1992



Waste Code	Waste Category	Effective Date
K132	Mixed with radioactive wastes	30 June 1994
K132	All others	9 Nov 1992
K136	Mixed with radioactive wastes	30 June 1994
K136	All others	9 Nov 1992
K141	Mixed with radioactive wastes	19 Sep 1996
K141	All others	19 Dec 1994
K142	Mixed with radioactive wastes	19 Sep 1996
K142	All others	19 Dec 1994
K143	Mixed with radioactive wastes	19 Sep 1996
K143	All others	19 Dec 1994
K144	Mixed with radioactive wastes	19 Sep 1996
K144	All others	19 Dec 1994
K145	Mixed with radioactive wastes	19 Sep 1996
K145	All others	19 Dec 1994
K147	Mixed with radioactive wastes	19 Sep 1996
K147	All others	19 Dec 1994
K148	Mixed with radioactive wastes	19 Sep 1996
K148	All others	19 Dec 1994
K149	Mixed with radioactive wastes	19 Sep 1996
K149	All others	19 Dec 1994
K150	Mixed with radioactive wastes	19 Sep 1996
K150	All others	19 Dec 1994
K151	Mixed with radioactive wastes	19 Sep 1996
K151	All others	19 Dec 1994
K156	Mixed with radioactive wastes	8 Apr 1998
K156	All others	8 Jul 1996
K157	Mixed with radioactive wastes	8 Apr 1998

Waste Code	Waste Category	Effective Date
K157	All others	8 Jul 1996
K158	Mixed with radioactive wastes	8 Apr 1998
K158	All others	8 Jul 1996
K159	Mixed with radioactive wastes	8 Apr 1998
K159	All others	8 Jul 1996
K160	Mixed with radioactive wastes	8 Apr 1998
K160	All others	8 Jul 1996
K161	Mixed with radioactive wastes	8 Apr 1998
K161	All others	8 Jul 1996
P001	All	8 Aug 1990
P002	All	8 Aug 1990
P003	All	8 Aug 1990
P004	All	8 Aug 1990
P005	All	8 Aug 1990
P006	All	8 Aug 1990
P007	All	8 Aug 1990
P008	All	8 Aug 1990
P009	All	8 Aug 1990
P010	Wastewater	8 Aug 1990
P010	Nonwastewater	8 May 1992
P011	Wastewater	8 Aug 1990
P011	Nonwastewater	8 May 1992
P012	Wastewater	8 Aug 1990
P012	Nonwastewater	8 May 1992
P013 (barium)	Nonwastewater	8 Aug 1990
P013	All others	8 June 1989
P014	All	8 Aug 1990
P015	All	8 Aug 1990
P016	All	8 Aug 1990
P017	All	8 Aug 1990
P018	All	8 Aug 1990
P020	All	8 Aug 1990
P021	All	8 June 1989
P022	All	8 Aug 1990
P023	All	8 Aug 1990
P024	All	8 Aug 1990
P026	All	8 Aug 1990
P027	All	8 Aug 1990
P028	All	8 Aug 1990
P029	All	8 June 1989
P030	All	8 June 1989
P031	All	8 Aug 1990
P033	All	8 Aug 1990
P034	All	8 Aug 1990
P036	Wastewater	8 Aug 1990
P036	Nonwastewater	8 May 1992
P037	All	8 Aug 1990
P038	Wastewater	8 Aug 1990
P038	Nonwastewater	8 May 1992

Waste Code	Waste Category	Effective Date
P039	All	8 June 1989
P040	All	8 June 1989
P041	All	8 June 1989
P042	All	8 Aug 1990
P043	All	8 June 1989
P044	All	8 June 1989
P045	All	8 Aug 1990
P046	All	8 Aug 1990
P047	All	8 Aug 1990
P048	All	8 Aug 1990
P049	All	8 Aug 1990
P050	All	8 Aug 1990
P051	All	8 Aug 1990
P054	All	8 Aug 1990
P056	All	8 Aug 1990
P057	All	8 Aug 1990
P058	All	8 Aug 1990
P059	All	8 Aug 1990
P060	All	8 Aug 1990
P062	All	8 June 1989
P063	All	8 June 1989
P064	All	8 Aug 1990
P065	Wastewater	8 Aug 1990
P065	Nonwastewater	8 May 1992
P066	All	8 Aug 1990
P067	All	8 Aug 1990
P068	All	8 Aug 1990
P069	All	8 Aug 1990
P070	All	8 Aug 1990
P071	All	8 June 1989
P072	All	8 Aug 1990
P073	All	8 Aug 1990
P074	All	8 June 1989
P075	All	8 Aug 1990
P076	All	8 Aug 1990
P077	All	8 Aug 1990
P078	All	8 Aug 1990
P081	All	8 Aug 1990
P082	All	8 Aug 1990
P084	All	8 Aug 1990
P085	All	8 June 1989
P087	All	8 May 1992
P088	All	8 Aug 1990
P089	All	8 June 1989
P092	Wastewater	8 Aug 1990
P092	Nonwastewater	8 May 1992
P093	All	8 Aug 1990
P094	All	8 June 1989
P095	All	8 Aug 1990

Waste Code	Waste Category	Effective Date
P096	All	8 Aug 1990
P097	All	8 June 1989
P098	All	8 June 1989
P099 (silver)	Wastewater	8 Aug 1990
P099	All others	8 June 1989
P101	All	8 Aug 1990
P102	All	8 Aug 1990
P103	All	8 Aug 1990
P104 (silver)	Wastewater	8 Aug 1990
P104	All others	8 June 1989
P105	All	8 Aug 1990
P106	All	8 June 1989
P108	All	8 Aug 1990
P109	All	8 June 1989
P110	All	8 Aug 1990
P111	All	8 June 1989
P112	All	8 Aug 1990
P113	All	8 Aug 1990
P114	All	8 Aug 1990
P115	All	8 Aug 1990
P116	All	8 Aug 1990
P118	All	8 Aug 1990
P119	All	8 Aug 1990
P120	All	8 Aug 1990
P121	All	8 June 1989
P122	All	8 Aug 1990
P123	All	8 Aug 1990
P127	Mixed with radioactive wastes	8 Apr 1998
P127	All others	8 Jul 1996
P128	Mixed with radioactive wastes	8 Apr 1998
P128	All others	8 Jul 1996
P185	Mixed with radioactive wastes	8 Apr 1998
P185	All others	8 Jul 1996
P188	Mixed with radioactive wastes	8 Apr 1998
P188	All others	8 Jul 1996
P189	Mixed with radioactive wastes	8 Apr 1998
P189	All others	8 Jul 1996
P190	Mixed with radioactive wastes	8 Apr 1998
P190	All others	8 Jul 1996
P191	Mixed with radioactive wastes	8 Apr 1998
P191	All others	8 Jul 1996
P192	Mixed with radioactive wastes	8 Apr 1998
P192	All others	8 Jul 1996
P194	Mixed with radioactive wastes	8 Apr 1998
P194	All others	8 Jul 1996
P196	Mixed with radioactive wastes	8 Apr 1998
P196	All others	8 Jul 1996
P197	Mixed with radioactive wastes	8 Apr 1998
P197	All others	8 Jul 1996

Waste Code	Waste Category	Effective Date
P198	Mixed with radioactive wastes	8 Apr 1998
P198	All others	8 Jul 1996
P199	Mixed with radioactive wastes	8 Apr 1998
P201	All others	8 Jul 1996
P201	Mixed with radioactive wastes	8 Apr 1998
P202	Mixed with radioactive wastes	8 Apr 1998
P202	All others	8 Jul 1996
P203	Mixed with radioactive wastes	8 Apr 1998
P203	All others	8 Jul 1996
P204	Mixed with radioactive wastes	8 Apr 1998
P204	All others	8 Jul 1996
P205	Mixed with radioactive wastes	8 Apr 1998
P205	All others	8 Jul 1996
U001	All	8 Aug 1990
U002	All	8 Aug 1990
U003	All	8 Aug 1990
U004	All	8 Aug 1990
U005	All	8 Aug 1990
U006	All	8 Aug 1990
U007	All	8 Aug 1990
U008	All	8 Aug 1990
U009	All	8 Aug 1990
U010	All	8 Aug 1990
U011	All	8 Aug 1990
U012	All	8 Aug 1990
U014	All	8 Aug 1990
U015	All	8 Aug 1990
U016	All	8 Aug 1990
U017	All	8 Aug 1990
U018	All	8 Aug 1990
U019	All	8 Aug 1990
U020	All	8 Aug 1990
U021	All	8 Aug 1990
U022	All	8 Aug 1990
U023	All	8 Aug 1990
U024	All	8 Aug 1990
U025	All	8 Aug 1990
U026	All	8 Aug 1990
U027	All	8 Aug 1990
U028	All	8 June 1989
U029	All	8 Aug 1990
U030	All	8 Aug 1990
U031	All	8 Aug 1990
U032	All	8 Aug 1990
U033	All	8 Aug 1990
U034	All	8 Aug 1990
U035	All	8 Aug 1990
U036	All	8 Aug 1990
U037	All	8 Aug 1990

Waste Code	Waste Category	Effective Date
U038	All	8 Aug 1990
U039	All	8 Aug 1990
U041	All	8 Aug 1990
U042	All	8 Aug 1990
U043	All	8 Aug 1990
U044	All	8 Aug 1990
U045	All	8 Aug 1990
U046	All	8 Aug 1990
U047	All	8 Aug 1990
U048	All	8 Aug 1990
U049	All	8 Aug 1990
U050	All	8 Aug 1990
U051	All	8 Aug 1990
U052	All	8 Aug 1990
U053	All	8 Aug 1990
U055	All	8 Aug 1990
U056	All	8 Aug 1990
U057	All	8 Aug 1990
U058	All	8 June 1989
U059	All	8 Aug 1990
U060	All	8 Aug 1990
U061	All	8 Aug 1990
U062	All	8 Aug 1990
U063	All	8 Aug 1990
U064	All	8 Aug 1990
U066	All	8 Aug 1990
U067	All	8 Aug 1990
U068	All	8 Aug 1990
U069	All	30 June 1992
U070	All	8 Aug 1990
U071	All	8 Aug 1990
U072	All	8 Aug 1990
U073	All	8 Aug 1990
U074	All	8 Aug 1990
U075	All	8 Aug 1990
U076	All	8 Aug 1990
U077	All	8 Aug 1990
U078	All	8 Aug 1990
U079	All	8 Aug 1990
U080	All	8 Aug 1990
U081	All	8 Aug 1990
U082	All	8 Aug 1990
U083	All	8 Aug 1990
U084	All	8 Aug 1990
U085	All	8 Aug 1990
U086	All	8 Aug 1990
U087	All	8 June 1989
U088	All	8 June 1989

Waste Code	Waste Category	Effective Date
U089	All	8 Aug 1990
U090	All	8 Aug 1990
U091	All	8 Aug 1990
U092	All	8 Aug 1990
U093	All	8 Aug 1990
U094	All	8 Aug 1990
U095	All	8 Aug 1990
U096	All	8 Aug 1990
U097	All	8 Aug 1990
U098	All	8 Aug 1990
U099	All	8 Aug 1990
U101	All	8 Aug 1990
U102	All	8 June 1989
U103	All	8 Aug 1990
U105	All	8 Aug 1990
U106	All	8 Aug 1990
U107	All	8 June 1989
U108	All	8 Aug 1990
U109	All	8 Aug 1990
U110	All	8 Aug 1990
U111	All	8 Aug 1990
U112	All	8 Aug 1990
U113	All	8 Aug 1990
U114	All	8 Aug 1990
U115	All	8 Aug 1990
U116	All	8 Aug 1990
U117	All	8 Aug 1990
U118	All	8 Aug 1990
U119	All	8 Aug 1990
U120	All	8 Aug 1990
U121	All	8 Aug 1990
U122	All	8 Aug 1990
U123	All	8 Aug 1990
U124	All	8 Aug 1990
U125	All	8 Aug 1990
U126	All	8 Aug 1990
U127	All	8 Aug 1990
U128	All	8 Aug 1990
U129	All	8 Aug 1990
U130	All	8 Aug 1990
U131	All	8 Aug 1990
U132	All	8 Aug 1990
U133	All	8 Aug 1990
U134	All	8 Aug 1990
U135	All	8 Aug 1990
U136	Wastewater	8 Aug 1990
U136	Nonwastewater	8 May 1992
U137	All	8 Aug 1990
U138	All	8 Aug 1990

Waste Code	Waste Category	Effective Date
U140	All	8 Aug 1990
U141	All	8 Aug 1990
U142	All	8 Aug 1990
U143	All	8 Aug 1990
U144	All	8 Aug 1990
U145	All	8 Aug 1990
U146	All	8 Aug 1990
U147	All	8 Aug 1990
U148	All	8 Aug 1990
U149	All	8 Aug 1990
U150	All	8 Aug 1990
U151	Wastewater	8 Aug 1990
U151	Nonwastewater	8 May 1992
U152	All	8 Aug 1990
U153	All	8 Aug 1990
U154	All	8 Aug 1990
U155	All	8 Aug 1990
U156	All	8 Aug 1990
U157	All	8 Aug 1990
U158	All	8 Aug 1990
U159	All	8 Aug 1990
U160	All	8 Aug 1990
U161	All	8 Aug 1990
U162	All	8 Aug 1990
U163	All	8 Aug 1990
U164	All	8 Aug 1990
U165	All	8 Aug 1990
U166	All	8 Aug 1990
U167	All	8 Aug 1990
U168	All	8 Aug 1990
U169	All	8 Aug 1990
U170	All	8 Aug 1990
U171	All	8 Aug 1990
U172	All	8 Aug 1990
U173	All	8 Aug 1990
U174	All	8 Aug 1990
U176	All	8 Aug 1990
U177	All	8 Aug 1990
U178	All	8 Aug 1990
U179	All	8 Aug 1990
U180	All	8 Aug 1990
U181	All	8 Aug 1990
U182	All	8 Aug 1990
U183	All	8 Aug 1990
U184	All	8 Aug 1990
U185	All	8 Aug 1990
U186	All	8 Aug 1990
U187	All	8 Aug 1990
U188	All	8 Aug 1990



Waste Code	Waste Category	Effective Date
U189	All	8 Aug 1990
U190	All	8 June 1989
U191	All	8 Aug 1990
U192	All	8 Aug 1990
U193	All	8 Aug 1990
U194	All	8 Aug 1990
U196	All	8 Aug 1990
U197	All	8 Aug 1990
U200	All	8 Aug 1990
U201	All	8 Aug 1990
U202	All	8 Aug 1990
U203	All	8 Aug 1990
U204	All	8 Aug 1990
U205	All	8 Aug 1990
U206	All	8 Aug 1990
U207	All	8 Aug 1990
U208	All	8 Aug 1990
U209	All	8 Aug 1990
U210	All	8 Aug 1990
U211	All	8 Aug 1990
U213	All	8 Aug 1990
U214	All	8 Aug 1990
U215	All	8 Aug 1990
U216	All	8 Aug 1990
U217	All	8 Aug 1990
U218	All	8 Aug 1990
U219	All	8 Aug 1990
U220	All	8 Aug 1990
U221	All	8 June 1989
U222	All	8 Aug 1990
U223	All	8 June 1989
U225	All	8 Aug 1990
U226	All	8 Aug 1990
U227	All	8 Aug 1990
U228	All	8 Aug 1990
U234	All	8 Aug 1990
U235	All	8 June 1989
U236	All	8 Aug 1990
U237	All	8 Aug 1990
U238	All	8 Aug 1990
U239	All	8 Aug 1990
U240	All	8 Aug 1990
U243	All	8 Aug 1990
U244	All	8 Aug 1990
U246	All	8 Aug 1990
U247	All	8 Aug 1990
U248	All	8 Aug 1990
U249	All	8 Aug 1990
U271	Mixed with radioactive wastes	8 Apr 1998

Waste Code	Waste Category	Effective Date
U271	All others	8 July 1996
U277	Mixed with radioactive wastes	8 Apr 1998
U277	All others	8 July 1996
U278	Mixed with radioactive wastes	8 Apr 1998
U278	All others	8 July 1996
U279	Mixed with radioactive wastes	8 Apr 1998
U279	All others	8 July 1996
U280	Mixed with radioactive wastes	8 Apr 1998
U280	All others	8 July 1996
U328	Mixed with radioactive wastes	30 June 1994
U328	All others	9 Nov 1992
U353	Mixed with radioactive wastes	30 June 1994
U353	All others	9 Nov 1992
U359	Mixed with radioactive wastes	30 June 1994
U359	All others	9 Nov 1992
U364	Mixed with radioactive wastes	8 Apr 1998
U364	All others	8 July 1996
U365	Mixed with radioactive wastes	8 Apr 1998
U365	All others	8 July 1996
U366	Mixed with radioactive wastes	8 Apr 1998
U366	All others	8 July 1996
U367	Mixed with radioactive wastes	8 Apr 1998
U367	All others	8 July 1996
U372	Mixed with radioactive wastes	8 Apr 1998
U372	All others	8 July 1996
U373	Mixed with radioactive wastes	8 Apr 1998
U373	All others	8 July 1996
U375	Mixed with radioactive wastes	8 Apr 1998
U375	All others	8 July 1996
U376	Mixed with radioactive wastes	8 Apr 1998
U376	All others	8 July 1996
U377	Mixed with radioactive wastes	8 Apr 1998
U377	All others	8 July 1996
U378	Mixed with radioactive wastes	8 Apr 1998
U378	All others	8 July 1996
U379	Mixed with radioactive wastes	8 Apr 1998
U379	All others	8 July 1996
U381	Mixed with radioactive wastes	8 Apr 1998
U381	All others	8 July 1996
U382	Mixed with radioactive wastes	8 Apr 1998
U382	All others	8 July 1996
U383	Mixed with radioactive wastes	8 Apr 1998
U383	All others	8 July 1996
U384	Mixed with radioactive wastes	8 Apr 1998
U384	All others	8 July 1996
U385	Mixed with radioactive wastes	8 Apr 1998

Waste Code	Waste Category	Effective Date
U385	All others	8 July 1996
U386	Mixed with radioactive wastes	8 Apr 1998
U386	All others	8 July 1996
U387	Mixed with radioactive wastes	8 Apr 1998
U387	All others	8 July 1996
U389	Mixed with radioactive wastes	8 Apr 1998
U389	All others	8 July 1996
U390	Mixed with radioactive wastes	8 Apr 1998
U390	All others	8 July 1996
U391	Mixed with radioactive wastes	8 Apr 1998
U391	All others	8 July 1996
U392	Mixed with radioactive wastes	8 Apr 1998
U392	All others	8 July 1996
U393	Mixed with radioactive wastes	8 Apr 1998
U393	All others	8 July 1996
U394	Mixed with radioactive wastes	8 Apr 1998
U394	All others	8 July 1996
U395	Mixed with radioactive wastes	8 Apr 1998
U395	All others	8 July 1996
U396	Mixed with radioactive wastes	8 Apr 1998
U396	All others	8 July 1996
U400	Mixed with radioactive wastes	8 Apr 1998
U400	All others	8 July 1996
U401	Mixed with radioactive wastes	8 Apr 1998
U401	All others	8 July 1996
U402	Mixed with radioactive wastes	8 Apr 1998
U402	All others	8 July 1996
U403	Mixed with radioactive wastes	8 Apr 1998
U403	All others	8 July 1996
U404	Mixed with radioactive wastes	8 Apr 1998
U404	All others	8 July 1996
U407	Mixed with radioactive wastes	8 Apr 1998
U407	All others	8 July 1996
U409	Mixed with radioactive wastes	8 Apr 1998
U409	All others	8 July 1996
U410	Mixed with radioactive wastes	8 Apr 1998
U410	All others	8 July 1996
U411	Mixed with radioactive wastes	8 Apr 1998
U411	All others	8 July 1996

a This table does not include mixed radioactive wastes (from the First, Second, and Third Third rules) which received national capacity variance until May 8, 1992. This table also does not include contaminated soil and debris wastes.

b The standard has been revised in the Third Third Final Rule, 1 June 1990.

c This standard was revised in the Third Third Emergency Rule, 24 May 1993.

d This standard was revised in the Phase II Final Rule, 19 September 1994.

e The standards for selected reactive wastes was revised in the Phase III Final Rule, 6 April 1996.



*Part 2--Summary of Effective Dates of Land Disposal Restrictions for Contaminated Soil and Debris (CSD)*

Restricted hazardous waste in CSD	Effective date
1. Solvent-(F001-F005) and dioxin-(F020-F023 and F026-F028) containing soil and debris from CERCLA response of RCRA corrective actions.	8 Nov 1990
2. Soil and debris not from CERCLA response or RCRA corrective actions contaminated with less than 1% total solvents (F001-F005) or dioxins (F020- F023 and F026-F028).	8 Nov 1988
3. All soil and debris contaminated with First Third wastes for which treatment standards are based on incineration.	8 Aug 1990
4. All soil and debris contaminated with Second Third wastes for which treatment standards are based on incineration.	8 June 1991
5. All soil and debris contaminated with Third Third wastes or, First or Second Third "soft hammer" wastes which had treatment standards promulgated in the Third Third rule, for which treatment standards are based on incineration, vitrification, or mercury retorting, acid leaching followed by chemical precipitation, or thermal recovery of metals; as well as all inorganic solids debris contaminated with D004-D011 wastes, and all soil and debris contaminated with mixed RCRA/radioactive wastes.	8 May 1992
6. Soil and debris contaminated with D012-D043, K141-K145ms K147-151 wastes.	19 Dec 1994
7. Debris (only) contaminated with F037, F038, K107-K112, K117, K118, K123-126, K131, K132, K136, U326, U353, U359.	19 Dec 1994
8. Soil and debris contaminated with K156-K161, P127, P128, P188-P192, P194, P196-P199, P201, P205, U271, U277-U280, U364-U367, U372, U373, U375-U379, U381, U387, U389-U396, U400-U404, U407, and U409-U411 wastes.	8 July 1996
9. Soil and debris contaminated with K088 wastes	8 Jan 1997
10. Soil and debris contaminated with radioactive wastes mixed with K088, K156-K161, P127, P128, P188-P182, P184, P196-P199, P201-P206, U271, U277-U280, U362-U367, U372, U373, U375-U379, U381-U387, U389- U396, U400-U404, U407, and U409-U411 wastes.	8 Apr 1998
11. Soil and debris contaminated with F032, F034, and F035 NOTE: 1. Appendix VII is provided for the convenience of the reader. 2. Contaminated Soil and Debris Rule will be promulgated in the future.	12 May1997



## Appendix 4-8

### Schedule for Implementation of Air Emissions Standards (40 CFR 265.1082)

Facilities existing on 6 October 1996, which are required to comply with 40 CFR 265, Subparts I, J, and K, shall:

- install and begin operation of all required control equipment by 6 October 1996. If it cannot be installed and operating by 6 October 1996 the owner and operator shall:
  - install and begin operation as soon as possible but not later than 8 December 1997
  - prepare an implementation schedule which is placed in the operating record by 6 October 1996.

Facilities which are required to comply with 40 CFR 265, Subparts I, J, and K due to a statutory or regulatory amendment shall:

- install and begin operation of all required control equipment by the date of the amendment. If it cannot be installed and operating by the date of the amendment the owner and operator shall:
  - install and begin operation as soon as possible but not later than 30 mo after the amendment date
  - prepare an implementation schedule which is placed in the operating record no later than the date of the amendment.

(NOTE: The Regional Administrator may elect to extend the implementation date at a facility on a case-by-case basis.)





## SECTION 5

### PESTICIDE MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section applies to FWS facilities which use, store, or handle pesticides. Pesticides are regulated on the Federal level (U.S. Environmental Protection Agency (USEPA)) and the state level. As used in this handbook the terms pesticides encompasses pesticides, herbicides, and fungicides.

It must be noted that pesticides are by nature hazardous materials and are subject to hazardous material regulations.

#### B. Federal Legislation

- *The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)*. This act, as last amended in December 1991, 7 U.S. Code (USC) 136-136y, deals with the sale, distribution, and use of pesticides. It requires the registration of new pesticides and, when pesticides are reregistered, requires that they will not present any unreasonable risks to human health or the environment, if used according to label directions.
- *The Endangered Species Act (ESA)* of 1973. The purpose of this act, 16 USC 1531-1547, et al, last amended in October 1988, is to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions for protection of endangered species (16 USC 1531(b)). Under ESA, the policy of Congress is that all Federal departments and agencies must seek to conserve endangered species and threatened species and must use their authorities in furtherance of the purposes of this act. Further, Federal agencies must cooperate with state and local agencies to resolve water resource issues in concert with conservation of endangered species (16 USC 1531(c)).
- Executive Order (EO) 12088. This EO, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.
- Federal regulations used to develop the checklist include:
  - EO 12088, *Federal Compliance with Pollution Control Standards*.
  - 29 CFR 1910, *Occupational Safety and Health Standards*.
  - 40 CFR 152, *Pesticide Registration and Classification Procedures*.
  - 40 CFR 166, *Exemption of Federal and State Agencies for Use of Pesticides Under Emergency Conditions*.
  - 40 CFR 171, *Certification of Pesticide Applicators*.
  - 50 CFR 402, *Interagency cooperation - Endangered Species Act of 1973, as amended*.

### C. State/Local Regulations

State pesticide regulatory programs are to be at least as stringent as FIFRA. State and local programs typically contain regulations which are tailored to an industry or activity which is prevalent or particularly sensitive in a state. State and local pesticide regulations in many cases provide more stringent standards or specifically identify a requirement which may be qualitatively regulated under the Federal program. State and local pesticide programs generally include regulations which address the following topics:

1. restrictions or requirements for the sale, distribution, or use of selected pesticides
2. disposal requirements for excess pesticides and pesticide wastes such as pesticide containers
3. restrictions on the control of specific animal or insect species
4. specifications for bulk pesticide storage tanks and storage facilities
5. operational requirements for selected application methods
6. recordkeeping and applicator certification requirements.

### D. FWS/DOI Manuals

No applicable manuals are final as of the publication of this handbook.

### E. Key Compliance Requirements

- Pesticide Application - People applying restricted-use pesticides must be certified to apply restricted-use pesticides. Contractors used for pest management must have current state certification for the types of applications to be performed. The application of pesticides must not jeopardize the existence of threatened or endangered species (40 CFR 171.9 and 50 CFR 402).
- Pesticide Storage, Mixing, and Preparation Facilities - Pesticide storage, mixing, and preparation activities must provide facilities and procedures to ensure safety of personnel. Facilities such as a ventilation system for all indoor pesticide mixing/preparation areas and an emergency deluge shower and eyewash station located to provide immediate access to all personnel performing mixing. Personal protective clothing and equipment needs to be provided and used by pest management personnel. (29 CFR 1910.133).
- Highly Toxic Pesticide Storage and Use - Storage facilities for pesticides and excess pesticides classed as highly toxic or moderately toxic, that are labeled DANGER, POISON, or with the skull and crossbones symbol, should meet specific structural, operational, and storage requirements. These include pesticides being kept in a dry, separate room with fire protection and not near food or feed, and in containers in good condition with plainly visible labels. There should be a decontamination facility and the local fire department, hospitals, public health officials, and police departments should be notified in writing that the pesticides are being stored (MP).
- Recordkeeping - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.
- Pesticide Labeling - Every pesticide product is required to have label that clearly identifies contents, source, ingredients, and directions for use (40 CFR 156.10(a)) [Added January 1999].

## F. Key Compliance Definitions

- *Acute LD<sub>50</sub>* - a statistically derived estimate of the concentration of a substance that would cause 50 percent mortality to the test population under specified conditions (40 CFR 152.3).
- *Caution* - the human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category III or IV must bear on the front panel the signal word CAUTION (see Toxicity Category) (40 CFR 156.10(h)).
- *Certified Applicator* - any individual who is certified by the USEPA or the state to use or supervise the use of any restricted use pesticide covered by that individual's certification (7 CFR 110.2).
- *Commercial Applicator* - a certified applicator, other than a private applicator, who uses or supervises the use of any pesticide, for any purpose, on any property, or performs other pest control related activities (40 CFR 171.2).
- *Crisis Exemption* - this is utilized in an emergency condition when the time from discovery of the emergency to the time when the pesticide use needed is insufficient to allow for the authorization of a specific quarantine exemption or public health exemption (40 CFR 166.2).
- *Danger* - the human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category I must bear on the front panel, the signal word DANGER (see Toxicity Category) (40 CFR 156.10(h)).
- *Excepted Agricultural Applications for Handler Standards* - 40 CFR 170.202 through 170.260 does not apply when any pesticide is applied on an agricultural establishment in the following circumstances (40 CFR 170.203) **[Added July 2000]**:
  1. for mosquito abatement, Mediterranean fruit fly eradication, or similar wide-area public pest control programs sponsored by governmental entities
  2. on livestock or other animals, or in or about animal premises
  3. on plants grown for other than commercial or research purposes, which may include plants in habitations, home fruit and vegetable gardens, and home greenhouses
  4. on plants that are in ornamental gardens, parks, and public or private lawns and grounds that are intended only for aesthetic purposes or climatic modification
  5. in a manner not directly related to the production of agricultural plants, including, but not limited to, structural pest control, control of vegetation along rights-of-way and in other noncrop areas, and pasture and rangeland use
  6. for control of vertebrate pests
  7. as attractants or repellents in traps
  8. on the harvested portions of agricultural plants or on harvested timber; and
  9. for research uses of unregistered pesticides.
- *Excepted Agricultural Applications for Worker Standards* - 40 CFR 170.102 through 170.160 does not apply when any pesticide is applied on an agricultural establishment in the following circumstances (40 CFR 170.103) **[Added July 2000]**:
  1. for mosquito abatement, Mediterranean fruit fly eradication, or similar wide-area public pest control programs sponsored by governmental entities
  2. on livestock or other animals, or in or about animal premises
  3. on plants grown for other than commercial or research purposes, which may include plants in habitations, home fruit and vegetable gardens, and home greenhouses

4. on plants that are in ornamental gardens, parks, and public or private lawns and grounds that are intended only for aesthetic purposes or climatic modification
  5. by injection directly into agricultural plants, except this does not include "hack and squirt," "frill and spray," chemigation, soil-incorporation, or soil-injection
  6. in a manner not directly related to the production of agricultural plants, including, but not limited to, structural pest control, control of vegetation along rights-of-way and in other noncrop areas, and pasture and rangeland use
  7. for control of vertebrate pests
  8. as attractants or repellents in traps
  9. on the harvested portions of agricultural plants or on harvested timber; and
  10. for research uses of unregistered pesticides.
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
  - *Pesticide Product* - a pesticide in the particular form (including composition, packaging, and labeling) in which the pesticide is, or is intended to be, distributed or sold. This includes any physical apparatus used to deliver or apply the pesticide if distributed or sold with the pesticide (40 CFR 152.3).
  - *Private Applicator* - a certified applicator who uses or supervises the use of any restricted use pesticide for purposes of producing any agricultural commodity (7 CFR 100.2).
  - *Public Health Exemption* - this may be authorized in an emergency condition to control a pest that will cause a significant risk to human health (40 CFR 166.2).
  - *Quarantine Exemption* - this may be authorized in an emergency condition to control the introduction or spread of any pest new to or not theretofore known to be widely prevalent or distributed within and throughout the United States and its territories (40 CFR 166.2).
  - *Restricted-Use Pesticides* - pesticides designated for restricted use under the provisions of Section 3(d)(1)(c) of FIFRA (40 CFR 171.2).
  - *Specific Exemption* - this exemption may be authorized in an emergency condition to avert (40 CFR 166.2):
    1. a significant economic loss
    2. a significant risk to endangered species, threatened species, beneficial organisms, or the environment.
  - *Toxicity Category* - required warnings and precautionary statements are based on the Toxicity Category of the pesticide. The category is assigned on the basis of the highest hazard shown in the table listed in 40 CFR 156.10 (40 CFR 156.10(h)).
  - *Warning* - the human hazard signal word required on the front panel of a pesticide container determined by the Toxicity Category of the pesticide. All pesticide products meeting the criteria of Toxicity Category II shall bear on the front panel the signal word WARNING (see 40 CFR 156.10 for listing of indicators necessary to meet specific criteria of toxicity categories) (40 CFR 156.10(h)).

**PESTICIDE MANAGEMENT**  
**GUIDANCE FOR CHECKLIST USERS**

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	<b>REFER TO CHECKLIST ITEMS:</b>
All Facilities	PM.1.1 through PM.1.8
Pesticide Applicators	PM.5.1 through PM.5.3
Pesticide Applications	
General	PM.10.1 and PM.10.2
Agriculture	PM.20.1 and PM.20.2
Entry Restrictions	PM.20.3 through PM.20.13
Worker Notification and Training	PM.20.14 through PM.20.20
Operations	PM.20.21 and PM.20.22
Pesticide Handlers	PM.20.23 through PM.20.32
Dining Facilities	PM.35.1
Documentation	PM.45.1 and PM.45.2
Storage/Mixing/Preparation Areas	
General	PM.47.1 through PM.47.9
Highly and Moderately Toxic Pesticides	PM.48.1 through PM.48.8
Disposal	PM.55.1 through PM.55.6

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## PESTICIDE MANAGEMENT

### Records To Review

- MSDSs for pesticides
- Pesticide application records
- Certification status of pesticide applicators
- Pesticide disposal manifests
- Contract files
- Any emergency exemption granted to the FWS by the USEPA

### Physical Features To Inspect

- Personnel protection equipment
- Pesticide application equipment
- Pesticide storage areas, including storage containers





**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>PM.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>PM.1.2.</b> FWS facilities are required to comply with state and local pesticide regulations (EO 12088, Section 1-1).</p> <p><b>PM.1.3.</b> Facilities will meet regulatory requirements issued since the finalization of this handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> <li>- applicator certification</li> <li>- restricted-use pesticides</li> <li>- application procedures</li> <li>- banned pesticides</li> <li>- disposal methods</li> <li>- emergency application of pesticides due to public health threats.)</li> </ul> <p>Determine if any new regulations concerning pesticides have been issued since the finalization of this handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.1.4.</b> FWS facilities should report all NOV's to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p> <p><b>PM.1.5.</b> All pesticides present on the facility must be registered or ruled exempt from the registration requirements (40 CFR 152.15 through 152.30).</p> <p><b>PM.1.6.</b> All facilities must comply with pesticide use requirements unless an emergency exemption has been granted by the USEPA or a crisis exemption by the appropriate authority (40 CFR 166.1, 166.2, 166.20, 166.28, 166.32, 166.45, and 166.50) [June 1997].</p>	<p>Determine if the facility has received an NOV relating to pesticides.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p> <p>Verify that pesticide products at the facility are registered unless the facility or product is considered exempt, such as the following:</p> <ul style="list-style-type: none"> <li>- certain biological control agents</li> <li>- certain human drugs</li> <li>- treated articles or substances such as paint treated with a pesticide</li> <li>- pheromones and pheromone traps</li> <li>- preservatives for biological specimens</li> <li>- vitamin hormone products</li> <li>- pesticide transferred between registered establishments operated by the same producer</li> <li>- a pesticide distributed or sold under an experimental use permit</li> <li>- a pesticide transferred solely for export</li> <li>- a pesticide distributed or sold under an emergency exemption.</li> </ul> <p>Verify that pesticides are used according to label instructions unless one or more of the following emergency conditions exist:</p> <ul style="list-style-type: none"> <li>- Specific exemptions may be authorized to avoid conditions of: <ul style="list-style-type: none"> <li>- significant economic loss</li> <li>- significant risk to threatened or endangered species</li> <li>- significant risk to beneficial organisms</li> <li>- significant risk to the environment.</li> </ul> </li> <li>- Quarantine exemptions may be authorized to control the introduction or spread of any pest new to or unknown to be widespread throughout the United States and its territories.</li> <li>- Public health exemptions may be authorized to control a pest that imposes significant risk to human health.</li> <li>- Crisis exemptions may be utilized when the time constraint between discovery, and implementation of pesticide use will not allow a specific, quarantine, or public health exemption to be issued.</li> </ul>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>Verify that applications for exemptions are submitted to the Regional Administrator in writing and include:</p> <ul style="list-style-type: none"> <li>- identity of contact persons</li> <li>- a description of the pesticide</li> <li>- the proposed use</li> <li>- any alternative means of control and why those means are not feasible</li> <li>- effectiveness of proposed use</li> <li>- discussion of residues for food uses</li> <li>- discussion of risk information</li> <li>- coordination with other affected state or Federal agencies</li> <li>- notification of registrant or basic manufacturer</li> <li>- description of proposed enforcement program</li> <li>- repeated uses.</li> </ul> <p>Verify that exemptions are issued for a specific length of time, as follows:</p> <ul style="list-style-type: none"> <li>- no more than 1 yr for specific and public health exemptions</li> <li>- for no longer than 3 yr for a quarantine permit, but it may be renewed</li> <li>- no longer than 15 days (unless an application for another type of exemption has been submitted) for a crisis exemption.</li> </ul> <p>Verify that any unexpected adverse affects from the use of a pesticide under exemption conditions are being reported to the USEPA.</p> <p>Verify that a report summarizing the use of a pesticide under an exemption was submitted to the USEPA within 6 mo after the expiration of the exemption (3 mo for a crisis exemption) and interim reports are filed annually for quarantine exemptions.</p> <p>Verify that records are maintained for a minimum of 2 yr following the date of expiration of the exemption.</p>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.1.7.</b> FWS facilities which use pesticides are required to provide complete pesticide proposals to the Regional Pest Management Coordinator (RP, 30 FWS AM 12.2 and 30 FWS AM 12.6D(8)) [Citation Revised June 1998].</p>	<p>Verify that FWS facilities which use pesticides have provided complete pesticide proposals to the Regional Pest Management Coordinator for all pesticides used on Service lands under their control.</p> <p>(NOTE: The time frame for submission will be set by the reviewers.)</p> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> <li>- protective covenants, easements, contracts, or agreements off Service lands except where they specifically state that the Service is responsible for pest management</li> <li>- management activities on State lands paid for in whole or in part by Federal Aid funds, except where specifically mentioned</li> <li>- research experiments conducted by Service research personnel</li> <li>- pest management activities solely related to control fish and wildlife pathogens and their vectors in hatchery situations or captive breeding programs.)</li> </ul>
<p><b>PM.1.8.</b> Every pesticide product is required to be labeled with specific information (40 CFR 156.10(a)) [Added January 1999].</p>	<p>Verify that every pesticide product has a label that clearly shows the following:</p> <ul style="list-style-type: none"> <li>- the name, brand, or trademark under which the product is sold</li> <li>- the name and address of the producer, registrant, or person for whom it was produced</li> <li>- the net contents</li> <li>- the product registration number</li> <li>- the producing establishment number</li> <li>- an ingredient statement</li> <li>- warning or precautionary statements</li> <li>- the directions for use.</li> </ul> <p>Verify that all words, statements, graphic representations, designs, or other information are clearly legible to a person with normal vision and are placed with such conspicuousness and expressed in terms such that it is likely to be read and understood by the ordinary individual under customary conditions of purchase and use.</p>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.5</b></p> <p><b>PESTICIDE APPLICATORS</b></p> <p><b>PM.5.1.</b> Persons applying restricted-use pesticides must be certified to apply restricted-use pesticides (40 CFR 171.9).</p> <p><b>PM.5.2.</b> Personnel routinely applying any pesticides should be trained in safety procedures and application procedures (MP).</p> <p><b>PM.5.3.</b> Health monitoring should be provided for government personnel applying pesticides other than bug bombs, space sprays, and no-pest strips (MP).</p>	<p>Determine if pesticide applicators are trained and/or certified.</p> <p>Verify that training recertification is scheduled and performed as required to maintain certification and that certification is relevant to the pest management activities undertaken.</p> <p>Verify the certification status of contractors used for pest management.</p> <p>(NOTE: Check the list of restricted-use pesticides in Appendix 5-1.)</p> <p>Determine if personnel at the facility routinely apply pesticides.</p> <p>Verify that personnel are trained in appropriate handling and use procedures.</p> <p>Verify that all pest management personnel have received baseline physical examinations within 30 days of starting pest management work.</p> <p>Verify that pest management personnel receive additional physical examinations once each year.</p> <p>Verify that cholinesterase tests are given to pest management personnel working regularly with pesticides which contain organophosphates or N-alkyl-carbamates.</p> <p>(NOTE: The Safety Office should be consulted about health concerns related to the pesticides in use at the facility.)</p>



<b>COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Fish and Wildlife Service</b>	
<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<b>PESTICIDE APPLICATION</b>  <b>PM.10 General</b>  <b>PM.10.1.</b> Facilities must ensure that the use of pesticides does not jeopardize the existence of threatened or endangered species (50 CFR 402.01(2)(d)).  <b>PM.10.2.</b> Public safety should be ensured when applying or using pesticides (MP).	<p>Determine if surveys have been conducted to identify the presence of threatened or endangered species in areas where pesticides are used.</p> <p>Determine what measures are taken to ensure that threatened or endangered species are not impacted.</p> <p>Verify that applications are made according to label instructions regarding the protection of endangered species.</p> <p>Verify the elimination of hazardous exposure to the general public by checking for the following:</p> <ul style="list-style-type: none"> <li>- appropriate signs for treatment area are posted</li> <li>- scheduling for low use periods or restricted usage for a number of days</li> <li>- water use restrictions and reentry times are followed according to the pesticide labels.</li> </ul>





**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PESTICIDE APPLICATION</b></p> <p><b>PM.20 Agriculture</b></p> <p><b>PM.20.1.</b> Checklist item deleted [Deleted July 2000].</p> <p><b>PM.20.2.</b> Checklist item deleted [Deleted July 2000].</p> <p><b>Entry Restrictions</b></p> <p><b>PM.20.3.</b> Employers must satisfy certain requirements when applying pesticides on a farm or in a forest (40 CFR 170.110(a)) [Added July 2000].</p> <p><b>PM.20.4.</b> Employers must satisfy certain requirements when applying pesticides in a nursery (40 CFR 170.110(b)) [Added July 2000].</p> <p><b>PM.20.5.</b> Employers must satisfy certain requirements when applying pesticides in greenhouses (40 CFR 170.110(c)) [Added July 2000].</p>	<p>(NOTE: See the definitions for <i>Excepted Agricultural Applications for Worker Standards</i>.)</p> <p>This checklist item was deleted in order to facilitate the expansion of this topic.</p> <p>This checklist item was deleted in order to facilitate the expansion of this topic.</p> <p>Verify that, during treatments on a farm or in a forest, employees other than those appropriately trained, do not enter or remain in the treated area.</p> <p>Verify that, when applications described in column A of Table 1 in Appendix E take place in a nursery, employees other than those appropriately trained do not enter or remain in the areas specified in column B of the table.</p> <p>(NOTE: After the application is completed, the entry-restricted area is the treated area, until the end of any restricted-entry interval.)</p> <p>Verify that, when applications described in column A of the table in Appendix F take place in a greenhouse, employees other than those appropriately trained, do not enter or remain in the areas described in column B until the time specified in column C has expired.</p>

**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.6.</b> Employers are required to meet specific requirements concerning entry into treated areas (40 CFR 170.112(a)) [Added July 2000].</p>	<p>Verify that no employee is allowed to enter or remain in the treated area as specified in column D or after the time specified in column C, and until the expiration of any restricted-entry interval, except as provided in 40 CFR 170.112 (see checklist items PM.20.6 through PM.20.13).</p> <p>Verify that, when specified by column C, ventilation continues until the air concentration is measured to be <math>\leq</math> the inhalation exposure level the labeling requires to be achieved.</p> <p>Verify that, if no inhalation exposure is listed on the labeling, ventilation continues until after:</p> <ul style="list-style-type: none"> <li>- 10 air exchanges are completed</li> <li>- 2 h of ventilation using fans or other mechanical ventilating systems</li> <li>- 4 h of ventilation using vents, windows or other passive ventilation</li> <li>- 11 h with no ventilation followed by 1 h of mechanical ventilation</li> <li>- 11 h with no ventilation followed by 2 h of passive ventilation, or</li> <li>- 24 h with no ventilation.)</li> </ul> <p>Verify that the employer does not allow or direct any employee to enter or remain in the treated area before the restricted-entry interval specified on the pesticide labeling has expired.</p> <p>(NOTE: Entry restricted areas in greenhouses are specified in column D of Appendix F.)</p> <p>Verify that when two or more pesticides are applied at the same time, the restricted-entry interval is the longest of the applicable intervals.</p> <p>Verify that the employer assures that any worker who enters a treated area under an allowable restricted-entry interval, uses the PPE specified in the product labeling for early-entry workers.</p> <p>(NOTE: Entry-restricted areas in greenhouses are specified in column D in Table 2 of 40 CFR 170.100(c)(4)).</p>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.7.</b> Employees may enter treated areas during a restricted-entry interval providing certain requirements are met (40 CFR 170.112(b)) <b>[Added July 2000]</b>.</p> <p><b>PM.20.8.</b> Employees entering treated areas during a restricted-entry interval for short-term activity must satisfy certain operational requirements (40 CFR 170.104(a), 170.112(c)(1) through 170.112(c)(5)) <b>[Added July 2000]</b>.</p>	<p>Verify that only employees who meet the following criteria enter a treated area during a restricted-entry interval:</p> <ul style="list-style-type: none"> <li>-no contact is made with anything that has been treated with the pesticide to which the restricted-entry interval applies, including, but not limited to, soil, water, air, or surfaces of plants</li> <li>-entry is not allowed until any inhalation exposure level listed in the labeling has been reached or any ventilation criteria have been met.</li> </ul> <p>Verify that employees who enter a treated area during a restricted-entry interval for short-term activities satisfy the following requirements:</p> <ul style="list-style-type: none"> <li>-no hand labor activity is performed</li> <li>-the time in the treated area does not exceed 1 h in any 24-h period</li> <li>-entry is not allowed until 4 h following the end of the application, and no such entry is allowed thereafter until any inhalation exposure level listed in the labeling has been reached or any ventilation criteria have been met</li> <li>-the employee is provided with the PPE specified on the product labeling for early entry.</li> </ul> <p>Verify that the PPE provided to the employee for early entry conforms to the following standards:</p> <ul style="list-style-type: none"> <li>-when "chemical-resistant" PPE is specified, it is made of material that allows no measurable movement of the pesticide the material during use</li> <li>-when "waterproof" PPE is specified, it is made of material that allows no measurable movement of water or aqueous solutions through the material during use</li> <li>-when "chemical-resistant suit" is specified, it is loose-fitting, one- or two-piece, chemical resistant garment that covers, at a minimum, the entire body except head, hands, and feet</li> <li>-when "coveralls" are specified, they are a loose-fitting, one- or two-piece garment, such as cotton or cotton and polyester coveralls, that cover, at a minimum, the entire body except head, hands, and feet</li> <li>-when "chemical-resistant footwear" is specified it is a chemical-resistant shoe, boot, or shoe coverings worn over shoes or boots</li> </ul>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

**REGULATORY  
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**REVIEWER CHECKS:  
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- when "protective eyewear" is specified, it is goggles; a face shield; safety glasses with front, brow, and temple protection; or a full-face respirator
- when "chemical-resistant headgear" is specified, it is a chemical-resistant hood or hat with a wide brim
- gloves specified by the product labeling.

(NOTE: Long-sleeved shirts, short-sleeved shirts, long pants, short pants, shoes, socks, and other items of work clothing are not considered PPE in this instance and are not subject to these requirements.)

(NOTE: The pesticide product labeling may specify that the coveralls be worn over a layer of clothing. If a chemical-resistant suit is substituted for coveralls, it need not be worn over a layer of clothing. If chemical-resistant footwear with sufficient durability and a tread appropriate for wear in rough terrain is not obtainable for workers, then leather boots may be worn in such terrain.)

Verify that gloves or glove linings worn for early-entry activities are not made of leather, cotton, or other absorbent materials, unless these materials are listed on the product labeling as acceptable for such use.

(NOTE: If chemical-resistant gloves with sufficient durability and suppleness are not obtainable for tasks with roses or other plants with sharp thorns, leather gloves may be worn over chemical-resistant liners.)

Verify that, once leather gloves have been worn for tasks with roses or other plants with sharp thorns, they are thereafter worn only with chemical-resistant liners and not for any other use.

Verify that, before entering the treated area, employees read or are informed of information on the product labeling, in a manner that they understand, of all labeling requirements related to:

- human hazards or precautions
- first aid
- symptoms of poisoning
- PPE specified for early entry
- any other labeling requirements related to safe use.

(NOTE: The requirement to ensure employees read or are informed of information on the product labeling does not apply to the owner, or the immediate family of an owner of an agricultural establishment who are performing tasks related to the production of agricultural plants on their

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.9.</b> Employers are required to ensure that employees entering treated areas during a restricted-entry interval for short-term activity satisfy certain PPE management requirements (40 CFR 170.104(a) and 170.112(c)(6)) [Added July 2000].</p>	<p>own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that employees wear protective equipment correctly for its intended purpose and use it according to manufacturer's instructions.</p> <p>Verify that, before each day of use, all PPE is inspected for leaks, holes, tears, or worn places and damaged equipment is repaired or discarded.</p> <p>Verify that PPE that cannot be cleaned properly is disposed of in accordance with any applicable Federal, state, and local regulations.</p> <p>Verify that all PPE is cleaned according to manufacturer's instructions or pesticide product labeling instructions before each day of reuse.</p> <p>Verify that in the absence of any manufacturer's instructions, it is washed thoroughly in detergent and hot water.</p> <p>Verify that, before being stored, all clean PPE is dried thoroughly or is put in a well-ventilated place to dry.</p> <p>Verify that PPE contaminated with pesticides is kept separately and washed separately from any other clothing or laundry.</p> <p>Verify that any person who cleans or launders PPE is informed that such equipment may be contaminated with pesticides, and of the potentially harmful effects of exposure to pesticides.</p> <p>Verify that any person who cleans or launders PPE is informed of the correct way to handle and clean such equipment, and to protect themselves when handling equipment contaminated with pesticides.</p> <p>Verify that all clean PPE is stored separately from personal clothing and apart from pesticide-contaminated areas.</p> <p>Verify that each worker is instructed how to put on, use, and remove the PPE.</p> <p>Verify that each worker is informed about the importance of washing thoroughly after removing PPE.</p> <p>Verify that each worker is instructed in the prevention, recognition, and first aid treatment of heat-related illness.</p>

**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.10.</b> Employers must take certain precautions to prevent heat-related illness among employees entering treated areas during a restricted-entry interval for short-term activity (40 CFR 170.104(a) and 170.112(c)(7)) [Added July 2000].</p> <p><b>PM.20.11.</b> Employers must provide a decontamination site during early-entry activity (40 CFR 170.104(a) and 170.112(c)(8)) [Added July 2000].</p>	<p>Verify that workers have a clean place away from pesticide-storage and pesticide-use areas for storing personal clothing not in use.</p> <p>Verify that workers have a clean place away from pesticide-storage and pesticide-use areas for putting on PPE at the start of any exposure period, and removing PPE at the end of any exposure period.</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, when PPE is required by the labeling of any pesticide for early entry, no worker is allowed or directed to perform the early-entry activity without implementing, when appropriate, measures to prevent heat-related illness.</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, during any early-entry activity, the employer provides a decontamination site in accordance with 40 CFR 170.150 (see checklist item PM.20.21.)</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.12.</b> Employers must not permit employees entering treated areas during a restricted-entry interval for short-term activity to wear or take home PPE contaminated with pesticides (40 CFR 170.104(a) and 170.112(c)(9)) <b>[Added July 2000].</b></p> <p><b>PM.20.13.</b> Employees may enter treated areas under a restricted-entry interval in an agricultural emergency if employers meet certain criteria (40 CFR 170.112(d) <b>[Added July 2000].</b></p>	<p>Verify that the employer does not allow or direct any worker to wear home or to take home PPE contaminated with pesticides.</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that any worker who enters a treated area under a restricted-entry interval in an agricultural emergency to perform tasks, including hand labor tasks, necessary to mitigate the effects of the agricultural emergency, does so only if the agricultural employer assures that all the following criteria are met:</p> <ul style="list-style-type: none"> <li>- a state, tribal, or Federal agency having jurisdiction declares the existence of circumstances that could cause an agricultural emergency on that agricultural establishment</li> <li>- the agricultural establishment is subject to circumstances that result in an agricultural emergency (see definition section for "agricultural emergency.")</li> <li>- the requirements of 40 CFR 170.112(c)(3) through (c)(9) (see checklist items PM.20.8 through PM.20.11) are met.</li> </ul>
<p><b>Worker Notification and Training</b></p> <p><b>PM.20.14.</b> Agricultural employers are required to notify workers of pesticide applications in greenhouses (40 CFR 170.104(a), 170.120(a), 172.120(c), and 172.120(d)) <b>[Added July 2000].</b></p>	<p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner of an agricultural establishment who are performing tasks related to the production of agricultural plants on their own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that all pesticide applications are posted as follows:</p> <ul style="list-style-type: none"> <li>- the warning sign has a background color that contrasts with red</li> <li>- the words "DANGER" and "PELIGRO," plus "PESTICIDES" and "PESTICIDAS," are at the top of the sign</li> <li>- the words "KEEP OUT" and "NO ENTRE" are at the bottom of the sign</li> </ul>

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Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
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- letters for all words are clearly legible
- a circle containing an upraised hand on the left and a stern face on the right is near the center of the sign and the following are met:
  - the inside of the circle is red, except that the hand and a large portion of the face is in a shade that contrasts with red
  - the length of the hand is at least twice the height of the smallest letters
  - the length of the face is only slightly smaller than the hand
- the standard sign is at least 14 in. by 16 in. with letters at least 1 in. in height

(NOTE: Additional information may appear on the warning sign if it does not detract from the appearance of the sign or change the meaning of the required information.)

(NOTE: In greenhouses, the agricultural employer may, at any time, use a sign smaller than the standard sign, but when a smaller sign is used, the following are met:

- if a sign is used with DANGER and PELIGRO in letters at least 7/8 in. in height and the remaining letters at least 1/2 in. in height and a red circle at least 3 in. in diameter containing an upraised hand and a stern face, the signs are no further than 50 ft apart
- if a sign is used with DANGER and PELIGRO in letters at least 7/16 in. in height and the remaining letters at least 1/4 in. in height and a red circle at least 1 1/2 in. in diameter containing an upraised hand and a stern face, the signs are no further than 25 ft apart.)

(NOTE: The employer may replace the Spanish portion of the warning sign with a non-English language read by the largest group of workers who do not read English. The replacement sign must be in the same format as the original sign and be visible and legible.)

Verify that, in greenhouses, the signs are posted so they are visible from all usual points of worker entry to the treated area, including each aisle or other walking route that enters the treated area.

Verify that when there are no usual points of worker entry to the treated area, signs are posted in the corners of the treated area, or in any other location affording maximum visibility.

Verify that the signs:

- are posted no sooner than 24 h before the scheduled application of the pesticide



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- remain posted throughout the application and any restricted-entry interval
- are removed within 3 days after the end of the application and any restricted-entry interval and before agricultural-worker entry is permitted, other than entry permitted by 40 CFR 170.112 (see checklist items PM.20.6 through PM.20.13).

Verify that the signs remain visible and legible during the time they are posted.

(NOTE: When several contiguous areas are to be treated with pesticides on a rotating or sequential basis, the entire area may be posted. But, worker entry, other than entry permitted by 40 CFR 170.112 (see checklist items PM.20.6 through PM.20.13), is prohibited for the entire area while the signs are posted.)

Verify that, if the pesticide product labeling has a statement requiring both the posting of treated areas and oral notification to workers, the employer also provides oral notification as follows:

- notification is in a manner that the worker can understand
- if a worker will be on the premises during the application, the warning is given before the application takes place or at the beginning of the worker's first work period during which the application is taking place or the restricted-entry interval for the pesticide is in effect
- the warning consists of:
  - the location and description of the treated area
  - the time during which entry is restricted
  - instructions not to enter the treated area until the restricted-entry interval has expired.

(NOTE: Notice need not be given to a worker if the employer can assure that one of the following is met:

- from the start of the application until the end of the application and during any restricted-entry interval, the worker will not enter, work in, remain in, or pass through the greenhouse
- the worker applied (or supervised the application of) the pesticide for which the notice is intended and is aware of all oral warnings.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.15.</b> Agricultural employers are required to notify workers of pesticide applications on farms, in nurseries, or in forests (40 CFR 170.104(a), 170.120(b), 172.120(c), and 172.120(d)) [Added July 2000].</p>	<p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, if required by the pesticide label, both oral notification is given and signs are posted.</p> <p>(NOTE: For any pesticide other than those for which the labeling requires both posting and oral notification of applications, the agricultural employer shall give notice of the application to the worker either by the posting of warning or orally, and shall inform the workers as to which method of notification is in effect.)</p> <p>Verify that all pesticide applications are posted as follows:</p> <ul style="list-style-type: none"> <li>- the warning sign has a background color that contrasts with red</li> <li>- the words "DANGER" and "PELIGRO," plus "PESTICIDES" and "PESTICIDAS," are at the top of the sign</li> <li>- the words "KEEP OUT" and "NO ENTRE" are at the bottom of the sign</li> <li>- letters for all words are clearly legible</li> <li>- a circle containing an upraised hand on the left and a stern face on the right is near the center of the sign and the following are met: <ul style="list-style-type: none"> <li>- the inside of the circle is red, except that the hand and a large portion of the face is in a shade that contrasts with red</li> <li>- the length of the hand is at least twice the height of the smallest letters</li> <li>- the length of the face is only slightly smaller than the hand</li> </ul> </li> <li>- the standard sign is at least 14 in. by 16 in. with letters at least 1 in. in height</li> </ul> <p>(NOTE: Additional information may appear on the warning sign if it does not detract from the appearance of the sign or change the meaning of the required information.)</p> <p>Verify that farms and forests use the standard size unless a smaller sign is necessary because the treated area is too small to accommodate a sign of at least 14 in. by 16 in.</p> <p>(NOTE: In nurseries, the agricultural employer may, at any time, use a sign smaller than the standard sign, but when a smaller sign is used, the following are met:</p>

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- if a sign is used with DANGER and PELIGRO in letters at least 7/8 in. in height and the remaining letters at least 1/2 in. in height and a red circle at least 3 in. in diameter containing an upraised hand and a stern face, the signs are no further than 50 ft apart
- if a sign is used with DANGER and PELIGRO in letters at least 7/16 in. in height and the remaining letters at least 1/4 in. in height and a red circle at least 1 1/2 in. in diameter containing an upraised hand and a stern face, the signs are no further than 25 ft apart.)

(NOTE: The employer may replace the Spanish portion of the warning sign with a non-English language read by the largest group of workers who do not read English. The replacement sign must be in the same format as the original sign and be visible and legible.)

Verify that, on farms and in forests and nurseries, the signs are visible from all usual points of worker entry to the treated area, including at least all of the following:

- each access road
- each border with any labor camp adjacent to the treated area
- each footpath and other walking route that enters the treated area
- when there are no usual points of worker entry, signs are posted in the corners of the treated area or in any other location affording maximum visibility.

Verify that the signs:

- are posted no sooner than 24 h before the scheduled application of the pesticide
- remain posted throughout the application and any restricted-entry interval
- are removed within 3 days after the end of the application and any restricted-entry interval and before agricultural-worker entry is permitted, other than entry permitted by 40 CFR 170.112 (see checklist items PM.20.6 through PM.20.13).

Verify that the signs remain visible and legible during the time they are posted.

(NOTE: When several contiguous areas are to be treated with pesticides on a rotating or sequential basis, the entire area may be posted. But, worker entry, other than entry permitted by 40 CFR 170.112 (see checklist items PM.20.6 through PM.20.13), is prohibited for the entire area while the signs are posted.)

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**PM.20.16.** Agricultural employers are required to display specific information when a pesticide has been applied on the establishment or a restricted-entry interval has been in effect (40 CFR 170.104(a) and 170.122) [Added July 2000].

Verify that, if the pesticide product labeling has a statement requiring both the posting of treated areas and oral notification to workers, the employer also provides oral notification as follows:

- notification is in a manner that the worker can understand
- if a worker will be on the premises during the application, the warning is given before the application takes place or at the beginning of the worker's first work period during which the application is taking place or the restricted-entry interval for the pesticide is in effect
- the warning consists of:
  - the location and description of the treated area
  - the time during which entry is restricted
  - instructions not to enter the treated area until the restricted-entry interval has expired.

(NOTE: Notice need not be given to a worker if the employer can assure that one of the following is met:

- from the start of the application until the end of the application and during any restricted-entry interval, the worker will not enter, work in, remain in, or pass through on foot the treated area or any area within 1/4 mi of the treated area
- the worker applied (or supervised the application of) the pesticide for which the notice is intended and is aware of all oral warnings.)

(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)

Verify that, if a pesticide has been applied on the establishment or a restricted-entry interval has been in effect within the last 30 days, the following information is displayed:

- the location and description of the treated area
- the product name, USEPA registration number, and active ingredient(s) of the pesticide
- the time and date the pesticide is to be applied
- the restricted-entry interval for the pesticide.

Verify that the information is displayed in the location specified for the pesticide safety poster and is accessible and legible.

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PESTICIDE MANAGEMENT  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.17.</b> Agricultural employers must provide specific information to handler employers (40 CFR 170.124) [Added July 2000].</p> <p><b>PM.20.18.</b> Agricultural employers must provide pesticide safety training for certain workers (40 CFR 170.104(a), 170.130(a), and 170.130(b)) [Added July 2000].</p>	<p>Verify that, if warning signs are posted for the treated area before an application, the specific application information for that application is posted at the same time or earlier.</p> <p>Verify that the required information is posted before the application takes place, if workers will be on the establishment during application or posted at the beginning of any worker's first work period.</p> <p>Verify that the information continues to be displayed for at least 30 days after the end of the restricted-entry interval (or, if there is no restricted-entry interval, for at least 30 days after the end of the application) or at least until workers are no longer on the establishment, whichever is earlier.</p> <p>Verify that, whenever handlers who are employed by a commercial pesticide handling establishment are performing pesticide handling tasks on an agricultural establishment, the employer provides to the handler employer, or assures that the handler employer is aware of, the following information concerning any areas on the agricultural establishment that the handler may be in (or may walk within 1/4 mi of) and that may be treated with a pesticide or that may be under a restricted-entry interval while the handler will be on the agricultural establishment:</p> <ul style="list-style-type: none"> <li>- specific location and description of any such areas</li> <li>- restrictions on entering those areas.</li> </ul> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner of an agricultural establishment who are performing tasks related to the production of agricultural plants on their own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that each worker has been trained during the last 5 yr, counting from the end of the month in which the training was completed.</p> <p>Verify that workers have received safety information training before a worker enters any areas on the agricultural establishment where, within the last 30 days a pesticide has been applied or the restricted-entry interval for such pesticide has been in effect.</p>

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**PM.20.19.** Pesticide safety information training is required to meet specific parameters (40 CFR 172.104(a), 172.130(c), and 172.130(d)) [Added July 2000].

Verify that the pesticide safety information training is done in a manner that agricultural workers can understand, such as by providing written materials, oral communication, or by other means.

Verify that workers are trained before the 6th day that they enter any areas on the agricultural establishment where, within the last 30 days a pesticide has been applied or a restricted-entry interval for such pesticide has been in effect.

(NOTE: The exception to the safety information and 6th day training requirements is that workers are required to be trained before entering a treated area on the agricultural establishment during a restricted-entry interval to perform early-entry activities and contacting anything that has been treated with the pesticide to which the restricted-entry interval applies, including but not limited to, soil, water, or surfaces of plants.)

(NOTE: The following persons need not be trained under this section:

- a worker who is currently certified as an applicator of restricted-use pesticides
- a worker who satisfies the training requirements of 40 CFR 171 (see checklist item PM.5.1 )
- a worker who satisfies the handler training requirements of 40 CFR 170.230(c) (see checklist item PM.120.4)
- a worker who is certified or licensed as a crop advisor by a program acknowledged as appropriate in writing by USEPA or a state or Tribal lead agency for pesticide enforcement, provided that a requirement for such certification or licensing is pesticide safety training that includes the required minimum safety content (see checklist item PM.120.4.)

(NOTE: These requirements do not apply to the owner, or the immediate family of an owner of an agricultural establishment who are performing tasks related to the production of agricultural plants on their own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)

Verify that, at a minimum, the following pesticide safety information is provided:

- pesticides may be on or in plants, soil, irrigation water, or drifting from nearby applications
- prevent pesticides from entering your body by:
  - following directions and/or signs about keeping out of treated or restricted areas

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- washing before eating, drinking, using chewing gum or tobacco, or using the toilet
- wearing work clothing that protects the body from pesticide residues
- washing/showering with soap and water, shampoo hair, and put on clean clothes after work
- washing work clothes separately from other clothes before wearing them again
- washing immediately in the nearest clean water if pesticides are spilled or sprayed on the body
- as soon as possible, shower, shampoo, and change into clean clothes
- further training is provided within 5 days

Verify that general pesticide safety information is presented to workers either orally from written materials or audiovisually such that:

- the information is presented in a manner that the workers can understand (such as through a translator) using nontechnical terms
- the presenter responds to workers' questions.

Verify that the person who conducts the training meets at least one of the following criteria:

- is currently certified as an applicator of restricted-use pesticides
- is currently designated as a trainer of certified applicators or pesticide handlers by a state, Federal, or tribal agency having jurisdiction
- has completed a pesticide safety train-the-trainer program approved by a state, Federal, or tribal agency having jurisdiction
- satisfies the training requirements in 40 CFR 171 (see checklist item PM.5.1) or in 40 CFR 170.230(c) (see checklist item PM.120.4)

Verify that the worker who receives an USEPA-approved Worker Protection Standard worker training certificate has been trained in accordance with 40 CFR 170.130(c)(4).

Verify that training materials convey, at a minimum, the following information:

- where and in what form pesticides may be encountered during work activities
- hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.20.</b> Agricultural employers must post certain pesticide safety information when pesticides have been applied or a restricted-entry interval has been in effect (40 CFR 170.104(a) and 170.135) [Added July 2000].</p>	<ul style="list-style-type: none"> <li>- routes through which pesticides can enter the body</li> <li>- signs and symptoms of common types of pesticide poisoning</li> <li>- emergency first aid for pesticide injuries or poisonings</li> <li>- how to obtain emergency medical care</li> <li>- routine and emergency decontamination procedures, including emergency eyeflushing techniques</li> <li>- hazards from chemigation and drift</li> <li>- hazards from pesticide residues on clothing</li> <li>- warnings about taking pesticides or pesticide containers home</li> <li>- requirements of 40 CFR 170.102 through 40 CFR 170.160 designed to reduce the risks of illness or injury resulting from workers' occupational exposure to pesticides, including:               <ul style="list-style-type: none"> <li>- application and entry restrictions</li> <li>- the design of the warning sign</li> <li>- posting of warning signs</li> <li>- oral warnings</li> <li>- the availability of specific information about applications, and the protection against retaliatory acts.</li> </ul> </li> </ul> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, when workers are on an agricultural establishment and, within the last 30 days a pesticide has been applied on the establishment or a restricted-entry interval has been in effect, the agricultural employer displays pesticide safety information.</p> <p>Verify that a safety poster is displayed that conveys, at a minimum, the following basic pesticide safety concepts:</p> <ul style="list-style-type: none"> <li>- help keep pesticides from entering your body, at a minimum, the following points are conveyed:               <ul style="list-style-type: none"> <li>- avoid getting on your skin or into your body any pesticides that may be on plants and soil, in irrigation water, or drifting from nearby applications</li> <li>- wash before eating, drinking, using chewing gum or tobacco, or using the toilet</li> <li>- wear work clothing that protects the body from pesticide residues (long-sleeved shirts, long pants, shoes and socks, and a hat or scarf)</li> <li>- wash/shower with soap and water, shampoo hair, and put on clean clothes after work</li> </ul> </li> </ul>



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- wash work clothes separately from other clothes before wearing them again
- wash immediately in the nearest clean water if pesticides are spilled or sprayed on the body
- as soon as possible, shower, shampoo, and change into clean clothes
- follow directions about keeping out of treated or restricted areas
- there are Federal rules to protect workers and handlers, including a requirement for safety training.

Verify that the name, address, and telephone number of the nearest emergency medical care facility is on the safety poster or displayed close to the safety poster.

Verify that the employer informs workers promptly of any change to the information on emergency medical care facilities.

Verify that the pesticide safety information is displayed in a central location on the farm or in the nursery or greenhouse where it can be readily seen and read by workers.

Verify that the pesticide safety information is displayed in a location in or near the forest in a place where it can be readily seen and read by workers and where workers are likely to congregate or pass by, such as at a decontamination site or an equipment storage site.

Verify that workers are informed of the location of the pesticide safety information and are allowed access to it.

Verify that the pesticide safety information remains legible during the time it is posted.

**Operations**

**PM.20.21.** Agricultural employers must provide decontamination supplies that satisfy certain requirements (40 CFR 170.104(a) and 170.150) [Added July 2000].

(NOTE: These requirements do not apply to the owner, or the immediate family of an owner of an agricultural establishment who are performing tasks related to the production of agricultural plants on their own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)

Verify that the agricultural employer provides decontamination supplies for workers whenever the following conditions are met:

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- any worker on the agricultural establishment is performing an activity in the area where a pesticide was applied or a restricted-entry interval (REI) was in effect within the last 30 days</li> <li>- the worker contacts anything that has been treated with the pesticide, including, but not limited to soil, water, plants, plant surfaces, and plant parts.</li> </ul> <p>(NOTE: The 30-day time period does not apply if the only pesticides used in the treated area are products with an REI of 4 h or less on the label (but not a product without an REI on the label).)</p> <p>Verify that, the agricultural employer provides decontamination supplies for not less than 7 days following the expiration of any applicable REI when workers are in treated areas where the only pesticides used are products with an REI of 4 h or less on the label.</p> <p>Verify that the agricultural employer provides workers with enough water for routine washing and emergency eyeflushing.</p> <p>Verify that, at all times when water is available to workers, it is of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.</p> <p>Verify that, when water stored in a tank is to be used for mixing pesticides, it is not used for decontamination or eyeflushing, unless the tank is equipped with properly functioning valves or other mechanisms that prevent movement of pesticides into the tank.</p> <p>Verify that the agricultural employer provides soap and single-use towels in quantities sufficient to meet worker's needs.</p> <p>Verify that, for emergency eyeflushing, the agricultural employer provides at least 1 pint of water which is immediately available to each worker who is performing permitted early-entry activities and for which the pesticide labeling requires protective eyewear.</p> <p>Verify that the eyeflush water is carried by the early-entry worker, or is on the vehicle the early-entry worker is using, or is otherwise immediately accessible.</p> <p>Verify that the decontamination supplies are located together and are reasonably accessible to and not more than 1/4 mi from where workers are working.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.22.</b> Agricultural employers must provide assistance to workers who have been poisoned or injured by exposure to pesticides use (40 CFR 170.104(a) and 170.160) [Added July 2000].</p>	<p>Verify that the decontamination supplies are not maintained in an area being treated with pesticides.</p> <p>Verify that the decontamination supplies are not maintained in an area that is under a REI, unless the workers for whom the supplies are provided are performing permitted early-entry activities and involving contact with treated surfaces and the decontamination supplies would otherwise not be reasonably accessible to those workers.</p> <p>Verify that, at the end of any exposure period for workers engaged in permitted early-entry activities and involving contact with anything that has been treated with the pesticide to which the REI applies, including, but not limited to, soil, water, air, or surfaces of plants, the agricultural employer provides, at the site where the workers remove PPE, soap, clean towels, and a sufficient amount of water so that the workers may wash thoroughly.</p> <p>(NOTE: For worker activities performed more than 1/4 mi from the nearest place of vehicular access:</p> <ul style="list-style-type: none"> <li>-the soap, single-use towels, and water may be at the nearest place of vehicular access</li> <li>-the agricultural employer may permit workers to use clean water from springs, streams, lakes, or other sources for decontamination at the remote work site, if such water is more accessible than the water located at the nearest place of vehicular access.)</li> </ul> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, if there is reason to believe that a person who is or has been employed on an agricultural establishment to perform tasks related to the production of agricultural plants has been poisoned or injured by exposure to pesticides used on the agricultural establishment, including, but not limited to, exposures from application, splash, spill, drift, or pesticide residues, the agricultural employer:</p> <ul style="list-style-type: none"> <li>-makes available to that person prompt transportation from the agricultural establishment, including any labor camp on the agricultural establishment, to an appropriate emergency medical facility</li> </ul>

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**Pesticide Handlers**

- provides to that person, or to treating medical personnel, promptly upon request, any obtainable information on:
  - product name, USEPA registration number, and active ingredients of any product to which that person might have been exposed
  - antidote, first aid, and other medical information from the
  - product labeling
  - the circumstances of application or use of the pesticide on the agricultural establishment
  - the circumstances of exposure of that person to the pesticide

(NOTE: The requirements for pesticide handlers do not apply when any pesticide is applied on an agricultural establishment in the following circumstances:

- for mosquito abatement, Mediterranean fruit fly eradication, or similar wide-area public pest control programs sponsored by governmental entities
- on livestock or other animals, or in or about animal premises
- on plants grown for other than commercial or research purposes, which may include plants in habitations, home fruit and vegetable gardens, and home greenhouses
- on plants that are in ornamental gardens, parks, and public or private lawns and grounds and that are intended only for aesthetic purposes or climatic modification
- in a manner not directly related to the production of agricultural plants, including, but not limited to, structural pest control, control of vegetation along rights-of-way and in other noncrop areas, and pasture and rangeland use
- for control of vertebrate pests
- as attractants or repellents in traps
- on the harvested portions of agricultural plants or on harvested timber
- for research uses of unregistered pesticides.)

**PM.20.23.** Handler employers and handlers are required to take certain precautions during pesticide applications (40 CFR 170.204(a) and 170.210) [Added July 2000].

Verify that the handler employer and the handler do not apply pesticides so as to contact, either directly or through drift, any worker or other person, other than an appropriately trained and equipped handler.

Verify that, any handler who is performing any handling activity with a product that has the skull and crossbones symbol on the front panel of the label is monitored visually or by voice communication at least every 2 h.

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PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.24.</b> Handler employers must provide specific information about pesticide applications (40 CFR 170.204(a) and 170.222) [Added July 2000].</p>	<p>Verify that any handler who handles a fumigant in a greenhouse, including a handler who enters the greenhouse before the acceptable inhalation exposure level or ventilation criteria have been met, to monitor air levels or to initiate ventilation, maintains continuous visual or voice contact with another handler.</p> <p>Verify that the other handler present during applications in a greenhouse has immediate access to the PPE required by the fumigant labeling for handlers in the event entry into the fumigated greenhouse becomes necessary for rescue.</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, when handlers (except those employed by a commercial pesticide handling establishment) are on an agricultural establishment, and a pesticide has been applied on the establishment within the last 30 days, or a restricted-entry interval has been in effect, the handler employer displays information about the pesticide.</p> <p>Verify that the information is displayed in the same location as the safety poster and accessible and legible.</p> <p>Verify that, if warning signs are posted for the treated area before an application, the specific application information for that application is posted at the same time or earlier.</p> <p>Verify that the information is posted before the application takes place, if handlers (except those employed by a commercial pesticide handling establishment) will be on the establishment during application, or posted at the beginning of any such handler's first work period</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.25.</b> Handler employers must provide certain information to agricultural employers prior to pesticide applications (40 CFR 170.224) [Added July 2000].</p> <p><b>PM.20.26.</b> Handlers must satisfy certain safety training prior to performing handling tasks (40 CFR 170.204(a) and 170.230) [Added July 2000].</p>	<p>Verify that the information is displayed for at least 30 days after the end of the restricted-entry interval (or, if there is no restricted-entry interval, for at least 30 days after the end of the application) or at least until the handlers are no longer on the establishment, whichever is earlier.</p> <p>Verify that the displayed information includes all of the following:</p> <ul style="list-style-type: none"> <li>- the location and description of the treated area</li> <li>- the product name, USEPA registration number, and active ingredient(s) of the pesticide</li> <li>- the time and date the pesticide is to be applied</li> <li>- the restricted-entry interval for the pesticide</li> </ul> <p>Verify that, before the application of any pesticide on or in an agricultural establishment, the handler employer provides the following information to any agricultural employer for the establishment or assures that any agricultural employer is aware of:</p> <ul style="list-style-type: none"> <li>- specific location and description of the treated area</li> <li>- time and date of application</li> <li>- product name, USEPA registration number, and active ingredient(s)</li> <li>- restricted-entry interval</li> <li>- whether posting and oral notification are required</li> <li>- any other product-specific requirements on the product labeling concerning protection of workers or other persons during or after application</li> </ul> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, before any handler performs any handling task, that handler has been trained during the last 5 yr, counting from the end of the month in which the training was completed.</p> <p>Verify that general pesticide safety information is presented to handlers either orally from written materials or audiovisually.</p> <ul style="list-style-type: none"> <li>- the information is presented in a manner that the handlers can understand (such as through a translator)</li> </ul>

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	<ul style="list-style-type: none"> <li>- the presenter responds to handlers' questions.</li> </ul> <p>Verify that the person who conducts the training meets at least one of the following criteria:</p> <ul style="list-style-type: none"> <li>- is currently certified as an applicator of restricted-use pesticides under 40 CFR 171 (see checklist item PM.5.1)</li> <li>- is currently designated as a trainer of certified applicators or pesticide handlers by a state, Federal, or tribal agency having jurisdiction</li> <li>- has completed a pesticide safety train-the-trainer program approved by a state, Federal, or tribal agency having jurisdiction</li> </ul> <p>Verify that the pesticide safety training materials conveys, at a minimum, the following information:</p> <ul style="list-style-type: none"> <li>- format and meaning of information contained on pesticide labels and in labeling, including safety information such as precautionary statements about human health hazards</li> <li>- hazards of pesticides resulting from toxicity and exposure, including acute and chronic effects, delayed effects, and sensitization</li> <li>- routes by which pesticides can enter the body</li> <li>- signs and symptoms of common types of pesticide poisoning</li> <li>- emergency first aid for pesticide injuries or poisonings</li> <li>- how to obtain emergency medical care</li> <li>- routine and emergency decontamination procedures</li> <li>- need for and appropriate use of PPE</li> <li>- prevention, recognition, and first aid treatment of heat-related illness</li> <li>- safety requirements for handling, transporting, storing, and disposing of pesticides, including general procedures for spill cleanup</li> <li>- environmental concerns such as drift, runoff, and wildlife hazards</li> <li>- warnings about taking pesticides or pesticide containers home</li> <li>- requirements of this 40 CFR 170.202 through 40 CFR 170.260 that must be followed by handler employers for the protection of handlers and other persons, including the prohibition against applying pesticides in a manner that will cause contact with workers or other persons, the requirement to use PPE, the provisions for training and decontamination, and the protection against retaliatory acts.</li> </ul>

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**PM.20.27.** The handler employer is required to assure that prior to the handler performing any handling activity, the handler either has read the product labeling or has been informed of all labeling requirements related to safe use of the pesticide (40 CFR 170.204(a) and 170.232) [Added July 2000].

(NOTE: The following persons need not be trained:

- a handler who is currently certified as an applicator of restricted-use pesticides under 40 CFR 171 (see checklist item PM.5.1)
- a handler who satisfies the training requirements of 40 CFR 171 (see checklist item PM.5.1)
- a handler who is certified or licensed as a crop advisor by a program acknowledged as appropriate in writing by USEPA or a state or tribal lead agency for pesticide enforcement, provided that a requirement for such certification or licensing is pesticide safety training that includes the required minimum safety content.)

(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)

Verify that the handler employer assures that, before the handler performs any handling activity, the handler either has read the product labeling or has been informed in a manner the handler can understand of all labeling requirements related to safe use of the pesticide, such as signal words, human hazard precautions, PPE requirements, first aid instructions, environmental precautions, and any additional precautions pertaining to the handling activity to be performed.

Verify that the handler employer assures that the handler has access to the product labeling information during handling activities.

(NOTE: Whenever a handler who is employed by a commercial pesticide handling establishment will be performing pesticide handling tasks on an agricultural establishment, the handler employer shall assure that the handler is aware of the following information concerning any areas on the agricultural establishment that the handler may be in (or may walk within 1/4 mi of) and that may be treated with a pesticide or that may be under a REI while the handler will be on the agricultural establishment:

- specific location and description of any such areas
- restrictions on entering those areas.)



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.28.</b> The handler employer is required to assure that before the handler uses any equipment, the handler is instructed in the safe operation of the equipment (40 CFR 170.204(a) and 170.234) [Added July 2000].</p>	<p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that the handler employer assures that, before the handler uses any equipment for mixing, loading, transferring, or applying pesticides, the handler is instructed in the safe operation of such equipment, including, when relevant, chemigation safety requirements and drift avoidance.</p> <p>Verify that, before each day of use, equipment used for mixing, loading, transferring, or applying pesticides is inspected for leaks, clogging, and worn or damaged parts, and any damaged equipment is repaired or is replaced.</p> <p>Verify that, before allowing any person to repair, clean, or adjust equipment that has been used to mix, load, transfer, or apply pesticides, the handler employer ensures that pesticide residues have been removed from the equipment.</p> <p>(NOTE: The requirement for pesticide residues to be removed from equipment does not apply if the person doing the cleaning, repairing, or adjusting is a handler employed by the agricultural or commercial pesticide handling establishment.)</p> <p>Verify that, if pesticide residue removal is not feasible, the person who repairs, cleans, or adjusts the equipment is informed:</p> <ul style="list-style-type: none"> <li>- equipment may be contaminated with pesticides</li> <li>- of the potentially harmful effects of exposure to pesticides</li> <li>- of the correct way to handle such equipment.</li> </ul>
<p><b>PM.20.29.</b> Handler employers are required to display certain safety information (40 CFR 170.204(a) and 170.235) [Added July 2000].</p>	<p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, when handlers (except those employed by a commercial pesticide handling establishment) are on an agricultural establishment</p>

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and, within the last 30 days, a pesticide has been applied on the establishment or a restricted-entry interval has been in effect, the handler employer displays required pesticide safety information.

Verify that a safety poster is displayed that conveys, at a minimum, the following basic pesticide safety concepts:

- help keep pesticides from entering your body, at a minimum, the following points are conveyed:
  - avoid getting on your skin or into your body any pesticides that may be on plants and soil, in irrigation water, or drifting from nearby applications
  - wash before eating, drinking, using chewing gum or tobacco, or using the toilet
  - wear work clothing that protects the body from pesticide residues (long-sleeved shirts, long pants, shoes and socks, and a hat or scarf)
  - wash/shower with soap and water, shampoo hair, and put on clean clothes after work
  - wash work clothes separately from other clothes before wearing them again
  - wash immediately in the nearest clean water if pesticides are spilled or sprayed on the body
  - as soon as possible, shower, shampoo, and change into clean clothes
  - follow directions about keeping out of treated or restricted areas
- there are federal rules to protect workers and handlers, including a requirement for safety training.

Verify that the name, address, and telephone number of the nearest emergency medical care facility is on the safety poster or displayed close to the safety poster.

Verify that the handler employer informs workers promptly of any change to the information on emergency medical care facilities.

Verify that the pesticide safety information is displayed in a central location on the farm or in the nursery or greenhouse where it can be readily seen and read by handlers.

Verify that the pesticide safety information is displayed in a location in or near the forest in a place where it can be readily seen and read by workers and where workers are likely to congregate or pass by, such as at a decontamination site or an equipment storage site.

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.30.</b> Pesticide handlers are required to use the clothing and PPE specified on the labeling for use of a product (40 CFR 170.204(a) and 170.240) [Added July 2000].</p>	<p>Verify that handlers are informed of the location of the pesticide safety information and are allowed access to it.</p> <p>Verify that the pesticide safety information remains legible during the time it is posted.</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that the PPE conforms to the following standards:</p> <ul style="list-style-type: none"> <li>- when "chemical-resistant" PPE is specified, it is made of material that allows no measurable movement of the pesticide the material during use</li> <li>- when "waterproof" PPE is specified, it is made of material that allows no measurable movement of water or aqueous solutions through the material during use</li> <li>- when "chemical-resistant suit" is specified, it is loose-fitting, one- or two-piece, chemical resistant garment that covers, at a minimum, the entire body except head, hands, and feet</li> <li>- when "coveralls" are specified, they are a loose-fitting, one- or two-piece garment, such a cotton or cotton and polyester coverall, that cover, at a minimum, the entire body except head, hands, and feet</li> <li>- gloves are of the type specified by the product label</li> <li>- when "chemical-resistant footwear" is specified it is a chemical-resistant shoe, boot, or shoe coverings worn over shoes or boots</li> <li>- when "protective eyewear" is specified, it is a goggle; face shield; safety glasses with front, brow, and temple protection; or a full-face respirator</li> <li>- when a "chemically-resistant apron" is specified, it is an apron that covers the front of the body from mid-chest to the knees</li> <li>- when a respirator is specified, it is appropriate for the product used and the activity to be performed</li> <li>- when "chemical-resistant headgear" is specified, it is a chemical-resistant hood or hat with a wide brim.</li> </ul> <p>(NOTE: Long-sleeved shirts, short-sleeved shirts, long pants, short pants, shoes, socks, and other items of work clothing are not considered PPE in this instance and are not subject to these requirements.)</p>

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(NOTE: The pesticide product labeling may specify that the coveralls be worn over a layer of clothing. If a chemical-resistant suit is substituted for coveralls, it need not be worn over a layer of clothing. If chemical-resistant footwear with sufficient durability and a tread appropriate for wear in rough terrain is not obtainable for workers, then leather boots may be worn in such terrain.)

Verify that gloves or glove linings made of leather, cotton, or other absorbent material are not worn for handling activity unless they are listed on the product labeled as acceptable for use.

(NOTE: If chemical-resistant gloves with sufficient durability and suppleness are not obtainable for tasks with roses or other plants with sharp thorns, leather gloves may be worn over chemical-resistant liners.)

Verify that once leather gloves have been worn for tasks with roses or other plants with sharp thorns, they are thereafter worn only with chemical-resistant liners and not for any other use.

(NOTE: If handling tasks are performed using properly functioning systems that enclose the pesticide to prevent it from contacting handlers or other persons, and if such systems are used and are maintained in accordance with that manufacturer's written operating instructions, exceptions to labeling-specified PPE for the handling activity are permitted as follows:

- persons using a closed system to mix or load pesticides with a signal word of DANGER or WARNING may substitute a long-sleeved shirt, long pants, shoes, socks, chemical-resistant apron, and any protective gloves specified on the labeling for handlers for the labeling-specified PPE
- persons using a closed system to mix or load pesticides other than those with a signal word of DANGER or WARNING, or to perform other handling tasks may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified PPE.)

Verify that persons using a closed system that operates under pressure wear protective eyewear.

Verify that persons using a closed system have all labeling-specified PPE immediately available for use in an emergency.

(NOTE: If handling tasks are performed from inside a cab that has a nonporous barrier which totally surrounds the occupants of the cab and prevents contact with pesticides outside of the cab, exceptions to PPE

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specified on the product labeling for that handling activity are permitted as follows:

- persons occupying an enclosed cab may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified PPE. If a respiratory protection device is specified on the pesticide product labeling for the handling activity, it must be worn
- persons occupying an enclosed cab that has a properly functioning ventilation system which is used and maintained in accordance with the manufacturer's written operating instructions and which is declared in writing by the manufacturer or by a governmental agency to provide respiratory protection equivalent to or greater than a dust/mist filtering respirator may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified PPE. If a respiratory protection device other than a dust/mist-filtering respirator is specified on the pesticide product labeling, it must be worn
- persons occupying an enclosed cab that has a properly functioning ventilation system which is used and maintained in accordance with the manufacturer's written operating instructions and which is declared in writing by the manufacturer or by a governmental agency to provide respiratory protection equivalent to or greater than the vapor- or gas-removing respirator specified on pesticide product labeling may substitute a long-sleeved shirt, long pants, shoes, and socks for the labeling-specified PPE. If an air-supplying respirator or a self-contained breathing apparatus (SCBA) is specified on the pesticide product labeling, it must be worn
- persons occupying an enclosed cab shall have all labeling-specified PPE immediately available and stored in a chemical-resistant container, such as a plastic bag. They shall wear such PPE if it is necessary to exit the cab and contact pesticide-treated surfaces in the treated area. Once PPE is worn in the treated area, it must be removed before reentering the cab.)

Verify that chemical-resistant gloves are worn when entering or leaving an aircraft contaminated by pesticide residues.

Verify that, in the cockpit, the gloves are kept in an enclosed container to prevent contamination of the inside of the cockpit.

Verify that persons occupying an open cockpit use the PPE specified in the product labeling for use during application, except that chemical-resistant footwear need not be worn.

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(NOTE: For aerial applications, a helmet may be substituted for chemical-resistant headgear and a visor may be substituted for protective eyewear.)

(NOTE: Persons occupying an enclosed cockpit may substitute a long-sleeved shirt, long pants, shoes, and socks for labeling-specified PPE.)

Verify that, if crop advisors entering treated areas while a restricted-entry interval is in effect wear the PPE specified on the pesticide labeling for early-entry activities instead of the PPE specified on the pesticide labeling for handling activities, the following are met:

- application has been completed for at least 4 h
- any inhalation exposure level listed in the labeling has been reached or any ventilation criteria established in the labeling have been met.

Verify that the handler employer assures that PPE is used correctly for its intended purpose and is used according to the manufacturer's instructions.

Verify that, before each day of use, all PPE is inspected for leaks, holes, tears, or worn places, and any damaged equipment is repaired or discarded.

Verify that all PPE is cleaned according to the manufacturer's instructions or pesticide product labeling instructions before each day of reuse.

(NOTE: In the absence of any manufacturer's instructions, PPE shall be washed thoroughly in detergent and hot water.)

Verify that, if any PPE cannot be cleaned properly, the handler employer disposes of the PPE in accordance with any applicable Federal, state, and local regulations.

(NOTE: Coveralls or other absorbent materials that have been drenched or heavily contaminated with an undiluted pesticide that has the signal word DANGER or WARNING on the label shall be not be reused.)

Verify that contaminated PPE is kept separately and washed separately from any other clothing or laundry.

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	<p>Verify that all clean personal PPE is either dried thoroughly before being stored or is put in a well-ventilated place to dry.</p> <p>Verify that all PPE is stored separately from personal clothing and apart from pesticide-contaminated areas.</p> <p>Verify that, when dust/mist filtering respirators are used, the filters are replaced:</p> <ul style="list-style-type: none"> <li>- when breathing resistance becomes excessive</li> <li>- when the filter element has physical damage or tears</li> <li>- according to manufacturer's recommendations or pesticide product labeling, whichever is more frequent</li> <li>- in the absence of any other instructions or indications of service life, at the end of each day's work period.</li> </ul> <p>Verify that, when gas- or vapor-removing respirators are used, the gas- or vapor-removing canisters or cartridges are replaced:</p> <ul style="list-style-type: none"> <li>- at the first indication of odor, taste, or irritation</li> <li>- according to manufacturer's recommendations or pesticide product labeling, whichever is more frequent</li> <li>- in the absence of any other instructions or indications of service life, at the end of each day's work period.</li> </ul> <p>Verify that the handler employer informs any person who cleans or launders PPE:</p> <ul style="list-style-type: none"> <li>- such equipment may be contaminated with pesticides</li> <li>- of the potentially harmful effects of exposure to pesticides</li> <li>- of the correct way(s) to clean PPE and to protect themselves when handling such equipment.</li> </ul> <p>Verify that handlers have a clean place away from pesticide storage and pesticide use areas where they may:</p> <ul style="list-style-type: none"> <li>- store personal clothing not in use</li> <li>- put on PPE at the start of any exposure period</li> <li>- remove PPE at the end of any exposure period.</li> </ul> <p>Verify that the handler employer does not allow or direct any handler to wear home or to take home PPE contaminated with pesticides.</p> <p>Verify that, when the use of PPE is specified by the labeling of any pesticide for the handling activity, the handler employer assures that no</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.31.</b> Appropriate decontamination supplies are required to be provided during handling activity (40 CFR 170.204(a) and 170.250) [Added July 2000].</p>	<p>handler is allowed or directed to perform the handling activity unless appropriate measures are taken, if necessary, to prevent heat-related illness.</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that the handler employer provides for handlers' decontamination supplies for washing off pesticides and pesticide residues.</p> <p>Verify that handlers are provided with enough water for routine washing, for emergency eyeflushing, and for washing the entire body in case of an emergency.</p> <p>Verify that, at all times when the water is available to handlers, it is of a quality and temperature that will not cause illness or injury when it contacts the skin or eyes or if it is swallowed.</p> <p>Verify that when water stored in a tank is to be used for mixing pesticides, it is not used for decontamination or eye flushing, unless the tank is equipped with properly functioning valves or other mechanisms that prevent movement of pesticides into the tank.</p> <p>Verify that the handler employer provides the following:</p> <ul style="list-style-type: none"> <li>- soap and single-use towels in quantities sufficient to meet handlers' needs</li> <li>- one clean change of clothing, such as coveralls, for use in an emergency.</li> </ul> <p>Verify that decontamination supplies are located together and are reasonably accessible to and not more than 1/4 mi from each handler during the handling activity.</p> <p>(NOTE: The following are exceptions for supply location:</p> <ul style="list-style-type: none"> <li>- for mixing activities, decontamination supplies shall be at the mixing site</li> <li>- decontamination supplies for a pilot who is applying pesticides aerially is in the airplane or at the aircraft loading site</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.20.32.</b> Handler employers are required to take certain actions to provide emergency assistance (40 CFR 170.04(a) and 170.260) [Added July 2000].</p>	<ul style="list-style-type: none"> <li>- when handling activities are performed more than 1/4 mi from the nearest place of vehicular access:               <ul style="list-style-type: none"> <li>- the soap, single-use towels, clean change of clothing, and water may be at the nearest place of vehicular access</li> <li>- the handler employer may permit handlers to use clean water from springs, streams, lakes, or other sources for decontamination at the remote work site, if such water is more accessible than the water located at the nearest place of vehicular access.</li> </ul> </li> </ul> <p>Verify that the decontamination supplies are not in an area being treated with pesticides or in an area under a restricted-entry interval, unless:</p> <ul style="list-style-type: none"> <li>- the decontamination supplies are in the area where the handler is performing handling activities</li> <li>- the soap, single-use towels, and clean change of clothing are in enclosed containers</li> <li>- the water is running tap water or is enclosed in a container.</li> </ul> <p>(NOTE: To provide for emergency eyeflushing, the handler employer shall assure that at least 1 pint of water is immediately available to each handler who is performing tasks for which the pesticide labeling requires protective eyewear. The eyeflush water shall be carried by the handler, or shall be on the vehicle or aircraft the handler is using, or shall be otherwise immediately accessible.)</p> <p>Verify that, at the end of any exposure period, the handler employer provides, at the site where handlers remove PPE, soap, clean towels, and a sufficient amount of water so that the handlers may wash thoroughly.</p> <p>(NOTE: These requirements do not apply to the owner, or the immediate family of an owner, of an agricultural establishment who is performing tasks related to the production of agricultural plants on his/her own agricultural establishment. But, this protection must be provided to other workers and members who are not members of the immediate family.)</p> <p>Verify that, if there is reason to believe that a person who is or has been employed by an agricultural establishment or commercial pesticide handling establishment to perform pesticide handling tasks has been poisoned or injured by exposure to pesticides as a result of that employment, including, but not limited to, exposures from handling</p>

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tasks or from application, splash, spill, drift, or pesticide residues, the handler employer:

- makes available to that person prompt transportation from the place of employment or the handling site to an appropriate emergency medical facility
- provides to that person or to treating medical personnel, promptly upon request, any obtainable information on:
  - product name, USEPA registration number, and active ingredients of any product to which that person might have been exposed
  - antidote, first aid, and other medical information from the product labeling
  - the circumstances of handling of the pesticide
  - the circumstances of exposure of that person to the pesticide.

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<b>REGULATORY  REQUIREMENTS:</b>	<b>REVIEWER CHECKS:  SEPTEMBER 2000</b>
<b>PESTICIDE APPLICATION</b>  <b>PM.35  Dining Facilities</b>  <b>PM.35.1.</b> Dining facilities should be notified at least 24 h in advance of a pesticide application (MP).	Verify that food services personnel are notified of scheduled applications.



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**PESTICIDE APPLICATION**

**PM.45  
Documentation**

**PM.45.1.** Certified applicators of restricted-use pesticides are required to keep application records (7 CFR 110.3).

Verify that the certified applicators keep records with the following information:

- the brand or product name and the USEPA registration number of the restricted-use pesticide that was applied
- the total amount of the restricted-use pesticide that was applied
- the location of the application, the size of the area treated, and the crop, commodity, stored product, or site to which a restricted-use pesticide was applied
- the month, day, and year of the application
- the name and certification number of the certified applicator who applied to supervised the application.

Verify that the following information is kept for applications of restricted-use pesticides made on the same day in a total areas of less than one-tenth of an acre:

- brand or product name and USEPA registration number
- total amount applied
- location, designated as spot application followed by a concise description of location and treatment
- the month, day, and year of application.

Verify that the information is recorded within 14 days of the application.

Verify that these application records are retained for 2 yr.

Verify that commercial applicators provides a copy of the records to the facility within 30 days.

(NOTE: State and local standards may differ for this requirement.)

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**PM.45.2.** Records should be maintained of each application of a pesticide, whether performed by facility staff or contract labor, and retained at the facility (MP).

Verify that records are kept on file for a minimum of 2 yr.

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>STORAGE/MIXING/ PREPARATION AREAS</b></p> <p><b>PM.47 General</b></p> <p><b>PM.47.1.</b> Facilities should store any pesticide, pesticide container, or pesticide residue according to specific restrictions (MP).</p> <p><b>PM.47.2.</b> Security measures should assure that only authorized persons can access pesticide storage, mixing, and preparation areas (MP).</p> <p><b>PM.47.3.</b> Pesticide storage, mixing, and preparation facilities must provide facilities and procedures to ensure safety of personnel (29 CFR 1910.133 and 1910.134) [December 1997].</p>	<p>(NOTE: Storage areas must also meet the general requirements for the storage of hazardous materials found in 29 CFR 1910.106, see Section 3, Hazardous Materials Management.)</p> <p>Verify that pesticides, pesticide containers, and/or pesticide residues are stored such that it is not inconsistent with labeling.</p> <p>(NOTE: This recommendation is a requirement under OSHA, see <i>Hazardous Materials Management</i>.)</p> <p>Verify that a climb-resistant fence completely encloses the storage, mixing, or preparation area.</p> <p>Verify that vehicles used to transport pesticides have locking compartments.</p> <p>Determine if a ventilation system is specifically provided for all indoor pesticide mixing/preparation areas.</p> <p>Verify that personal protective clothing and equipment is provided and used by pest management personnel. The following equipment depends upon magnitude and type of operations:</p> <ul style="list-style-type: none"> <li>- respirators</li> <li>- masks</li> <li>- gloves</li> <li>- safety shoes</li> <li>- coveralls</li> <li>- specialized personal protective equipment for fumigation.</li> </ul> <p>Verify that operations include health and safety procedures emphasizing good work habits, reduction or elimination of hazards, and use of personal protective equipment.</p>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.47.4.</b> A spill containment system constructed of impervious materials should provide containment for pesticide storage, mixing, preparation and management areas (MP).</p>	<p>Verify that there is curbing around the required areas.</p> <p>Determine if there are drains or cracks in floors.</p> <p>Determine if pest management shop personnel are familiar with spill response procedures.</p> <p>Verify that spill response procedures are written and understood by staff.</p>
<p><b>PM.47.5.</b> Storage facilities for pesticides should have ventilation at a rate of 10 air changes/hour (MP).</p>	<p>Verify that storage facilities for pesticides have ventilation at a rate of 10 air changes/hour.</p>
<p><b>PM.47.6.</b> Storage facilities for pesticides should have separate drainage systems and fire extinguishers (MP).</p>	<p>Verify that fire extinguishers are installed near the door of pesticide storage rooms.</p> <p>Verify that the drainage systems are separated from the regular systems.</p> <p>Verify that the drainage systems are separate from storm and sanitary sewers.</p>
<p><b>PM.47.7.</b> Pesticide storage areas should be inspected quarterly by certified applicator personnel and safety and fire prevention officer (MP).</p>	<p>Verify that pesticide storage areas are inspected quarterly.</p>
<p><b>PM.47.8.</b> An emergency deluge shower and/or eyewash station should be available in the pesticide storage, mixing, and preparation area (MP) [Added March 1998].</p>	<p>Verify that an emergency deluge shower and/or eyewash station are available in the pesticide storage, mixing, and preparation area.</p>



**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**PM.47.9.** Facilities with personnel exposed to injurious corrosive materials must have emergency use facilities available (29 CFR 1910.151(c)) [Added July 1999].

Verify that, where the eyes and body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body are provided within the work area for immediate emergency use.



**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>STORAGE, MIXING, PREPARATION AREAS</b></p> <p><b>PM.48 Highly and Moderately Toxic Pesticides</b></p> <p><b>PM.48.1.</b> Storage facilities for pesticides and excess pesticides classed as highly toxic or moderately toxic and are required to be labeled with DANGER, POISON, WARNING, or the skull and cross bones symbol should meet specific structural requirements (MP).</p> <p><b>PM.48.2.</b> The storage of pesticides and excess pesticides classed as highly toxic or moderately toxic and are required to be labeled with DANGER, POISON, WARNING, or the skull and cross bones symbol should meet specific operational requirements (MP).</p>	<p>Verify that storage is in a dry, separate room, building, or covered area where fire protection is provided.</p> <p>Verify that, when relevant and practicable, the entire storage facility is secured by a climb-proof fence and the doors and gates are kept locked.</p> <p>Verify that pesticides are not stored near food or feed.</p> <p>Verify that pesticide containers are stored with the label plainly visible.</p> <p>Verify that all containers are in good condition.</p> <p>Verify that the lids and bungs on metal or rigid plastic containers are tight.</p> <p>Verify that the pesticides are segregated.</p> <p>Verify that a complete inventory is kept indicating the number and identity of containers in a storage unit.</p> <p>Verify that containers are regularly inspected for corrosion and leaks and that absorbent material is available for spill cleanup.</p> <p>Verify that diluted oil based pesticides are stored separately from other materials since they are flammable.</p> <p>Verify that excess pesticides and containers are segregated.</p>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.48.3.</b> Pest management programs which use pesticides classed as highly toxic or moderately toxic and are required to be labeled DANGER, POISON, WARNING, or the skull and cross bones symbol on the label should have decontamination facilities (MP).</p>	<p>Determine if facilities are available for personnel decontamination and where they are located.</p> <p>Determine if facilities are available for the decontamination of equipment, including vehicles which have been used for pesticide applications.</p> <p>Verify that berms, curbing, surfaces, and catchment drains which are used to impound washwater resulting from decontamination are impervious.</p> <p>Verify that drains impound washwater and do not connect to sanitary sewer or stormwater systems.</p> <p>Verify that the procedure for disposal of washwater resulting from decontamination activities is the same as for excess pesticides.</p>
<p><b>PM.48.4.</b> Equipment used for pesticides applications may not be removed from a decontamination site unless thoroughly decontaminated (MP).</p>	<p>Verify that, prior to removal from a site, vehicles are decontaminated.</p>
<p><b>PM.48.5.</b> Storage of pesticides and excess pesticides that are classed as highly toxic or moderately toxic and are required to be labeled DANGER, POISON, WARNING, or with the skull and crossbones symbol should meet specific requirements (MP).</p>	<p>Verify that the site location, where possible, is in an area where flooding is unlikely and where hydrogeologic conditions prevents contamination of any water system by runoff or percolation by:</p> <ul style="list-style-type: none"> <li>- inspecting areas surrounding facilities and determining proximity to surface water</li> <li>- noting location relative to floodplains, depth of groundwater, and general soil types and typical permeabilities</li> <li>- verifying that the spill management system is in existence.</li> </ul> <p>Verify that an environmental monitoring system exists for facilities which do not have spill management system when the facility handles large quantities of pesticides and is located near sensitive environmental receptor. The reviewer should:</p> <ul style="list-style-type: none"> <li>- note approximate quantity of pesticides and location of sensitive environmental receptors</li> </ul>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.48.6.</b> Facilities which store/use pesticides that are classed as highly toxic or moderately toxic and are required to be labeled DANGER, POISON, WARNING, or the skull and crossbones symbol should provide facilities and procedures to ensure the safety of personnel (MP).</p>	<ul style="list-style-type: none"> <li>- check whether groundwater, or surface water, or air monitoring program exists to determine any effects caused by pesticide storage, mixing and preparation</li> <li>- inspect facility operations and layout to determine if operations are likely to allow runoff of water which may have contacted pesticides.</li> </ul> <p>Verify that, when needed, drainage from the site is contained by natural or artificial barriers or dikes.</p> <p>Verify that no food consumption, drinking, smoking, or tobacco use is undertaken in any area where pesticides are present.</p> <p>Verify that the following practices are performed in pest management operations:</p> <ul style="list-style-type: none"> <li>- persons handling pesticides keep hands away from mouths and eyes and wear rubber gloves during all pesticide handling</li> <li>- persons handling pesticides wash hands immediately upon completion of working with pesticides and always prior to eating, smoking, or using toilet facilities</li> <li>- persons handling concentrated pesticides wear protective clothing which is removed if found to be contaminated</li> <li>- a stock of protective clothing is available</li> <li>- self-contained breathing apparatus and impermeable suits are available when handling pesticides which present the potential of being absorbed through the skin</li> <li>- inspections are made once a month to determine if any pesticide containers are leaking</li> <li>- pesticide containers are inspected for leakage prior to handling</li> <li>- unauthorized persons are not allowed in storage areas.</li> </ul> <p>Verify that the following accident prevention measures are done:</p> <ul style="list-style-type: none"> <li>- containers are not manhandled</li> <li>- unauthorized persons are not allowed in the storage area</li> <li>- pesticides are not stored next to food or feed or other articles intended for consumption by humans or animals</li> <li>- all vehicles are inspected prior to departure.</li> </ul>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.48.7.</b> Pesticide storage facilities and equipment which contain or use pesticides classed as highly toxic or moderately toxic and are labeled <b>DANGER, POISON, WARNING,</b> or with the skull and crossbones symbol should have signs and safety procedures posted (MP).</p> <p><b>PM.48.8.</b> Where large quantities of pesticides classed as highly toxic or moderately toxic and labeled <b>DANGER, POISON, WARNING,</b> or with the skull and crossbones symbol are being stored, or other conditions warrant, the local fire department, hospitals, public health officials, and police department should be notified in writing that pesticides are being stored in the event of a fire (MP).</p>	<p>Verify that signs which read <b>DANGER, POISON, PESTICIDE STORAGE,</b> are placed on or near entries to storage facilities.</p> <p>Verify that safety precautions and accident prevention measures are posted.</p> <p>Verify that an inventory of pesticides is displayed outside of the storage facility identifying all chemicals in storage.</p> <p>Verify that mobile equipment used for pesticide applications is labeled <b>CONTAMINATED WITH PESTICIDES.</b></p> <p>Verify that notification has been submitted and includes a statement of the hazards that pesticides may be present during a fire.</p> <p>Verify that a floor plan of the storage facility indicating the location of the different pesticide classifications has been submitted to the fire department.</p> <p>Verify that the fire chief has the home telephone numbers of the person(s) responsible for the pesticide storage facility.</p>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.55</b></p> <p><b>DISPOSAL</b></p> <p><b>PM.55.1.</b> Facilities should dispose of any pesticide, pesticide container, or pesticide residue according to specific restrictions (MP).</p> <p><b>PM.55.2.</b> Organic pesticides, except organic mercury, lead, cadmium, and arsenic compounds should be disposed of according to specific procedures (MP).</p> <p><b>PM.55.3.</b> Metallo-organic pesticides, except organic mercury, lead, cadmium, or arsenic compounds should be disposed of according to specific procedures (MP).</p> <p><b>PM.55.4.</b> Organic mercury, lead, cadmium, arsenic, and all inorganic pesticides should be disposed of according to specific procedures (MP).</p>	<p>Verify that pesticides, pesticide containers, and/or pesticide residues are disposed of such that:</p> <ul style="list-style-type: none"> <li>- disposal is consistent with labeling</li> <li>- open dumping of pesticides or pesticide containers is not done</li> <li>- open burning is not done except when allowed by state and local regulation</li> <li>- water dumping or ocean dumping does not occur.</li> </ul> <p>Determine if the facility uses organic pesticides.</p> <p>Verify that organic pesticides are disposed of through incineration at an incinerator which meets the air quality standards for gaseous emissions, or in a specially designated landfill if incineration is not available, or by another approved method.</p> <p>(NOTES: Municipal solid waste incinerators may be allowed to be used to incinerate pesticides and pesticide containers if they meet criteria of the state.)</p> <p>Determine if the facility uses metallo-organic pesticides.</p> <p>Verify that metallo-organic pesticides are subjected to an appropriate chemical or physical treatment to recover the heavy metals from the hydrocarbon structure prior to disposal.</p> <p>Verify that metallo-organic pesticides are disposed of through incineration at an approved incinerator, or in a specially designated landfill, or by another approved method.</p> <p>Determine if the facility uses organic mercury, lead, cadmium, arsenic, or any inorganic pesticides.</p> <p>Verify that these pesticides are converted to a nonhazardous compound and the heavy metal resources are recovered.</p> <p>Verify that, if chemical deactivation facilities are not available, these pesticides are encapsulated and buried in a specially designated landfill and records sufficient to permit location and retrieval are maintained.</p>

**COMPLIANCE CATEGORY:  
PESTICIDE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.55.5.</b> Containers should be disposed of according to their classification as either a Group I, Group II, or Group III container (MP).</p>	<p>Determine if an alternate method of disposal has been approved.</p> <p>Determine which of the following types of containers the facility has onsite:</p> <ul style="list-style-type: none"> <li>- Group I Containers: combustible containers which formerly contained organic or metallo-organic pesticides</li> <li>- Group II Containers: noncombustible containers which formerly held organic or metallo-organic pesticides</li> <li>- Group III Containers: containers (both combustible and noncombustible) which formerly held organic mercury, lead, cadmium, or arsenic or inorganic pesticides.</li> </ul> <p>Verify that Group I containers are disposed of in an incinerator or buried in a specially designated landfill.</p> <p>(NOTE: Small quantities of Group I containers may be burned in open fields by the user of the pesticide when allowed by the state.)</p> <p>Verify that Group II containers are triple rinsed.</p> <p>Verify that Group II containers in good condition are returned to the manufacturer, formulator, or drum reconditioner to reuse with the same chemical class of pesticides.</p> <p>Verify that Group II containers which are going to be transported to a facility for recycle as scrap metal or for disposal are punctured.</p> <p>Determine if rinsed Group II containers are crushed and disposed of in a landfill according to state or local requirements.</p> <p>Verify that unrinsed Group II containers are disposed of in a specially designated landfill or incinerated.</p> <p>Verify that Group III containers which are not rinsed are encapsulated and disposed of in a specially designated landfill.</p> <p>(NOTE: Group III containers which are rinsed may be disposed of in a sanitary landfill.)</p>



<b>COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Fish and Wildlife Service</b>	
<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PM.55.6.</b> Pesticide residues and rinse liquids should be added to spray mixtures or disposed of according to their pesticide type (MP).</p>	<p>Verify that pesticide residues or rinse liquids are reused.</p> <p>Verify that, if they are not reused, they are disposed of according to their pesticide type.</p>



**Appendix 5-1**

**Restricted-Use Pesticides  
(40 CFR 152.175)**

The following uses of pesticide products containing the active ingredients specified below have been classified for restricted use and are limited to use by or under the direct supervision of a certified applicator.

<b>Active Ingredient</b>	<b>Formulation</b>	<b>Use Pattern</b>	<b>Classification<sup>1</sup></b>	<b>Criteria Influencing Restriction</b>
Acrolein	As sole active ingredient. No mixtures registered.	All uses.	Restricted	Inhalation hazard to humans. Residue effects on avian species and aquatic organisms.
Aldicarb	As sole active ingredient. No mixtures registered.	Ornamental uses (indoor and outdoor).  Agricultural crop uses.	do  Under further evaluation.	Other hazards-accident history.
Aluminum phosphide	As sole active ingredient. No mixtures registered.	do	do	Inhalation hazard to humans.
Azinphosmethyl	All liquids with a concentration greater than 13.5%.  All other formulations.	do  do	do  Under further evaluation.	do
Carbofuran	All concrete suspensions and wettable powders 40% and greater.  All granular formulations.  All granular and fertilizer formulations.	do  Rice  All uses except rice.	do  Under evaluation.  do	Acute inhalation toxicity.
Chloropicrin	All formulations greater than 2%.	All uses.	Restricted	Acute inhalation toxicity.

	All formulations.	Rodent control	Restricted	Hazard to nontarget organisms.
	All formulations 2% and less.	Outdoor uses (other than rodent control).	Unclassified	
Clonitralid	All wettable powders 70% and greater.	All uses.	do	Acute inhalation toxicity.
	All granulars and wettable powders.	Molluscide uses.	do	Effects on aquatic organisms.
	Pressurized sprays 0.55% and less.	Hospital antiseptics.	Unclassified	
Dicrotophos	All liquid formulations 8% and greater.	All uses.	Restricted	Acute dermal toxicity; residue effects on avian species (except for tree injections).
Disulfoton	All emulsifiable concentrates 65% and greater, all emulsifiable concentrates and concentrate solutions 21% and greater with fensulfothion 43% and greater, all emulsifiable concentrates 32% and greater in combination with 32% fensulfothion and greater.	do	Restricted	do Acute inhalation toxicity.
	Nonaqueous solution 95% and greater.	Commercial seed treatment.	Restricted	Acute dermal toxicity.
	Granular formulations 10% and greater.	Indoor uses (greenhouse).	do	Acute inhalation toxicity.

Ethoprop	Emulsifiable concentrates 40% and greater.	do	do	Acute dermal toxicity.
	All granular and fertilizer formulations.	do	Under evaluation.	
Ethyl parathion	All granular and dust formulations greater than 2% fertilizer formulations, wettable powders, emulsifiable concentrates, concentrated suspensions, concentrated solutions.	do	Restricted	Inhalation hazard to humans. Acute dermal toxicity.
	Smoke fumigants.	do	do	Residue effects or mammalian, aquatic, avian species. Inhalation hazard to humans.
	Dust and granular formulations 2% and below.	do	do	Other hazards accident history.
Fenamiphos	Emulsifiable concentrates 35% and greater.	do	do	Acute dermal toxicity.
Fonofos	Emulsifiable concentrates 44% and greater.	All uses.	do	Acute dermal toxicity.
	Emulsifiable concentrates 12.6% and less with pebulate 50.3% and less.	Tobacco	Unclassified	
Methamidophos	Liquid formulations 40% and greater.	All uses.	Restricted	Acute dermal toxicity; residue effects on avian species.

	Dust formulations 2.5% and greater.	All uses.	Restricted	Residual effects on avian species.
Methidathion	All formulations.	All uses except stock safflower and sunflower.	Restricted	Residue effects on avian species.
	All formulations.	Nursery stock, safflower, and sunflower.	Unclassified	Residue effects on avian species.
Methomyl	As sole active ingredient in 1% to 2.5 baits (except 1% fly bait).	Nondomestic outdoor agricultural crops, ornamental and turf. All other registered uses.	Restricted.	Residue effects on mammalian species.
	All concentrated solution formulations.	do		Other hazards accident history.
	90% wettable powder formulations (not in water soluble bags).	do	do	do
	90% wettable powder formulation in water soluble bags.	do	do	
	All granular formulations.	do	Unclassified	
	25% wettable powder formulations.	do	do	
In 1.24% to 2.5% dusts as sole active ingredient and in mixtures with fungicides and chlorinated hydrocarbon, inorganic phosphate and biological insecticides.	do	do		

Methylbromide	All formulations in containers greater than 1.5 lb.	All uses.	Restricted	Other hazards-accident history.
	Containers with not more than 1.5 lb of methyl bromide with 0.25% to chloropicrin as an indicator.	Single applications (nondomestic use) for soil treatment in closed systems.	Unclassified	
	Containers with not more than 1.5 lb having no indicator.	All uses.	Restricted	do
Methyl parathion	All dust and granular formulations less than 5%	do	do	Other hazards-accident history. All foliar applications restricted based on residue effects on mammalian and avian species.
	Microencapsulated. All dust and granular formulations 5% and greater and all wettable powders and liquids.	do	do	Residue effects on avian species. Hazard to bees. Acute dermal toxicity. Residue effects on mammalian and avian species.
Nicotine (alkaloid)	Liquid and dry formulations 14% and above.	Indoor (green house).	Restricted	Acute inhalation toxicity.
	All formulations.	Applications to cranberries.	Restricted	Effects on aquatic organisms.
	Liquid and dry formulations 1.5% and less.	All uses (domestic and nondomestic).	Unclassified	

<p>Paraquat (dichloride) and paraquat bis(methylsulfate)</p>	<p>All formulations and concentrations except those listed below.</p> <p>Pressurized spray formulations containing 0.44% Paraquat bis(methyl sulfate) and 15% petroleum distillates as active ingredients.</p> <p>Liquid fertilizers containing concentrations of 0.025% paraquat dichloride and 0.03% atrazine; 0.03% paraquat dichloride and 0.37% atrazine, 0.04% paraquat dichloride and 0.49% atrazine.</p>	<p>All uses.</p> <p>Spot weed and grass control.</p> <p>All uses.</p>	<p>Restricted</p> <p>do</p> <p>Unclassified</p>	<p>Other hazards. Use and accident history, human toxicological data.</p>
<p>Phorate</p>	<p>Liquid formulations 65% and greater.</p> <p>All granular formulations.</p>	<p>do</p> <p>Rice</p>	<p>Restricted</p> <p>Restricted</p>	<p>Acute dermal toxicity. Residue effects on avian species (applies to foliar applications only). Residue effects on mammalian species (applies to foliar application only).</p> <p>Effects on aquatic organisms.</p>
<p>Phosphamidon</p>	<p>Liquid formulations 75% and greater.</p>	<p>do</p>	<p>do</p>	<p>Acute dermal toxicity. Residue effects on mammalian species. Residue effects on avian species.</p>



	Dust formulations 1.5% and greater.	do	do	Residue effects on mammalian species.
Picloram	All formulations and concentrations except tordon 101R.  Tordon 101 R forestry herbicide containing 5.4% picloram and 20.9% 2, 4-D.	do  Control of unwanted trees by cut surface treatment.	do  Unclassified	Hazard to nontarget organisms (specifically non target plants both crop and non crop).
Sodium cyanide <sup>3</sup>	All capsules and ball formulations.	All uses.	Restricted	Inhalation hazard to humans.
Sodiumfluoroacetate	All solutions and dry baits.	do	do	Acute oral toxicity. Hazard to nontarget organisms. Use and accident history.
Strychnine	All dry baits pellets and powder formulations greater than 0.5%.  All dry baits pellets and powder formulations.  All dry baits, and pellets, and powder formulations 0.5% and below.  do	do  All uses calling for burrow builders.  All uses except subsoil.  All subsoil uses.	do  do  do  Unclassified	Acute oral toxicity. Hazard to nontarget avian species. Use and accident history.  Hazard to nontarget organisms.  do  do
Sulfotepp	Sprays and smoke generators.	All uses.	Restricted	Inhalation hazard to humans.

Zinc Phosphide	All formulations 2% and less.	All domestic uses and nondomestic uses in and around buildings.	Unclassified	
	All dry formulations 60% and greater. All bait formulations.	All uses. Nondomestic out door uses (other than around buildings).	Restricted Restricted	Acute inhalation toxicity. Hazard to nontarget organisms.
	All dry formulation 10% and greater.	Domestic uses.	Restricted	Acute oral toxicity.
*do means same as above.				

<sup>1</sup> "Under evaluation" means no classification decision has been made and the use formulation in question is still under active review within EPA.

<sup>2</sup> Percentages given are the total of dioxathion plus related compounds.

<sup>3</sup> (NOTE: M-44 sodium cyanide capsules may only be used by certified applicators who have also taken the required additional training.)

## SECTION 6

### PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section applies to FWS facilities which store, transport, dispose of, or use petroleum based fuels, oils, or lubricants. This section presents review action items that respond to regulations, procedures, and organizational mechanisms designed to prevent or limit the accidental release of POL materials to surface water, groundwater, or soils. Procedures designed to review the control of volatile organic compounds (VOCs) from POL sources are addressed in Section 1, Air Emissions Management.

This section covers POL management of bulk storage tanks, organizational tanks, pipeline delivery systems, truck fill stands, and immediate operating storage areas. POL materials addressed include petroleum, diesel fuel, and lubricating oils. The storage of POL materials in underground storage tanks (USTs) is addressed in Section 9, Underground Storage Tank (UST) Management.

Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in **July 2000**, for example [Added July 2000].

#### B. Federal Legislation

- *The Water Quality Improvement Act of 1974.* This law was the primary Federal law governing the discharge of oil into navigable waters. This regulation prohibits the discharge of harmful quantities of oil into navigable waters. 40 Code of Federal Regulations (CFR) 110, *Protection of Environment - Discharge of Oil*, defines harmful quantities as those discharges which will cause a sheen or discoloration of the surface of the water or a sludge or emulsion to be deposited beneath the surface of the water.
- *The Federal Water Pollution Control Act.* This act, commonly known as the *Clean Water Act* (CWA), as amended 4 February 1987, 33 U.S. Code (USC) 1251-1387, Public Law (PL) 100-4, governs the control of water pollution in the nation. The objective of the act is to restore and maintain the chemical, physical and biological integrity of the nation's waters. Federal agencies are required to comply with all Federal, state, interstate, and local water pollution control requirements both substantively and procedurally (33 USC 1323(a)).
- *The Oil Pollution Act* (OPA) of 1990. This law, Public Law (PL) 301-308 (33 USC 2701- 2761, et al.) as amended, requires the prevention of oil pollution into navigable waters by tank vessels.

- *The Resource Conservation and Recovery Act (RCRA)*, Subtitle C. This law, PL 98-616 (USC 6921-6939b), establishes standards and procedures for the handling, storage, treatment, and disposal of hazardous waste. Specifically, RCRA prohibits the placement of bulk or noncontainerized liquid hazardous waste or free liquids containing hazardous waste into a landfill. It also prohibits the land disposal of specified wastes and disposal of hazardous waste through underground injection within 1/4 mi of an underground source of drinking water.
- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*. This EO of 13 October 1978 requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.
- Federal regulations used to develop the checklist include:
  - EO 12088, *Federal Compliance with Pollution Control Standards*.
  - 33 CFR 154, *Facilities Transferring Oil or Hazardous Materials in Bulk*.
  - 33 CFR 158, *Reception Facilities for Oil, noxious Liquid Substances, and Garbage*.
  - 40 CFR 110, *Discharge of Oil*.
  - 40 CFR 112, *Oil Pollution Prevention*.
  - 40 CFR 266, *Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities*.
  - 40 CFR 279, *Standards for the Management of Used Oil*.
  - 49 CFR 194, *Response Plans for Onshore Oil Pipelines*.
  - 49 CFR 195, *Transportation of Hazardous Liquids by Pipeline*.

### C. State/Local Regulations

Many states and some major metropolitan and regional planning agencies have developed legislation and implemented regulations which closely parallel the Federal regulations. Some, however, may differ in important ways, and the evaluator should obtain copies of the state or local requirements for the Oil and Hazardous Substances Pollution Contingency (OHSPC) plan and the Spill Prevention, Control, and Countermeasures (SPCC) plan, where appropriate, and review them for those differences before conducting the evaluations. In particular, the evaluator should check for differences in the definitions of reportable quantities and the specific procedures for reporting spills that may exist in state/local regulations.

### D. FWS/DOI Manuals

No applicable manuals are final as of the publication of this handbook.

### E. Key Compliance Requirements

- Aboveground Storage Tanks (AST) - All bulk storage tanks are required to be provided with a secondary means of containment for the entire contents of the largest single tank, plus sufficient freeboard to allow for precipitation. ASTs are required to undergo periodic integrity testing and keep a written log of this testing. Alternatively, when prevention systems or equivalents are not practicable, a strong oil spill contingency plan and/or a written commitment of manpower,

equipment, and materials required to expeditiously control and remove any harmful quantity of oil discharged are needed. Drainage of rainwater from diked areas must be controlled by a valve that is closed when not in active use. Drainage water that is determined to contain petroleum products in harmful quantities must be treated before discharge to meet applicable water quality standards (40 CFR 112.7(e)(1) through 112.7(e)(2)) **[Revised January 1999]**.

- **Mobile/Portable Tanks** - Onshore mobile or or portable oil storage tanks are required to be positioned to prevent spilled oil from reaching navigable waters. A secondary means of containment must be provided, such as dikes or catchment basins, for the largest single compartment or tank (40 CFR 112.7(e)(2)(xi)) **[Added April 1999]**.
- **SPCC Plans** - Facilities that store, transport, or dispense petroleum products are required to prepare an SPCC plan, unless certain criteria are met. The SPCC plan is required to contain general information about the facility, name and title of the designated coordinator, and an inventory of all storage, handling, and transfer facilities. Each SPCC plan must be reviewed at least once every 3 yr, unless it is an exempted facility. The SPCC plan must be reviewed and/or amended when there is a material change in facility design, construction, operation, or maintenance that alters potential for an oil spill. Each SPCC plan and any amendments must be certified by a registered professional engineer and the plan and each amendment must be prepared according to sound engineering practices. A copy of the SPCC plan is required to be available at sites that are normally attended at least 8 h/ day where there is a potential for a discharge. All facility personnel involved with the management and handling of oil must receive training (40 CFR 112.3, 112.5, and 112.7(e)(10)).
- **Response Plans** - Nontransportation related onshore facilities that, because of location, could reasonably be expected to cause substantial harm to the environment by discharging oil into or on the navigable waters or adjoining shoreline are required to develop response plans. A facility could, because of its location, reasonably be expected to cause substantial harm if it meets any of the following criteria:
  - The facility transfers oil over water to or from vessels and has a total oil storage capacity greater than or equal to 42,000 gal.
  - The facility's total oil storage capacity is greater than or equal to 1 million gal and one of the following is true:
    - The facility does not have secondary containment for each aboveground area sufficiently large to contain the capacity of the largest AST within each storage area plus sufficient freeboard to allow for precipitation.
    - The facility is located at a distance such that discharge from the facility could cause injury to fish and wildlife and sensitive environment.
    - The facility is located at a distance such that a discharge from the facility would shut down a public drinking water intake.
    - The facility has had a reportable oil spill in an amount greater than or equal to 10,000 gal within the last 5 yr.
- **Discharges/Spills** - A discharge of oil into navigable waters of the United States, or adjoining shorelines, or into areas that may affect natural resources belonging to or under the exclusive management authority of the United States must be reported to the National Response Center (NRC). Facilities are not allowed to add dispersants or emulsifiers to oils that are discharged (40 CFR 110.2 through 110.10).
- **Discharge Prevention/Cleanup** - Appropriate containment and/or diversionary structures and cleanup equipment are to be readily available to prevent discharged petroleum products from reaching navigable water courses. Alternatively, when prevention systems or equivalents are not

practicable, a strong oil spill contingency plan and/or a written commitment of manpower, equipment, and materials required to expeditiously control and remove any harmful quantity of oil discharged are needed ( 40 CFR 112.7(c)) **[Revised January 1999]**.

- Piping Systems - Buried piping at facility transfer operations, pumping activities, and in- plant processing is required to have a protective wrapping and coating to be cathodically protected if soil conditions warrant (40 CFR 112.7(e)(3)(i) and 112.7(e)(3)(iv)).
- Onshore Oil Pipelines - Facilities with onshore oil pipelines that, because of location, could reasonably be expected to cause substantial harm to the environment by discharging oil into navigable waters are required to prepare a response plan. Copies of the response plan are required to be submitted to the U.S. Environmental Protection Agency (USEPA) Research and Special Programs Administration (RSPA) for approval. Copies of the response plan are required to be kept at the operators headquarters, pump stations, and other places where response activities might be conducted. Training is required for the implementation of the Response Plan. The Response Plan is required to be reviewed every 3 yr from the date of submission and modified to address new or different operating conditions or information (49 CFR 194).
- Service Stations - The storage of liquids at service stations, specifically Class I liquids, has to be done in containers that are secure and prevents the excess release of vapors (29 CFR 1910.106(g)).
- Used Oil - Although used oil has not been declared a hazardous waste at the Federal level, it does need to be stored, handled, and documented according to specific requirements depending on whether the facility is a used oil generator, a used oil collection center and aggregation point, a used oil transporter, a used oil burner, or a used oil marketer (40 CFR 279).
- Recordkeeping - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### F. Key Compliance Definitions

- *Aboveground Tank* - a tank used to store or process used oil that is not an underground storage tank as defined in 40 CFR 280.12 (40 CFR 279.1) **[Added July 2000]**.
- *Animal Fat* - a non-petroleum oil, fat, or grease of animal, fish, or marine mammal origin (40 CFR 112.2) **[Added September 2000]**.
- *Container* - any portable device in which materials is stored, transported, treated, disposed of, or otherwise handled (40 CFR 279.1) **[Reviewed July 2000]**.
- *Contiguous Zone* - the entire zone established or to be established by the United States under article 24 of the Convention on the Territorial Sea and Contiguous Zone (CWA, Section 311).
- *Continuous Discharge* - a discharge occurring without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities (40 CFR 123.3).
- *Daily Discharge* - the discharge of a pollutant measured during a calendar day or any 24 h period that reasonably represents the calendar day for purposes of sampling (40 CFR 122.2).

- *Direct Discharge* - the discharge of a pollutant (40 CFR 122.2).
- *Discharge* - when used in relation to Section 311 of the Act, includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping, but excludes (CWA, Section 311):
  1. Discharges in compliance with a permit.
  2. Discharges resulting from circumstances identified and reviewed and made a part of the public record with respect to an issued permit and subject to a condition in the permit.
  3. Continuous or anticipated intermittent discharges from a point source, identified in a permit application that are caused by events occurring within the scope of relevant operating or treatment systems.
- *Do-It-Yourself (DIY) Used Oil Collection Center* - any site or facility that accepts aggregates and stores used oil collected only from household DIYs (40 CFR 279.1) **[Reviewed July 2000]**.
- *Environmentally Sensitive Area* - an area of environmental importance which is in or adjacent to navigable waters (49 CFR 194.5).
- *Existing Tank* - in relation to used oil, a tank that is used for the storage or processing of used oil and that is in operation, or for which installation has commenced on or prior to the effective date of the authorized used oil program for the state in which the tank is located. Installation will be considered to have commenced if the owner or operator has obtained all federal, state, and local approvals or permits necessary to begin installation of the tank and if either (1) A continuous on-site installation program has begun, or (2) The owner or operator has entered into contractual obligations (which cannot be canceled or modified without substantial loss) for installation of the tank to be completed within a reasonable time (40 CFR 279.1) **[Revised July 2000]**.
- *Fish and Wildlife and Sensitive Environments* - this means areas that may be identified by either their legal designation or by evaluations of Area Committees (for planning) or members of the Federal On-Scene Coordinator's spill response structure (during responses) (40 CFR 112.2).
- *Household "Do-It-Yourself" Used Oil* - oil that is derived from households, such as used oil generated by individuals who generate used oil through the maintenance of their personal vehicles (40 CFR 279.1) **[Reviewed July 2000]**.
- *Household "Do-It-Yourself" Used Oil Generator* - an individual who generates household "do-it-yourself" used oil (40 CFR 279.1) **[Added July 2000]**.
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *Navigable Waters* - the waters of the United States, including the territorial seas. Navigable waters do not include prior converted cropland. The terms include (40 CFR 100.2):
  1. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters that are subject to the ebb and flow of the tide.
  2. Interstate waters, including interstate wetlands.
  3. All other waters such as intra-state lakes, rivers, streams (including intermittent streams), mudflats, sandflats, and wetlands, the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
    - a. That are or could be used by interstate or foreign travelers for recreational or other purposes.

- b. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
  - c. That are used or could be used for industrial purposes by industries in interstate commerce.
  - 4. All impoundments of waters otherwise defined as navigable waters under this section.
  - 5. Tributaries of waters identified above, including adjacent wetlands.
  - 6. Wetlands adjacent to waters identified above.
- **New Tank** - a tank that will be used to store or process used oil and for which installation has started after the effective date of the authorized used oil program for the state in which the tank is located (40 CFR 279.1).
  - **Non-petroleum Oil** - oil of any kind that is not petroleum-based, including but not limited to: Fats, oils, and greases of animal, fish, or marine mammal origin; and vegetable oils, including oils from seeds, nuts, fruits, and kernels (40 CFR 112.2) **[Added September 2000]**.
  - **Offshore Facility** - any facility of any kind located in, on, or under any of the navigable waters of the United States, and any facility or any kind that is subject to the jurisdiction of the United States and is located in, on, or under any other waters, other than a vessel or a public vessel (CWA, Section 311 and 33 CFR 153.103).
  - **Off-Specification Oil** - used oil burned for energy recovery and any fuel produced from used oil that exceeds the following allowable limits (40 CFR 279) **[Reviewed July 2000]**:

Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash Point	100 °F minimum
Total halogens	4000 ppm maximum

- **Oil** - when used in relationship to Section 311 of the Act, means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil (CWA, Section 311 and 33 CFR 153.103).
- **Onshore Facility** - any facility (including but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under any land within the United States, other than submerged land (CWA, Section. 311 and 33 CFR 153.103).
- **Onshore Oil Pipeline Facilities** - new and existing pipe, rights of way and any equipment, facility, or building used in the transportation of oil located in, on, or under, any land within the United States other than submerged land (49 CFR 194.5).
- **Operator** - in relationship to onshore oil pipeline facilities, a person who owns or operates onshore oil pipeline facilities (49 CFR 194.5).



- *Petroleum Oil* - petroleum in any form, including but not limited to crude oil, fuel oil, mineral oil, sludge, oil refuse, and refined products (40 CFR 112.2) **[Added September 2000]**.
- *Pipeline* - all parts of an onshore pipeline facility through which oil moves, including, but not limited to, line pipe, valves, and other appurtenances connected to the line pipe, pumping units, fabricated assemblies associated with pumping units, metering and delivery stations and fabricated assemblies therein, and breakout tanks (49 CFR 194.5).
- *Point Source* - any discernible confined and discrete conveyance including but not limited to a pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater (40 CFR 122.2 and 401.11(d)).
- *Processing* - means chemical or physical operations designed to produce from used oil, or to make used oil more amenable for production, fuel oils, lubricants, or other used oil- derived product. Processing includes, but is not limited to blending used oil with virgin petroleum products, blending used oils to meet the fuel specification, filtration, simple distillation, chemical or physical separation and re-refining (40 CFR 279.1) **[Reviewed July 2000]**.
- *Public Vessel* - a vessel owned or bare boat chartered and operated by the United States, or by a state or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce (CWA, Sect. 311 and 33 CFR 153.103).
- *Qualified Individual* - an English-speaking representative of an operator, located in the United States, available on a 24-h basis, with full authority to: activate and contract with required oil spill removal organizations; activate personnel and equipment maintained by the operator; act as liaison with the On-Scene Coordinator (OSC); and obligate any funds required to carry out all required or directed oil response activities (49 CFR 194.5).
- *Re-Refining Distillation Bottoms* - the heavy fractions produced by vacuum distillation of filtered and dehydrated used oil. The composition of still bottoms varies with column operation and feedback (40 CFR 279.1) **[Reviewed July 2000]**.
- *Response Activities* - the containment and removal of oil from the water and shorelines, the temporary storage and disposal of recovered oil, or the taking of other actions as necessary to minimize or mitigate damage to the environment (49 CFR 194.5).
- *Response Area* - the inland zone or coastal zone, as defined in the National Contingency Plan (NCP), in which response activity is occurring (49 CFR 194.5).
- *Response Plan* - the operator's core plan and the response zone appendices for responding, to the maximum extent practicable, to a worst case discharge of oil, or the substantial threat of such a discharge (49 CFR 194.5).
- *Response Zone* - a geographic area, either along a length of pipeline or including multiple pipelines, containing one or more adjacent line sections, for which the operator must plan for the deployment of, and provide, spill response capabilities (49 CFR 194.5).
- *Sheen* - an iridescent appearance on the surface of the water (40 CFR 110.1).

- *Sludge* - an aggregate of oil or oil and other matter of any kind in any form other than dredged spoil, having a combined specific gravity equivalent to or greater than water (40 CFR 110.1).
- *Spill Event* - a discharge of oil into or upon the navigable waters of the United States or adjoining shorelines in harmful quantities (40 CFR 112.3).
- *Spill Prevention, Control, and Countermeasure (SPCC) Plan* - the SPCC plan shall be a carefully thought-out plan prepared in accordance with good engineering practices, and which has the full approval of management at a level with authority to commit the necessary resources (40 CFR 112.3).
- *Tank* - any stationary device, designed to contain an accumulation of used oil, which is constructed primarily of nonearthen materials which provides structural support (40 CFR 279.1) **[Reviewed July 2000]**.
- *Used Oil* - any oil that has been refined from crude oil or any synthetic oil that has been used and as a result of such use is contaminated by physical or chemical impurities (40 CFR 279.1) **[Reviewed July 2000]**.
- *Used Oil Aggregation Point* - any site or facility that accepts, aggregates, and/or stores used oil collected only from other used oil generation sites owned or operated by the owner or operator of the aggregation point, from which used oil is transported to the aggregation point in shipments of no more than 55 gal. Used oil aggregation points may also accept used oil from household DIYs (40 CFR 279.1) **[Reviewed July 2000]**.
- *Used Oil Burner* - a facility where used oil not meeting the specification requirements is burned for energy recovery (40 CFR 279.1) **[Reviewed July 2000]**.
- *Used Oil Collection Center* - any site or facility that is registered/licensed/permitted/recognized by a state/county/municipal government to manage used oil and accepts/aggregates and stores used oil collected from used oil generators who bring used oil to the collection centers in shipments of no more than 55 gal. Used oil collection centers may accept used oil from household DIYs (40 CFR 279.1) **[Reviewed July 2000]**.
- *Used Oil Fuel Marketer* - any person who conducts either of the following activities (40 CFR 279.1) **[Reviewed July 2000]**:
  1. Directs a shipment of off-specification used oil from their facility to a used oil burner.
  2. First claims that used oil that is to be burned for energy recovery meet used oil fuel specifications.
- *Used Oil Generator* - any person, by site, whose act or process produces used oil or whose act first causes used oil to become subject to regulation (40 CFR 279.1) **[Reviewed July 2000]**.
- *Used Oil Processor/Re-refiner* - a facility that processes used oil (40 CFR 279.1) **[Reviewed July 2000]**.
- *Used Oil Transfer Facility* - any transportation related facility, including loading docks, parking areas, storage areas, and other areas where shipments of used oil are held for more than 24 h during the normal course of transportation and not longer than 35 days (40 CFR 279.2) **[Reviewed July 2000]**.

- *Used Oil Transporter* - any person who transports used oil, any persons who collects used oil from more than one generator and transports the collected oil, and owners and operators of used oil transfer facilities. Used oil transporters may consolidate or aggregate loads of used oil for purposes of transportation, but, with the following exception, may not process used oil. Transporters may conduct incidental processing operations that occur in the normal course of used oil transportation (e.g., settling and water separation), but that are not designed to produce or make more amenable for production of used oil derived products or used oil fuel (40 CFR 279.1) **[Reviewed July 2000]**.
- *Vegetable Oil* - a non-petroleum oil or fat of vegetable origin, including but not limited to oils and fats derived from plant seeds, nuts, fruits, and kernels (40 CFR 112.2) **[Added September 2000]**.
- *Vessel* - every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel (CWA, Section 311).
- *Wetlands* - those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include playa lakes, swamps, marshes, bogs, and similar areas such as sloughs, prairie potholes, wet meadows, prairie river overflows, mudflats, and natural ponds (40 CFR 110.1).
- *Worst Case Discharge* - the largest foreseeable discharge of oil, including a discharge from fire or explosion, in adverse weather conditions (49 CFR 194.5).



## PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

### GUIDANCE FOR CHECKLIST USERS

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	REFER TO CHECKLIST ITEMS:
All Facilities	PO.1.1 through PO.1.5
Spill Plans	PO.5.1 through PO.5.8
Discharges/Spills	PO.15.1 and PO.15.2
POL Storage Areas General	PO.20.1 through PO.20.3
Aboveground Storage Tanks	PO.40.1 through PO.40.5
Pipelines	PO.45.1 through PO.45.11
POL Loading and Unloading	PO.55.1 and PO.55.2
Used Oil	
General	PO.60.1 and PO.60.2
Generators	PO.65.1 through PO.65.13
Collection Centers and Aggregation Points	PO.70.1 through PO.70.3
Transportation	PO.75.1 through PO.75.9
Burners	PO.80.1 through PO.80.12
Marketing	PO.85.1 through PO.85.9
Dust Suppression	PO.90.1

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(NOTE: Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised, or added in **July 2000**, for example [Added July 2000].)



## PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

### Records To Review

- Records of all spills, leaks, and associated site assessment/cleanup activities (for 3 yr)
- Spill Prevention, Control and Countermeasure (SPCC) Plan
- Records of spill response training programs
- Used oil disposal records

### Physical Features To Inspect

- Refueling facilities, including:
  - Above and belowground storage tanks and dikes
  - Venting
  - Fill pipe
  - Gauges
- Washrack areas
- Vehicle maintenance areas
- Oil separators
- Oil and hazardous substance site
- Fire training pits
- Grease racks





**COMPLIANCE CATEGORY:  
 PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT  
 Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>PO.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), interagency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>PO.1.2.</b> FWS facilities are required to comply with state and local regulations (EO 12088, Section 1-1).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> <li>- spill management</li> <li>- handling of wastewater and fuel sludge from tank cleaning</li> <li>- use of product recovery systems</li> <li>- containment</li> <li>- used oil</li> <li>- ASTs.)</li> </ul>

**COMPLIANCE CATEGORY:  
 PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT  
 Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.1.3.</b> Facilities will meet regulatory requirements issued since the finalization of this handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p>	<p>Determine if any new regulations concerning POLs have been issued since the finalization of this handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p>
<p><b>PO.1.4.</b> FWS facilities should report all notices of violation (NOVs) to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p>	<p>Determine if the facility has received an NOV relating to petroleum management.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p>
<p><b>PO.1.5.</b> FWS facilities should provide secondary containment is certain circumstances when an SPCC plan is not required (MP). [Added July 1999].</p>	<p>Verify that facilities provide secondary containment, when an SPCC is not required, for tanks (under 660 gal) and/or containers that are in close proximity to environmentally sensitive areas such as brooks, rivers, wetlands, or marsh areas.</p> <p>(NOTE: See PO.5 for SPCC plan requirements.)</p>

**COMPLIANCE CATEGORY:  
 PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT  
 Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.5</b></p> <p><b>SPILL PLANS</b></p> <p><b>PO.5.1.</b> Facilities that store, transport, or dispense petroleum products are required to prepare an SPCC plan (40 CFR 112.1(d) and 112.3).</p> <p><b>PO.5.2.</b> The SPCC plan is required to contain specific information (40 CFR 112.1(d) and 112.7).</p>	<p>Verify that the facility has an SPCC plan.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met (40 CFR 112.1(d)(2)):</p> <ul style="list-style-type: none"> <li>- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:           <ul style="list-style-type: none"> <li>- onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>- equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT</li> </ul> </li> <li>- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:           <ul style="list-style-type: none"> <li>- the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>- the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul> <p>(NOTE: This applies to onshore and offshore facilities, including onshore and offshore mobile or portable facilities, such as onshore drilling or workover rigs, barge mounted offshore drilling or workover rigs, and portable fueling facilities.)</p> <p>Determine if the SPCC plan has been prepared and reviewed for the following:</p> <ul style="list-style-type: none"> <li>- Regional approval</li> <li>- spill reporting procedures</li> <li>- prespill planning for major potential spill areas</li> <li>- spill containment and cleanup equipment/facilities</li> <li>- oil spill contingency plan</li> <li>- training procedures</li> <li>- spill response exercises</li> <li>- plan review and update procedures</li> <li>- security measures (i.e., lighting and fencing)</li> <li>- inspection procedures</li> <li>- tank integrity testing procedures.</li> </ul>

**COMPLIANCE CATEGORY:  
 PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT  
 Fish and Wildlife Service**

**REGULATORY  
 REQUIREMENTS:**

**REVIEWER CHECKS:  
 SEPTEMBER 2000**

(NOTE: The regulations does allow for some variance of the contents of the plan. But if a suggested topic is not included in the plan, the reason for exclusion must be documented.)

Verify that the SPCC plan contains:

- general information about the facility including:
  - name
  - type of function
  - location of facility drainage patterns
  - location maps
- name and title of designated coordinator
- inventory of all storage, handling, and transfer facilities that could produce a significant spill. For each listing include:
  - prediction of direction and rate of flow
  - total quantity of oil that could be spilled as a result of major failure.

(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112.1 if either of the following are met:

- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:
  - onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines
  - equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT
- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:
  - the underground buried storage capacity of the facility is 42,000 gal or less of oil
  - the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)

**COMPLIANCE CATEGORY:  
 PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT  
 Fish and Wildlife Service**

**REGULATORY  
 REQUIREMENTS:**

**REVIEWER CHECKS:  
 SEPTEMBER 2000**

**PO.5.3.** Each SPCC plan must be reviewed at least once every 3 yr (40 CFR 112.1(d) and 112.5(b)).

Verify that the SPCC plan has been reviewed at least once every 3 yr.  
 (NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:  
 -the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:  
     -onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines  
     -equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT  
 -the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:  
     -the underground buried storage capacity of the facility is 42,000 gal or less of oil  
     -the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)

**PO.5.4.** The SPCC plan must be reviewed and/or amended under specific circumstances (40 CFR 112.1(d), 112.4, and 112.5(a)).

Verify that the plan was amended within 6 mo if there was a material change in facility design, construction, operations, or maintenance that alters the potential for an oil spill.  
 Verify that the plan was sent to the Regional Administrator within 60 days for review if the facility:  
     -discharged oil of more than 1000 gal into or upon navigable waters in a single spill even  
     -discharged oil in harmful quantities into or upon navigable waters in two reportable spill events within any 12-mo period.  
 Verify that amendments specified by the Regional Administrator become part of the plan within 30 days, or by the Regional Administrator specified dead line, and are implemented within 6 mo.  
 (NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:  
 -the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:  
     -onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.5.5.</b> Each SPCC plan and any amendments must be certified by a registered professional engineer and the plan and each amendment must be prepared according to sound engineering practices (40 CFR 112.1(d), 112.3(d), and 112.5(c)).</p> <p><b>PO.5.6.</b> Each SPCC plan should be approved by the Assistant Regional Director (ARD) (MP) [Revised June 1998].</p>	<ul style="list-style-type: none"> <li>-equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT</li> <li>-the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:               <ul style="list-style-type: none"> <li>-the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>-the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul> <p>Verify that the SPCC plan has been certified.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:</p> <ul style="list-style-type: none"> <li>-the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:               <ul style="list-style-type: none"> <li>-onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>-equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT</li> </ul> </li> <li>-the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:               <ul style="list-style-type: none"> <li>-the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>-the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul> <p>Verify that the plan has been approved by the ARD.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.5.7.</b> A copy of the SPCC plan is required to be available at sites that are normally attended at least 8 h/day where there is a potential for a discharge (40 CFR 112.1(d) and 112.3(e)).</p>	<p>Verify that a copy of the SPCC is available at facilities that have personnel onsite at least 8 h/day.</p> <p>(NOTE: If personnel is not onsite for 8 h/day, the plan may be kept at the nearest field office and the plan should be made available to the Regional Administrator.)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:</p> <ul style="list-style-type: none"> <li>- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:           <ul style="list-style-type: none"> <li>- onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>- equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT</li> </ul> </li> <li>- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:           <ul style="list-style-type: none"> <li>- the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>- the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul>
<p><b>PO.5.8.</b> All facility personnel involved with the management and handling of oil and hazardous substances must take part in periodic training in spill prevention and response (40 CFR 112.1(d) and 112.7(e)(10)).</p>	<p>Verify that proper training has been conducted by reviewing training records and interviewing the staff.</p> <p>Verify that training addresses the procedures to follow when a spill occurs, such as:</p> <ul style="list-style-type: none"> <li>- notification</li> <li>- containment</li> <li>- safety practices.</li> </ul> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:</p> <ul style="list-style-type: none"> <li>- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:           <ul style="list-style-type: none"> <li>- onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> </ul> </li> </ul>

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- equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT
- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:
  - the underground buried storage capacity of the facility is 42,000 gal or less of oil
  - the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.15</b></p> <p><b>DISCHARGES/SPILLS</b></p> <p><b>PO.15.1.</b> Discharges of oil into or upon the navigable waters of the United States or adjoining shorelines or into or upon the waters of the contiguous zone or into areas that may affect natural resources belonging to, or under the exclusive management authority of the United States must be reported (40 CFR 110.2, 110.3, 110.5, and 110.6).</p> <p><b>PO.15.2.</b> Facilities are not allowed to add dispersants or emulsifiers to oils that are discharged (40 CFR 110.4).</p>	<p>Determine if the facility has had any discharges of oils.</p> <p>(NOTE: Discharges of oil are defined as those which violate applicable water quality standards or cause a film or a sheen upon or discoloration of the surface of the water or adjoining shoreline or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shores.)</p> <p>Verify that the National Response Center (NRC) was notified immediately after discovery of a discharge as defined in the above NOTE.</p> <p>(NOTE: If direct reporting to the NRC is not practicable, reports may be made to the Coast Guard or USEPA predesignated OSC.)</p> <p>(NOTE: The following discharges of oil are not considered harmful:        -discharges from a properly functioning vessel engine and any discharges of such oil accumulated in the bilges of a vessel discharged in compliance with MARPOL 73/78, Annex I        -other discharges permitted under MARPOL 73/78, Annex I        -any discharge of oil explicitly permitted by the Administrator in connection with research, demonstration projects, or studies relating to the prevention, control, or abatement of oil pollution.)</p> <p>Verify that facilities do not add dispersants or emulsifiers to discharges.</p>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>POL STORAGE AREAS</b></p> <p><b>PO.20 General</b></p> <p><b>PO.20.1.</b> Specific provisions are required to be implemented to prevent discharged petroleum products from reaching navigable water courses (40 CFR 112.7(c) and 112.7(d)) [Revised January 1999].</p>	<p>(NOTE: For requirements pertaining to containment areas surrounding ASTs, see category PO.40.)</p> <p>(NOTE: Water is of special concern during fueling of boats on the water and repair, maintenance, and replacement of powerhouse and water control structures.)</p> <p>Verify that at onshore sites one of the following provisions is implemented:</p> <ul style="list-style-type: none"> <li>- the following prevention systems or an equivalent are used: : <ul style="list-style-type: none"> <li>- absorbent material</li> <li>- dikes, berms, or retaining walls sufficiently impervious to contain spilled oil</li> <li>- curbing devices</li> <li>- culverting gutters or other drainage systems</li> <li>- weirs, booms, or other barriers</li> <li>- spill diversion ponds</li> <li>- retention ponds.</li> </ul> </li> <li>- when prevention system or equivalents are not practicable, this impracticability is clearly demonstrated and the following provided: <ul style="list-style-type: none"> <li>- a strong oil spill contingency plan</li> <li>- a written commitment of manpower, equipment, and materials required to expeditiously control and remove any harmful quantity of oil discharged.</li> </ul> </li> </ul> <p>Verify that at offshore sites (see definitions), one of the following provisions is implemented:</p> <ul style="list-style-type: none"> <li>- one of the following, or an equivalent, is available: <ul style="list-style-type: none"> <li>- curbing</li> <li>- drip pans</li> <li>- sumps</li> <li>- collection systems</li> </ul> </li> <li>- when prevention system or equivalents are not practicable, this impracticability is clearly demonstrated and the following provided: <ul style="list-style-type: none"> <li>- a strong oil spill contingency plan</li> <li>- a written commitment of manpower, equipment, and materials required to expeditiously control and remove any harmful quantity of oil discharged.</li> </ul> </li> </ul>

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**PO.20.2.** Drainage of rainwater from diked areas must be controlled by a valve which is closed when not in active use (40 CFR 112.7(e)(1) and 112.7(e)(2)(iii)) [Revised July 2000].

Verify the following for spill equipment in each oil storage area:

- adequacy of material types and quantity
- accessibility of storage locations
- condition of equipment.

(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:

- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:
  - onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines
  - equipment or operations of vessels or transportation-related onshore and offshore sites that are subject to the authority of the DOT
- the facility that although otherwise subject to USEPA jurisdiction, meets both of the following criteria:
  - the underground buried storage capacity of the facility is 42,000 gal or less of oil
  - the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal (40 CFR 112.1(d)(2)).)

Verify that valves are closed when not in use by inspecting drainage valves at diked areas.

Verify that drainage valves are attended when opened to drain the diked/bermed area by interviewing personnel.

Determine if operating personnel understand the meaning of a harmful discharge as described in 40 CFR 110.3.

Inspect records for any drainage water that was inspected to determine if it would represent a harmful discharge.

(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:

- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:
  - onshore and offshore sites that, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines
  - equipment or operations of vessels or transportation-related onshore and offshore sites that are subject to the authority of the DOT

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.20.3.</b> Drainage water which is determined to contain petroleum products in harmful quantities must be treated prior to discharge to meet applicable water quality standards (40 CFR 112.1(d) and 112.7 (e)(2)).</p>	<ul style="list-style-type: none"> <li>- the facility that, although otherwise subject to USEPA jurisdiction, meets both of the following criteria:               <ul style="list-style-type: none"> <li>- the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>- the storage capacity that is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal (40 CFR 112.1(d)(2)).</li> </ul> </li> </ul> <p>(NOTE: This checklist item refers to storage other than in a tank.)</p> <p>Determine if discharges containing harmful quantities of petroleum products were properly treated, recovered, or disposed and reported by interviewing onsite personnel.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:</p> <ul style="list-style-type: none"> <li>- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:               <ul style="list-style-type: none"> <li>- onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>- equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT</li> </ul> </li> <li>- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:               <ul style="list-style-type: none"> <li>- the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>- the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.40</b></p> <p><b>ABOVEGROUND STORAGE TANKS</b></p> <p><b>PO.40.1.</b> Specific provisions are required to be implemented to prevent petroleum product discharges from bulk storage tanks (over 660 gal) from reaching navigable water courses (40 CFR 112.1(d), 112.7(d), and 112.7(e)(2)(ii)) [Revised January 1999].</p>	<p>Verify that adequate containment is provided for bulk storage tanks in the storage area and at remote tanks by looking for signs of cracks, erosion, animal burrows, and vegetation growth.</p> <p>Verify that diked areas are impervious enough to contain spilled oil.</p> <p>(NOTE: Dikes, containment curbs, and pits are commonly employed for this purpose, but they may not always be appropriate. An alternative system could consist of a complete drainage trench enclosure arranged so that a spill could terminate and be safely contained in an in-plant catchbasin or holding pond.)</p> <p>(NOTE: When it is determined that the installation of the types of equipment or structures recommended at onshore or offshore facilities to prevent discharged oil from reaching the navigable waters is not practicable, this impracticability should be clearly demonstrated and the following provided:</p> <ul style="list-style-type: none"> <li>- a strong oil spill contingency plan</li> <li>- a written commitment of manpower, equipment, and materials required to expeditiously control and remove any harmful quantity of oil discharged.)</li> </ul> <p>(NOTE: Facilities are exempt from the provisions outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> <li>- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:           <ul style="list-style-type: none"> <li>- onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>- equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the DOT</li> </ul> </li> <li>- the facility which, although otherwise subject to USEPA jurisdiction, meets both of the following criteria are met:           <ul style="list-style-type: none"> <li>- the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>- the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.40.2.</b> Drainage of rainwater from diked areas must be controlled by a valve which is closed when not in active use/attended (40 CFR 112.1(d), 112.7(e)(1), and 112.7(e)(2)(iii)).</p>	<p>Verify that valves are closed when not in use by inspecting drainage valves at diked areas.</p> <p>Verify that drainage valves are attended when opened to drain diked/bermed area by interviewing personnel.</p> <p>Determine if operating personnel understand the meaning of a harmful discharge as described in 40 CFR 110.6.</p> <p>Verify that records are kept of when the dike is drained.</p> <p>Inspect records for any drainage water which was inspected to determine if it would represent a harmful discharge.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:              -the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:                  -onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines                  -equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT              -the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:                  -the underground buried storage capacity of the facility is 42,000 gal or less of oil                  -the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</p>
<p><b>PO.40.3.</b> Drainage water which is determined to contain petroleum products in harmful quantities must be treated prior to discharge to meet applicable water quality standards (40 CFR 112.1(d) and 112.7(e)(2)).</p>	<p>Determine if discharges containing harmful quantities of petroleum products were properly treated, recovered, or disposed and reported by interviewing onsite personnel.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:              -the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:                  -onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</p>



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**PO.40.4.** ASTs are required to undergo periodic integrity testing (40 CFR 112.1(d) and 112.7(e)(2)(vi)).

- equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT
- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:
  - the underground buried storage capacity of the facility is 42,000 gal or less of oil
  - the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)

Verify that periodic leak tests have been conducted (a decrease in converted fuel volume equal to or greater than 1/4 in. constitutes a suspected leak) and check the results of these tests.

Determine if leaking tanks have been repaired or replaced.

(NOTE: Periodic testing should take tank design into account and involve such techniques as hydrostatic testing, visual inspection, or a system of non destructive shell thickness testing.)

(NOTE: This does not allow for all possible testing options.)

Verify that a written log of integrity testing has been maintained.

(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:

- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:
  - onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines
  - equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT
- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:
  - the underground buried storage capacity of the facility is 42,000 gal or less of oil
  - the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.40.5.</b> Onshore mobile or portable oil storage tanks are required to meet specific structural and/or location requirements (40 CFR 112.7(e)(2)(xi)) [Added April 1999].</p>	<p>Verify that onshore mobile or portable oil storage tanks are positioned to prevent spilled oil from reaching navigable waters.</p> <p>Verify that a secondary means of containment, such as dikes or catchment basins, is furnished for the largest single compartment or tank.</p> <p>Verify that onshore mobile or portable oil storage tanks are located where they will not be subject to periodic flooding or washout.</p> <p>(NOTE: Federal facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> <li>the Federal facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:           <ul style="list-style-type: none"> <li>onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the DOT</li> </ul> </li> <li>the Federal facility which, although otherwise subject to USEPA jurisdiction, meets both of the following criteria:           <ul style="list-style-type: none"> <li>the underground buried storage capacity of the Federal facility is 42,000 gal or less of oil</li> <li>the storage capacity which is not buried at the Federal facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal (40 CFR 112.1(d)(2)).)</li> </ul> </li> </ul>

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**PO.45**

**PIPELINES**

**PO.45.1.** Buried piping at a transfer facility, pumping station, or in-plant processing facility is required to have a protective wrapping and coating and is required to be cathodically protected if soil conditions warrant (40 CFR 112.1(d) and 112.7(e)(3)(i)).

Verify that buried fuel piping is properly protected from corrosion by examining records and interviewing personnel.

Verify that methods are appropriate and correctly applied if cathodic protection is used.

Verify that detected leaks and failures are being reported.

(NOTE: Cathodic protection systems must be routinely monitored.)

(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:

- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:
  - onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines
  - equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT
- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:
  - the underground buried storage capacity of the facility is 42,000 gal or less of oil
  - the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.45.2.</b> All above and belowground fuel piping systems at transfer facilities, pumping stations, and in-plant processing facilities must be regularly examined and any suspected leaks investigated immediately (40 CFR 112.1(d) and 112.7(e)(3)(iv)).</p>	<p>Verify that regular inspections have been conducted by examining records and interviewing personnel.</p> <p>Verify that aboveground general condition of items, such as flange joints, valve glands and bodies, catch pans, pipeline supports, locking of valves, and metal surfaces have been assessed.</p> <p>Verify that confirmed leaks have been reported and leaking pipes repaired or replaced.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:</p> <ul style="list-style-type: none"> <li>- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:           <ul style="list-style-type: none"> <li>- onshore and offshore facilities which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>- equipment or operations of vessels or transportation related onshore and offshore facilities which are subject to the authority of the DOT</li> </ul> </li> <li>- the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:           <ul style="list-style-type: none"> <li>- the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>- the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul>
<p><b>PO.45.3.</b> Offsite pipe lines should be inspected regularly (MP).</p>	<p>Determine if inspections are performed by examining records.</p> <p>Verify that detected leaks and failures have been reported and leaking pipes repaired or replaced by interviewing personnel.</p>
<p><b>PO.45.4.</b> In specific instances of failure in a pipeline for hazardous liquids, a report must be submitted (49 CFR 195.1, 195.50, and 195.54) [Revised July 1999].</p>	<p>Verify that, when there is a release of hazardous liquid or CO<sub>2</sub> that results in the following, an accident report is submitted to Department of Transportation (DOT) within 30 days:</p> <ul style="list-style-type: none"> <li>- explosion or fire not intentionally set by the operator</li> <li>- loss of 50 or more barrels (bbl) (8 or more m<sup>3</sup>) of hazardous liquid or CO<sub>2</sub></li> <li>- escape to the atmosphere of more than 5 bbl (0.8 m<sup>3</sup>) a day of highly volatile liquids</li> <li>- death of any person</li> <li>- bodily harm resulting in:</li> </ul>

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**PO.45.5.** Under specific circumstances, if there is a release of a hazardous liquid or CO<sub>2</sub> transported in a pipeline, telephone notification must be made as soon as possible after discovery of the release (49 CFR 195.1 and 195.52).

- loss of consciousness
  - necessity to carry the person from the scene
  - necessity for medical treatment
  - disability which prevents the discharge of normal duties or pursuit of normal activities
  - estimated property damage to the property of the operator of others or both, exceeding \$5000.
- (NOTE: This requirement does not apply to the transportation of:
- a hazardous liquid that is transported in a gaseous state
  - a hazardous liquid through a pipeline by gravity
  - a hazardous liquid through pipelines that operate at a stress level of 20 percent or less of the specified minimum yield strength of the line pipe
  - petroleum in onshore gathering lines in rural areas except gathering lines in the inlets of the Gulf of Mexico
  - a hazardous liquid or CO<sub>2</sub> in offshore pipelines which are located upstream from the outlet flange of each facility on the Outer Continental Shelf where hydrocarbons or CO<sub>2</sub> are produced or where produced hydrocarbons or CO<sub>2</sub> are first separated, dehydrated, or otherwise processed, whichever facility is further downstream
  - a hazardous liquid or CO<sub>2</sub> through onshore production, refining, or manufacturing facilities, storage or in plant piping systems associated with such facilities
  - a hazardous liquid or carbon dioxide by vessel, aircraft, tank truck, tank car, or other vehicle or terminal facilities used exclusively to transport hazardous liquids or CO<sub>2</sub> between such modes of transportation
  - CO<sub>2</sub> downstream from a point in the vicinity of the well site at which CO<sub>2</sub> is delivered to a production facility.)
- Verify that telephone notification is made as soon as possible of any failure that:
- caused a death or a personal injury requiring hospitalization
  - resulted in either a fire or explosion not intentionally set by the operator
  - caused estimated damage to the property of the operator or other or both, exceeding \$5000
  - resulted in pollution of any stream, river, lake, reservoir, or other similar body of water that violated applicable water quality standards, caused a discoloration of the surface of the water or adjoining shoreline, or deposited a sludge or emulsion beneath the surface of the water or upon adjoining shoreline

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- is significant in the judgment of the operator even though it did not meet any of the above criteria.

(NOTE: Telephone reports are to be made to 1-800-424-8802.)

(NOTE: This requirement does not apply to the transportation of:

- a hazardous liquid that is transported in a gaseous state
- a hazardous liquid through a pipeline by gravity
- a hazardous liquid through pipelines that operate at a stress level of 20 percent or less of the specified minimum yield strength of the line pipe
- petroleum in onshore gathering lines in rural areas except gathering lines in the inlets of the Gulf of Mexico
- a hazardous liquid or CO<sub>2</sub> in offshore pipelines which are located upstream from the outlet flange of each facility on the Outer Continental Shelf where hydrocarbons or CO<sub>2</sub> are produced or where produced hydrocarbons or CO<sub>2</sub> are first separated, dehydrated, or otherwise processed, whichever facility is further downstream
- a hazardous liquid or CO<sub>2</sub> through onshore production, refining, or manufacturing facilities, storage or in plant piping systems associated with such facilities
- a hazardous liquid or CO<sub>2</sub> by vessel, aircraft, tank truck, tank car or other vehicle or terminal facilities used exclusively to transport hazardous liquids or CO<sub>2</sub> between such modes of transportation
- CO<sub>2</sub> downstream from a point in the vicinity of the well site at which CO<sub>2</sub> is delivered to a production facility.)

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**PO.45.6.** Facilities with onshore oil pipelines that, because of location, could reasonably be expected to cause substantial harm or significant and substantial harm to the environment by discharging oil into or on any navigable waters of the United States, or adjoining shorelines, are required to prepare a response plan (49 CFR 194.3 and 194.101 through 194.107).

Verify that the response plan includes:

- a statement indicating which sections in a response zone can be expected to cause significant and substantial harm to the environment if there is a discharge of oil into or on the navigable water or adjoining shorelines
- indications of the worst case discharge
- immediate notification procedures
- spill detection and mitigation procedures
- the name address and phone number of an oil spill response organization
- response activities and response resources
- training procedures
- equipment testing
- schedules for drills
- plan updating procedures
- an appendix for each response zone indicating all the above general information in a way that is tailored to that response zone.

Verify that the response plan is in English and if necessary, any other language understood by personnel responsible for carrying out the plan.

(NOTE: Significant and substantial harm can be expected if the line is greater than 6 5/8 in. in outside nominal diameter, greater than 10 mi in length and the line section:

- has experienced a release greater than 1000 bbl in the previous 5 yr
- has experienced two or more reportable releases in the previous 5 yr
- contains any electric resistance welded pipe, manufactured prior to 1970, operated at maximum operating pressure that corresponds to a stress level greater than 50 percent of the specified minimum yield strength of the pipe
- is located within a 5 mi radius of potentially affected public drinking water intakes and could reasonably be expected to reach the intake
- is located within 1 mi radius of potentially affected environmentally sensitive areas, and could reasonably be expected to reach these areas.)

(NOTE: The requirement to submit a response plan is effective 18 February 1993. After 18 August 1993, the onshore pipeline must be operated according to the details outlined in the response plan.)

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**PO.45.7.** Copies of the response plan are required to be submitted to the DOT RSPA (49 CFR 194.119(a) through 194.119(d)).

(NOTE: A response plan is not required for the following facilities:  
 - a pipeline that is 6 5/8 in. or less in outside nominal diameter and is 10 mi or less in length, and all the following conditions apply:  
   - the pipeline has not experienced a release greater than 1000 bbl within the previous 5 yr  
   - the pipeline has not experienced at least two reportable releases within the previous 5 yr  
   - the pipeline contains any electric resistance welded pipe, manufactured prior to 1970, does not operate at a maximum operating pressure that corresponds to a stress level greater than 50 percent of the specified minimum yield strength of the pipe  
   - the pipeline is not in proximity to navigable waters, public drinking water intakes, or environmentally sensitive areas  
 - a line section that is greater than 6 5/8 in. in outside nominal diameter and is greater than 10 mi in length, where the operator determines that it is unlikely that the worst case discharges from any point on the line section would adversely affect, within 12 h after the start of discharge, any navigable waters, public drinking water intakes, or environmentally sensitive areas  
 - a line section that is 6 5/8 in. or less in outside nominal diameter and is 10 mi or less in length, where the operator determines that it is unlikely that the worst case discharge from any point on the line section would adversely affect, within 4 h after the initiation of the discharge, any navigable waters, public drinking water intakes, or environmentally sensitive areas.)

Verify that two copies were submitted to the following address:

Pipelines Response Plans Office  
 Research and Special Programs Administration  
 Department of Transportation  
 400 Seventh St. SW  
 Washington D.C. 20590-0001.

Verify that the RSPA approved the response plan.



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<p><b>PO.45.8.</b> If RSPA does not approve a response plan for a pipeline identified as expected to cause significant and substantial harm to the environment, the operator must submit certification to the RSPA by 18 July 1993 that the operator has obtained, through contract or other means, the necessary personnel and equipment to respond to a worst case discharge or a substantial threat of a discharge (49 CFR 194.119(e)).</p>	<p>Determine if the facility has an approved response plan.</p> <p>Verify that, if there is not an approved response plan, the necessary certification has been submitted.</p>
<p><b>PO.45.9.</b> Copies of the response plan are required to be kept at specific locations (49 CFR 194.111).</p>	<p>Verify that a copy of the complete response plan is at the operator's head quarters and a copy is provided to each responsible individual.</p> <p>Verify that a copy of the core portion of the plan and relevant response zone appendices for each line section whose pressure may be affected by the operation of a particular pump station is provided at the pump station.</p> <p>Verify that a copy of the core portion of the plan and relevant response zone appendices is kept at locations where response activities might be conducted.</p>
<p><b>PO.45.10.</b> Training is required for the implementation of the response plan (49 CFR 194.117).</p>	<p>Verify that training is conducted such that all personnel know:</p> <ul style="list-style-type: none"> <li>- their responsibilities under the plan</li> <li>- the names, addresses, and procedures for contacting the operator on a 24-h basis and an qualified individual.</li> </ul> <p>Verify that reporting personnel know:</p> <ul style="list-style-type: none"> <li>- the content of the information summary</li> <li>- the toll free number of the NRC</li> <li>- the notification process.</li> </ul>

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<p><b>PO.45.11.</b> Pipeline response plans are required to be reviewed every 3 yr from the date of submission and modified to address new or different operating conditions or information (49 CFR 194.121).</p>	<p>Verify that personnel engaged in response activities know:</p> <ul style="list-style-type: none"> <li>- the characteristics and hazards of oil discharged</li> <li>- the conditions that are likely to worsen emergencies and appropriate corrective actions</li> <li>- the steps needed to control any accidental discharge of oil and to minimize the potential for fire, explosion, toxicity, or environmental damage</li> <li>- the proper firefighting procedures and use of equipment, fire suits, and breathing apparatus.</li> </ul> <p>Verify that training records exist for each individual that has been trained, specifically records for:</p> <ul style="list-style-type: none"> <li>- operator personnel are at the operators headquarters</li> <li>- personnel engaged in response are maintained as determined by the operator.</li> </ul> <p>(NOTE: This training does not take the place of emergency response training requirements as found in 29 CFR 1910.120.)</p> <p>Verify that the plan is reviewed every 3 yr.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.55</b></p> <p><b>POL LOADING AND UNLOADING</b></p> <p><b>PO.55.1.</b> Onshore tank car and tank truck loading/unloading racks are required to meet specific structural standards (40 CFR 112.1(d), 112.7(e)(4)(ii), and 112.7(e)(4)(iii)) [Revised January 1999].</p>	<p>Verify that, where rack drainage does not flow into a catchment basin or treatment facility designed to handle spills, a quick drainage system is used.</p> <p>Verify that any containment system is designed to hold at least the maximum capacity of any single compartment of a tank car or tank truck loaded or unloaded at the site.</p> <p>Verify that an interlocked warning light or physical barrier system or warning signs are provided in loading/unloading areas to prevent vehicular departure before complete disconnect of flexible or fixed transfer lines.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:</p> <ul style="list-style-type: none"> <li>-the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:           <ul style="list-style-type: none"> <li>- onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>- equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the DOT</li> </ul> </li> <li>-the facility, which although otherwise subject to USEPA jurisdiction, meets both of the following criteria:           <ul style="list-style-type: none"> <li>-the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>-the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul> <p>(NOTE: This requirement applies to onshore tank car and tank truck loading/unloading racks, not an individual UST at a service station.)</p>

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<p><b>PO.55.2.</b> Specific operational procedures are required to be performed at facility tank car and tank truck loading/ unloading sites (40 CFR 112.1(d) and 112.7(e)(iv)).</p>	<p>Verify that, before filling and departure of any tank car or tank truck, the lowermost drain and all outlets of the vehicle are closely examined for leakage and if necessary tightened, adjusted, or replaced to prevent leakage while in transit.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if either of the following are met:</p> <ul style="list-style-type: none"> <li>-the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows:           <ul style="list-style-type: none"> <li>-onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>-equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the DOT</li> </ul> </li> <li>-the facility, which although otherwise subject to USEPA jurisdiction meets both of the following criteria:           <ul style="list-style-type: none"> <li>-the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>-the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal.)</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>USED OIL</b></p> <p><b>PO.60 General</b></p> <p><b>PO.60.1.</b> Depending on the constituents of the used oil (see Appendix 6-1) facilities are required to handle used oil as a hazardous waste or according to specific used oil requirements (40 CFR 279.10 and 279.81) [Revised July 2000].</p> <p><b>PO.60.2.</b> Used oil cannot be managed in surface impoundments or waste piles unless specific parameters are met (40 CFR 279.12(a)) [Added July 2000].</p>	<p>Determine which types of the used oils listed in Appendix 6-1 are generated at the facility.</p> <p>Verify that used oil is handled according to its classification as one of the following:</p> <ul style="list-style-type: none"> <li>- a hazardous waste</li> <li>- used oil that falls under the requirements of 40 CFR 279 (see checklist items in categories PO.60 through PO.90)</li> <li>- used oil that is not subject to the requirements of 40 CFR 279 and neither is the mixture a hazardous waste by either listing or characteristic.</li> </ul> <p>Verify that used oil is not managed in surface impoundments or waste piles unless the units are subject to regulation under 40 CFR 264 or 265.</p>



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<p><b>USED OIL</b></p> <p><b>PO.65 Generators</b></p> <p><b>PO.65.1.</b> Tanks storing used oil produced by used oil generators are required to meet specific criteria (40 CFR 279.22(b) and 279.22(c)) [Revised July 2000].</p> <p><b>PO.65.2.</b> Containers of used oil at used oil generators should be managed in accordance with good management practices (MP).</p> <p><b>PO.65.3.</b> [Deleted July 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: The requirements for used oil generators do not apply to the following:</p> <ul style="list-style-type: none"> <li>- household DIY used oil generators</li> <li>- vessels at sea or at port (in these cases generation occurs when it is transported ashore)</li> <li>- mixtures of used oil and diesel fuel mixed by the generators for use in the generators own vehicles</li> <li>- farmers who generate an average of 25 gal/mo or less of used oil from vehicles or machinery used on the farm in a calendar year.)</li> </ul> <p>(NOTE: In relation to used oil coming ashore from vessels, the owner or operator of the vessel and the person removing or accepting used oil from the vessel are co-generators of the used oil and are both responsible for managing the waste as used oil once it is ashore.)</p> <p>Verify that containers and tanks are not leaking, bulging, rusting, damaged, or dented.</p> <p>Verify that containers and ASTs and fill pipes for USTs are labeled or marked USED OIL.</p> <p>(NOTE: USTs used to store used oil are required to meet the standards outlined in 40 CFR 280.)</p> <p>Inspect containers and storage areas to determine the following:</p> <ul style="list-style-type: none"> <li>- containers are not stored more than two high and have pallets between them</li> <li>- at least 3 ft of aisle space is provided between rows of containers.</li> </ul> <p>See PO.65.1</p>

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<p><b>PO.65.4.</b> Used oil generators that detect a release (other than a UST release) after the effective date of the recycled used oil management program in effect in the State in which the release is located must meet specific requirements (40 CFR 279.22(d)) [Revised June 1998].</p> <p><b>PO.65.5.</b> Generators are allowed to burn used oil in used oil-fired space heaters if specific parameters are met (40 CFR 279.23).</p> <p><b>PO.65.6.</b> Except in specific circumstances, used oil generators must ensure that their used oil is transported only by transporters who have a USEPA identification number (40 CFR 279.24(a) through 279.24(e)) [Revised July 2000].</p>	<p>Verify that, when a release is detected, the following is done:</p> <ul style="list-style-type: none"> <li>- stop the release</li> <li>- contain the released used oil</li> <li>- clean up and manage properly the released used oil and other materials</li> <li>- repair or replace any leaking used oil storage containers or tanks prior to returning them to service.</li> </ul> <p>Determine if the facility operates any used oil-fired space heaters.</p> <p>Verify that the following parameters are met:</p> <ul style="list-style-type: none"> <li>- the heater burns only used oil that the facility generates or used oil received from household DIY used oil generators</li> <li>- the heater is designed to have a maximum capacity of not more than 0.5 MBtu/h</li> <li>- the combustion gases from the heater are vented to the ambient air.</li> </ul> <p>Determine who is transporting used oil.</p> <p>Verify that the generator is not transporting the used oil themselves, the transporter has an USEPA identification number.</p> <p>(NOTE: Used oil generators may arrange for used oil to be transported by a transporter without an USEPA identification number if the used oil is reclaimed under a contractual agreement and the reclaimed oil is returned to the generator for use as lubricant, cutting oil, or coolant, and the contract (or tolling agreement) contains the following:</p> <ul style="list-style-type: none"> <li>- the type of used oil and frequency of shipments</li> <li>- verification that the vehicle used for transportation is owned by the used oil processor/refiner</li> <li>- verification that reclaimed oil will be returned to the generator.)</li> </ul>



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**PO.65.7.** Used oil generators should have documentation concerning the disposal of their used oil (MP).

**PO.65.8.** Used oil generators are not allowed to mix hazardous waste with used oil unless specific parameters are met (40 CFR 279.21(a)) [Revised July 2000].

Verify that if the used oil generator is transporting the used oil themselves (without a USEPA identification number) to approved collection centers the following parameters are met:

- the used oil is generated at the generators site or is used oil collected from household do-it-yourselfers
- the transporting vehicles is owned by the generator or an employee of the generator
- no more than 55 gal is transported at any time
- the used oil collection center is registered, licensed, permitted, or recognized by a state/county/municipal government to manage use oil.

Verify that if the used oil generator is transporting the used oil themselves (without a USEPA identification number) to aggregation points owned by the generator, the following parameters are met:

- the transporting vehicle is owned by the generator or an employee of the generator
- no more than 55 gal is transported at any time
- the used oil is transported to an aggregation point that is owned and/or operated by the same generator

Verify that regardless of whether the facility sends its used oil to an aggregation center, a recycler, a burner, or elsewhere, it has documentation of the amounts sent and the date.

Verify that hazardous waste is not mixed with used oil unless:

- the resulting mixture does not exhibit any characteristics of hazardous waste
- the waste is hazardous solely because it exhibits the characteristic of ignitability and the mixture does not exhibit ignitability characteristic.

(NOTE: If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in subpart D of 40 CFR 261. The presumption may be rebutted by demonstrating that the used oil does not contain hazardous waste. The rebuttable presumption does not apply to metalworking oils/fluids containing chlorinated paraffins, if they are processed, through a tolling

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<p><b>PO.65.9.</b> Depending on their operations, used oil generators are required to also meet the standards for transporters (40 CFR 279.20(b)(1)) [Added July 2000].</p> <p><b>PO.65.10.</b> Depending on their operations, used oil generators are required to also meet the standards for processors and re-refiners(40 CFR 279.20(b)(2)) [Added July 2000].</p>	<p>arrangement to reclaim metalworking oils/fluids. The presumption does apply to metalworking oils/fluids if such oils/fluids are recycled in any other manner, or disposed. The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units if the CFC are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with CFCs that have been mixed with used oil from sources other than refrigeration units.)</p> <p>Verify that used oil generators who transport used oil, except under the self-transport provisions of 40 CFR. 279.24 (see checklist item PO.65.3), also comply with 40 CFR 279.40 through 40 CFR 279.47 (see checklist items PO.75.1 through PO.75.9).</p> <p>Verify that used oil generators who process or re-refine used oil also comply with 40 CFR 279.50 through 40 CFR 279.59 (see checklist items PO.87.1 through PO.87.16).</p> <p>(NOTE: Used oil generators who perform the following activities are not processors provided that the used oil is generated onsite and is not being sent off-site to a burner of on- or off-specification used oil fuel:</p> <ul style="list-style-type: none"> <li>- filtering, cleaning, or otherwise reconditioning used oil before returning it for reuse by the generator</li> <li>- separating used oil from wastewater generated onsite to make the wastewater acceptable for discharge or reuse pursuant to section 402 or section 307(b) of the Clean Water Act or other applicable federal or state regulations governing the management or discharge of wastewaters</li> <li>- using oil mist collectors to remove small droplets of used oil from in-plant air to make plant air suitable for continued recirculation</li> <li>- draining or otherwise removing used oil from materials containing or otherwise contaminated with used oil in order to remove excessive oil to the extent possible</li> <li>- filtering, separating or otherwise reconditioning used oil before burning it in a space heater (see checklist item PO.65.2 for details of 40 CFR 279.23.)</li> </ul>

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<p><b>PO.65.11.</b> Depending on their operations, used oil generators are required to also meet the standards for used oil burners (40 CFR 279.20(b)(3)) [Added July 2000].</p>	<p>Verify that used oil generators who burn off-specification used oil for energy recovery, except under the onsite space heater provisions of 40 CFR 279.23 (see checklist item PO.65.2), comply with 40 CFR 279.60 through 40 CFR 279.67 (see checklist items PO.80.2 through PO.80.12).</p>
<p><b>PO.65.12.</b> Depending on their operations, used oil generators are required to also meet the standards for marketers (40 CFR 279.20(b)(4)) [Added July 2000].</p>	<p>Verify that generators who direct shipments of off-specification used oil from their facility to a used oil burner, or first claim that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in 40 CFR 279.11 (see Appendix A of this document), also complies with 40 CFR 279.70 through 279.75 (see checklist items PO.85.1 through PO.85.9).</p>
<p><b>PO.65.13.</b> Depending on their operations, used oil generators are required to also meet the standards for used oil disposers (40 CFR 279.20(b)(5)) [Added July 2000].</p>	<p>Verify that used oil generators who dispose of used oil, including the use of used oil as a dust suppressant, must also comply with 40 CFR 279.80 through 279.82 (see checklist items PO.60.1 and PO.90.1).</p>



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<p><b>USED OIL</b></p> <p><b>PO.70 Collection Centers and Aggregation Points</b></p> <p><b>PO.70.1.</b> DIY used oil collection centers are required to meet the same standards as used oil generators (40 CFR 279.30).</p> <p><b>PO.70.2.</b> Used oil collection centers are required to be licensed/ permitted and operated according to specific standards (40 CFR 279.31).</p> <p><b>PO.70.3.</b> Used oil aggregation points are required to be operated according to the standards for used oil generators (40 CFR 279.32).</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>Verify that DIY used oil collection centers meet the requirements outlined in the sections titled Used Oil - Generators.</p> <p>Determine if the facility operates a used oil collection center.</p> <p>Verify that the collection center meets the requirements for used oil generators outlined in the sections titled Used Oil - Generators.</p> <p>Verify that the collection center is registered/licensed/permitted/ recognized by a state/county/ municipal government to manage used oil.</p> <p>Verify that the used oil aggregation point is operated according to the standards outlined in the sections titled Used Oil - Generators.</p>



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<p><b>USED OIL</b></p> <p><b>PO.75 Transportation</b></p> <p><b>PO.75.1.</b> Transporters who put used oil in a truck that has previously transported hazardous waste without emptying and cleaning the truck are required to transport and handle the used oil as a hazardous waste (40 CFR 279.40(c)) [Revised July 2000].</p> <p><b>PO.75.2.</b> Used oil transporters can consolidate or aggregate loads of used oil in specific situations (40 CFR 279.41) [Revised July 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: These requirements concerning transportation and transfer of used oil do not apply to the following:</p> <ul style="list-style-type: none"> <li>- onsite transportation</li> <li>- generators who transport shipments of used oil totaling 55 gal or less from the generator to a used oil collection center</li> <li>- generators who transport shipments of used oil totaling 55 gal or less from the generator to a used oil aggregation point owned by the generator</li> <li>- transportation of used oil generated by household DIYs from the initial generator to a regulated generator, collection center, aggregation point, processor/refiner, or burner.)</li> </ul> <p>Verify that used oil contaminated with hazardous waste is transported as a hazardous waste unless the mixture is otherwise determined not to exhibit any hazardous characteristics.</p> <p>Determine if the transporter consolidates or aggregates loads of used oil for purposes of transportation.</p> <p>Verify that transporters conduct only incidental processing operations such as settling and water separation, unless they also comply with the requirements for processors and re-refiners (see checklist items PO.87.1 through PO.87.16).</p> <p>(NOTE: Transporters of used oil that is removed from oil bearing electrical transformers and turbines and filtered by the transporter or at a transfer facility prior to being returned to its original use are not subject to the processor/re-refiner requirements.)</p>

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<p><b>PO.75.3.</b> Used oil transporters are required to have a USEPA identification number (40 CFR 279.42) [Revised July 2000].</p> <p><b>PO.75.4.</b> Transporters must meet specific requirements for deliveries and shipments of used oil (40 CFR 279.40(b), 279.43(a) through 279.43(b)) [Revised July 2000].</p>	<p>Verify that the used oil transporter has an USEPA identification number.</p> <p>(NOTE: A used oil transporter who has not received an USEPA identification number may obtain one by notifying the USEPA or authorized regulatory agency of their used oil activity by submitting either a completed USEPA Form 8700-12, or a letter requesting an USEPA identification number.)</p> <p>Verify that all used oil is delivered to:</p> <ul style="list-style-type: none"> <li>-another used oil transporter provided that the transporter has a USEPA identification number</li> <li>-a used oil processing/re-refining facilities with a USEPA identification number</li> <li>-an off-specification used oil burner facility with a USEPA identification number</li> <li>-an on-specification used oil burner facility.</li> </ul> <p>Verify that DOT labeling, packaging, and placarding requirements under 49 CFR 171 through 180 are met.</p> <p>Verify that if the used oil meets the definition of hazardous material, the transporter complies with DOT regulations under 49 CFR 171.8.</p> <p>Verify that transporters who import used oil from abroad or export used oil outside of the United States meet all used oil transportation requirements while in the boundaries of the United States.</p>
<p><b>PO.75.5.</b> Transporters are required to take specific actions if there is a discharge of used oil during transportation (40 CFR 279.43(c)) [Revised July 2000].</p>	<p>Verify that, if there is a discharge, the following are done:</p> <ul style="list-style-type: none"> <li>-notification of authorities (NRC)</li> <li>-containment of the discharge</li> <li>-submit a written report to the DOT</li> <li>-cleanup.</li> </ul> <p>(NOTE: A transporter must clean up any used oil discharged that occurs during transportation or take such action as may be required or approved by federal, state, or local officials so that the used oil discharge no longer presents a hazard to human health or the environment.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.75.6.</b> Transporters are required to determine if the total halogen content of used oil being transported or stored at a transfer facility is above or below 1000 ppm (40 CFR 279.44) [Revised July 2000].</p>	<p>Verify that the transporter determines the total halogen content of the used oil by one of the following methods:</p> <ul style="list-style-type: none"> <li>- testing the used oil</li> <li>- applying knowledge of halogen content of the used oil in light of the materials or processes used.</li> </ul> <p>Verify that records of analyses are kept for 3 yr.</p> <p>(NOTE: If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in subpart D of 40 CFR 261. The presumption may be rebutted by demonstrating that the used oil does not contain hazardous waste. The rebuttable presumption does not apply to metalworking oils/fluids containing chlorinated paraffins, if they are processed, through a tolling arrangement to reclaim metalworking oils/fluids. The presumption does apply to metalworking oils/fluids if such oils/fluids are recycled in any other manner, or disposed. The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units if the CFC are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with CFCs that have been mixed with used oil from sources other than refrigeration units.)</p>
<p><b>PO.75.7.</b> Used oil transporters are required to keep records for used oil shipments and deliveries (40 CFR 279.46).</p>	<p>Verify that the following records are kept for each shipment accepted for transport:</p> <ul style="list-style-type: none"> <li>- name and address of the generator, transporter, or processor/re-refiner who provided the used oil for transport</li> <li>- USEPA identification number</li> <li>- the quantity of oil accepted</li> <li>- the day of acceptance</li> <li>- signature of receipt.</li> </ul> <p>Verify that the following records are kept for each delivery to another used oil transporter or to a used oil burner, processor/re-refiner, or disposal facility and for export/import activities:</p> <ul style="list-style-type: none"> <li>- the name and address of the receiving facility or transporter</li> <li>- the USEPA identification number of the receiving facility or transporter</li> <li>- the quantity of used oil delivered</li> <li>- the date of delivery</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.75.8.</b> Transfer facilities are required to store used oil in tanks and containers that meet specific requirements (40 CFR 279.45(b) through 279.45(g)) [Revised July 2000].</p>	<p>- the signature, dated upon receipt of the used oil, of a representative of the receiving facility or transporter.</p> <p>Verify that records are maintained for 3 yr.</p> <p>Verify that used oil transfer facilities do not store used oil in units other than tanks, containers, or units subject to regulation under 40 CFR 264 or 265.</p> <p>Verify that containers and aboveground tanks used to stored used oil at transfer facilities are in good condition (no severe rusting, apparent structural defects or deterioration); and not leaking.</p> <p>Verify that containers used to store used oil at transfer facilities have secondary containment that meets the following minimum requirements:</p> <ul style="list-style-type: none"> <li>- dikes, berms, or retaining walls</li> <li>- a floor that covers the entire area within the dikes, berms, or retaining walls</li> <li>- an equivalent secondary containment system</li> <li>- the system is impervious to used oil and will prevent migration to the soil, groundwater, or surface water.</li> </ul> <p>Verify that aboveground storage tanks (ASTs) used to store used oil at transfer facilities have secondary containment that meets the following minimum requirements:</p> <ul style="list-style-type: none"> <li>- dikes, berms, or retaining walls</li> <li>- a floor that covers the entire area within the dikes, berms, or retaining walls</li> <li>- an equivalent secondary containment system</li> <li>- the system is impervious to used oil and will prevent migration to the soil, groundwater, or surface water.</li> </ul> <p>Verify that containers and aboveground storage tanks (ASTs) are labeled with the phrase USED OIL.</p> <p>Verify that fill pipes used to transfer used oil into underground storage tanks at transfer facilities are labeled with the phrase USED OIL.</p> <p>(NOTE: In addition to these regulations under RCRA, used oil facilities may also be regulated under the 1990 Oil Pollution Act which requires facilities, that could reasonably be expected to discharge oil in harmful quantities, to prepare and implement rigorous Spill Prevention, Control,</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.75.9.</b> Specific steps must be followed in response to a release at a transfer facility (40 CFR 279.45(h)) [Revised June 1998].</p>	<p>and Countermeasure (SPCC) Plans required under the Clean Water Act (40 CFR 112.7). The SPCC regulations also require specific management procedures for loading, unloading, and storing petroleum products. Regulations covering response to oil discharges and contingency plans (40 CFR 300), as well as facility response plans to oil discharges (40 CFR 112.20) were revised and finalized in 1995.)</p> <p>(NOTE: This applies when the release is not from a UST and has occurred after the effective date of the recycled used oil management program in effect in the state in which the release is located.)</p> <p>Verify that the following steps are taken:</p> <ul style="list-style-type: none"> <li>- the release is stopped</li> <li>- the release is contained</li> <li>- the released used oil and other materials are cleaned up and properly managed</li> <li>- necessary repairs and replacements are done prior to returning containers or tanks to service.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>USED OIL</b></p> <p><b>PO.80 Burners</b></p> <p><b>PO.80.1.</b> Off-specification used oil fuel may be burned for energy recovery in certain circumstances (40 CFR 279.60(a), 279.60(c), 279.61(a), and 279.61(b)(2)). <b>[Revised July 2000].</b></p>	<p>Verify that off-specification used oil fuel is burned for energy recovery in only the following devices:</p> <ul style="list-style-type: none"> <li>- an industrial furnace identified in 40 CFR 260.10</li> <li>- a boiler that is defined in 40 CFR 260.10 and is identified as one of the following:             <ul style="list-style-type: none"> <li>- industrial boilers that are located on the site of a facility engaged in a manufacturing process where substances are transformed into new products by mechanical or chemical processes</li> <li>- utility boilers used to produce electric power steam, heated or cooled air, or other gases or fluids for sale</li> <li>- used oil-fired space heaters, provided the burner meets the requirements in 40 CFR 279.23(see checklist item PO.65.2)</li> </ul> </li> <li>- hazardous waste incinerators (see Subpart O of 40 CFR 264 or 265).</li> </ul> <p>(NOTE: Used oil burners may aggregate off-specification used oil with virgin oil or on-specification used oil for purposes of burning, but may not aggregate for purposes of producing on-specification used oil.)</p> <p>(NOTE: The requirements for used oil burners do not apply to the following:</p> <ul style="list-style-type: none"> <li>- the used oil is burned by the generator in an onsite space heater under the provisions of 40 CFR 279.23 (see checklist item PO.65.2)</li> <li>- the used oil is burned by a processor/re-refiner for purposes of processing used oil, which is considered burning incidentally to used oil processing</li> <li>- persons burning used oil that meets the used oil fuel specification of 40 CFR 279.11, if the burner complies with the requirements for used oil fuel marketers.)</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.80.2.</b> Used oil burners are required to have an USEPA identification number (40 CFR 279.60(a), 279.60(c), and 279.62) [Revised July 2000].</p>	<p>Verify that the used oil burner has an USEPA identification number.</p> <p>(NOTE: A used oil burner who has not received an USEPA identification number may obtain one by notifying the USEPA Regional Administrator or authorized regulatory agency of their used oil activity by submitting either a completed USEPA Form 8700-12 or a letter requesting an USEPA identification number.)</p> <p>(NOTE: The requirements for used oil burners do not apply to the following:</p> <ul style="list-style-type: none"> <li>- the used oil is burned by the generator in an onsite space heater under the provisions of 40 CFR 279.23 (see checklist item PO.60.2)</li> <li>- the used oil is burned by a processor/re-refiner for purposes of processing used oil, which is considered burning incidentally to used oil processing</li> <li>- persons burning used oil that meets the used oil fuel specification of 40 CFR 279.11, if the burner complies with the requirements for used oil fuel marketers.)</li> </ul>
<p><b>PO.80.3.</b> Used oil burners are required to determine if used oil is a hazardous waste (40 CFR 279.60(a), 279.60(c), and 279.63) [Revised July 2000].</p>	<p>Verify that the used oil is either tested or the used oil burner applies their knowledge of the halogen content of the used oil in light of the materials or processes used, or using information from another source.</p> <p>Verify that copies of analyses are maintained for 3 yr.</p> <p>(NOTE: If the used oil contains greater than or equal to 1,000 ppm total halogens, it is presumed to be a hazardous waste because it has been mixed with halogenated hazardous waste listed in subpart D of 40 CFR 261. The presumption may be rebutted by demonstrating that the used oil does not contain hazardous waste. The rebuttable presumption does not apply to metalworking oils/fluids containing chlorinated paraffins, if they are processed, through a tolling arrangement to reclaim metalworking oils/fluids. The presumption does apply to metalworking oils/fluids if such oils/fluids are recycled in any other manner, or disposed. The rebuttable presumption does not apply to used oils contaminated with chlorofluorocarbons (CFCs) removed from refrigeration units if the CFC are destined for reclamation. The rebuttable presumption does apply to used oils contaminated with CFCs that have been mixed with used oil from sources other than refrigeration units.)</p>

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**PO.80.4.** Used oil burners are required to store used oil in containers that meet specific requirements (40 CFR 279.60(a), 279.60(c), and 279.64(a) through 279.64(f)) [Revised July 2000].

(NOTE: The requirements for used oil burners do not apply to the following:

- the used oil is burned by the generator in an onsite space heater under the provisions of 40 CFR 279.23 (see checklist item PO.60.2)
- the used oil is burned by a processor/re-refiner for purposes of processing used oil, which is considered burning incidentally to used oil processing
- persons burning used oil that meets the used oil fuel specification of 40 CFR 279.11, if the burner complies with the requirements for used oil fuel marketers.)

Verify that containers and aboveground tanks used to stored used oil at are in good condition (no severe rusting, apparent structural defects or deterioration); and not leaking.

Verify that containers used to store used oil have secondary containment that meets the following minimum requirements:

- dikes, berms, or retaining walls
- a floor that covers the entire area within the dikes, berms, or retaining walls or an equivalent secondary containment system
- the system is impervious to used oil to prevent migration to the soil, groundwater, or surface water.

Verify that aboveground storage tanks (ASTs) used to store used oil have secondary containment that meets the following minimum requirements:

- dikes, berms, or retaining walls
- a floor that covers the entire area within the dikes, berms, or retaining walls
- an equivalent secondary containment system
- the system is impervious to used oil to prevent migration to the soil, groundwater, or surface water.

Verify that containers and aboveground storage tanks (ASTs) are labeled with the phrase USED OIL.

Verify that fill pipes used to transfer used oil into underground storage tanks at transfer facilities are labeled with the phrase USED OIL.

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**PO.80.5.** Specific steps must be followed in response to a release at a used oil burner (40 CFR 279.60(a), 279.60(c), and 279.64(g)) [Revised June 1998, Revised July 2000].

(NOTE: The requirements for used oil burners do not apply to the following:

- the used oil is burned by the generator in an onsite space heater under the provisions of 40 CFR 279.23 (see checklist item PO.60.2)
- the used oil is burned by a processor/re-refiner for purposes of processing used oil, which is considered burning incidentally to used oil processing
- persons burning used oil that meets the used oil fuel specification of 40 CFR 279.11, if the burner complies with the requirements for used oil fuel marketers.)

(NOTE: These requirements apply when the release is not from an underground storage tank (UST) and has occurred after the effective date of the recycled used oil management program in effect in the state in which the release is located.)

Verify that the following steps are taken by a burner:

- the release is stopped
- the release is contained
- the released used oil and other materials are cleaned up and properly managed
- necessary repairs and replacements are done on containers or tanks prior to returning them to service.

(NOTE: The requirements for used oil burners do not apply to the following:

- the used oil is burned by the generator in an onsite space heater under the provisions of 40 CFR 279.23 (see checklist item PO.60.2)
- the used oil is burned by a processor/re-refiner for purposes of processing used oil, which is considered burning incidentally to used oil processing
- persons burning used oil that meets the used oil fuel specification of 40 CFR 279.11, if the burner complies with the requirements for used oil fuel marketers.)

(NOTE: Release reporting requirements are outlined in 40 CFR 110.2 through 110.10, see checklist item PO.15.1.)



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.80.6.</b> Used oil burners are required to keep a record of each used oil shipment accepted for burning (40 CFR 279.60(a), 279.60(c), and 279.65) [Revised July 2000].</p>	<p>Verify that some form of records are kept that document the following:</p> <ul style="list-style-type: none"> <li>- the name and address of the transporter who delivered the used oil</li> <li>- the name and address of the generator or processor or re-refiner from whom the used oil was sent to the burner</li> <li>- the USEPA identification numbers of the transporter or, if applicable, the generator, processor/re-refiner</li> <li>- the quantity of used oil accepted</li> <li>- the date of acceptance.</li> </ul> <p>Verify that records are maintained for at least 3 yr.</p> <p>(NOTE: The requirements for used oil burners do not apply to the following:</p> <ul style="list-style-type: none"> <li>- the used oil is burned by the generator in an onsite space heater under the provisions of 40 CFR 279.23 (see checklist item PO.60.2)</li> <li>- the used oil is burned by a processor/re-refiner for purposes of processing used oil, which is considered burning incidentally to used oil processing</li> <li>- persons burning used oil that meets the used oil fuel specification of 40 CFR 279.11, if the burner complies with the requirements for used oil fuel marketers.)</li> </ul>
<p><b>PO.80.7.</b> Before a burner can accept the first shipment of off-specification used oil fuel from a generator, transporter, or processor/re-refiner, the burner must provide a one-time written notice (40 CFR 279.60(a), 279.60(c), and 279.66) [Revised July 2000].</p>	<p>Verify that the burner issued a notice to the USEPA stating the location and description of the activity and certifying that the used oil will only be burned in an industrial furnace or boiler.</p> <p>Verify that the certification is maintained for 3 yr from the date of the last shipment received.</p> <p>(NOTE: The requirements for used oil burners do not apply to the following:</p> <ul style="list-style-type: none"> <li>- the used oil is burned by the generator in an onsite space heater under the provisions of 40 CFR 279.23 (see checklist item PO.60.2)</li> <li>- the used oil is burned by a processor/re-refiner for purposes of processing used oil, which is considered burning incidentally to used oil processing</li> <li>- persons burning used oil that meets the used oil fuel specification of 40 CFR 279.11, if the burner complies with the requirements for used oil fuel marketers.)</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.80.8.</b> Depending on their operations, used oil burners are required to also meet the standards for used oil generators (40 CFR 279.60(b)(1)) [Added July 2000].</p>	<p>Verify that used oil burners who generate used oil also comply with 40 CFR 279.20 through 40 CFR 279.24 (see checklist items PO.65.1 through PO.65.12).</p>
<p><b>PO.80.9.</b> Depending on their operations, used oil burners are required to also meet the standards for used oil transporters (40 CFR 279.60(b)(2)) [Added July 2000].</p>	<p>Verify that used oil burners who transport used oil also comply with 40 CFR 279.40 through 40 CFR 279.47 (see checklist items PO.75.1 through PO.75.9).</p>
<p><b>PO.80.10.</b> Depending on their operations, used oil burners are required to also meet the standards for processors and re-refiners (40 CFR 279.60(b)(3) and 279.61(b)) [Added July 2000].</p>	<p>Verify that used oil burners who process or re-refine used oil also comply with 40 CFR 279.50 through 40 CFR 279.59 (see checklist items PO.87.1 through PO.87.16).</p> <p>(NOTE: Used oil burners may aggregate off-specification used oil with virgin oil or on-specification used oil for purposes of burning, but may not aggregate for purposes of producing on-specification used oil.)</p>
<p><b>PO.80.11.</b> Depending on their operations, used oil burners are required to also meet the standards for marketers(40 CFR 279.60(b)(4)) [Added July 2000].</p>	<p>Verify that burners who direct shipments of off-specification used oil from their facility to a used oil burner or first claim that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in 40 CFR 279.11 also complies with 40 CFR 279.70 through 40 CFR 279.75 (see checklist items PO.85.1 through PO.85.9).</p>
<p><b>PO.80.12.</b> Depending on their operations, used oil generators are required to also meet the standards for used oil disposers (40 CFR 279.60(b)(5)) [Added July 2000].</p>	<p>Verify that used oil burners who dispose of used oil, including the use of used oil as a dust suppressant, must also comply with 40 CFR 279.80 through 279.82 (see checklist items PO.60.1 and PO.90.1).</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>USED OIL</b></p> <p><b>PO.85 Marketing</b></p> <p><b>PO.85.1.</b> Used oil fuel marketers may only initiate a shipment of off-specification used oil to a used oil burner who has an USEPA identification number and burns the used oil in an industrial furnace or boiler (40 CFR 279.70(a)(1), 279.70(b) and 279.71) [Revised July 2000].</p> <p><b>PO.85.2.</b> Generators, transporters, processor/re- refiners, or burners must determine if used oil to be burned for energy recovery is off or on-specification (40 CFR 279.70(b) and 279.72) [Revised July 2000].</p> <p><b>PO.85.3.</b> Used oil fuel marketers are required to have a USEPA identification number (40 CFR 279.70(b) and 279.73) [Revised July 2000].</p>	<p>(NOTE: The standards for used oil marketing applies to any person who does either of the following (40 CFR 279.70(a) [Added July 2000]):</p> <ul style="list-style-type: none"> <li>- directs a shipment of off-specification used oil from their facility to a used oil burner</li> <li>- first claims that used oil that is to be burned for energy recovery meets the used oil fuel specifications set forth in 40 CFR 279.11 (See Appendix A of this document).).</li> </ul> <p>Determine if the facility is a used oil fuel marketer initiates a shipment of off-specification used oil to a used oil burner.</p> <p>Verify that it is going to an appropriate used oil burner.</p> <p>(NOTE: These requirements do not apply to the following:</p> <ul style="list-style-type: none"> <li>- persons who direct shipments of on-specification used oil and who are not the first person to claim the oil is on-specification</li> <li>- used oil generators and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner.)</li> </ul> <p>Verify that a determination as to whether the used oil fuel is off or on-specification is made by analyses or obtaining copies of other analyses.</p> <p>Verify that records of analyses are maintained for 3 yr.</p> <p>(NOTE: These requirements do not apply to the following:</p> <ul style="list-style-type: none"> <li>- persons who direct shipments of on-specification used oil and who are not the first person to claim the oil is on-specification</li> <li>- used oil generators and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner.)</li> </ul> <p>Verify that the used oil fuel marketer has a USEPA identification number.</p> <p>(NOTE: A used oil marketer who has not received an USEPA identification number may obtain one by notifying the USEPA or authorized regulatory agency of their used oil activity by submitting either a completed USEPA Form 8700-12 or a letter requesting an USEPA identification number.)</p>

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**PO.85.4.** Any used oil marketer that directs a shipment of used oil to a burner is required to keep specific records (40 CFR 279.70(b) and 279.74) [Revised June 1998, Reviewed July 2000].

(NOTE: These requirements do not apply to the following:  
 – persons who direct shipments of on-specification used oil and who are not the first person to claim the oil is on-specification  
 – used oil generators and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner.)

Verify that records containing the following information are kept of each shipment of off-specification oil:

- the name and address of the transporter who delivers the used oil to the burner
- the name and address of the burner who will receive the used oil
- the USEPA identification number of the burner
- the quantity of used oil shipped
- the date of shipment.

Verify that records containing the following information are kept of each shipment of on-specification oil:

- the name and address of the activity receiving the shipment
- the quantity of used oil fuel delivered
- a cross-reference to the record of used oil analysis
- the date of shipment or delivery.

Verify that records are maintained for 3 yr.

(NOTE: These requirements do not apply to the following:  
 – persons who direct shipments of on-specification used oil and who are not the first person to claim the oil is on-specification  
 – used oil generators and transporters who transport used oil received only from generators, unless the generator or transporter directs a shipment of off-specification used oil from their facility to a used oil burner.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PO.85.5.</b> Before a used oil generator, transporter, processor/re-refiner directs the first shipment of off-specification used oil to a burner, they must obtain a one-time written and signed notice from the burner (40 CFR 279.70(b) and 279.75) <b>[Reviewed July 2000]</b>.</p>	<p>Verify that notice from the burner has been received that indicates the burner notified the USEPA of the location and used oil management activities and that the burner will only burn off-specification oil in approved furnaces and boilers.</p> <p>Verify that a copy of the notice is kept for 3 yr from the date the last shipment of off-specification used oil is shipped to the burner.</p>
<p><b>PO.85.6.</b> Depending on their operations, used oil marketers are required to also meet the standards for used oil generators (40 CFR 279.70(c)(1)) <b>[Added July 2000]</b>.</p>	<p>Verify that used oil marketers who generate used oil also comply with 40 CFR 279.20 through 40 CFR 279.24 (see checklist items PO.65.1 through PO.65.12).</p>
<p><b>PO.85.7.</b> Depending on their operations, used oil marketers are required to also meet the standards for used oil transporters (40 CFR 279.70(c)(2)) <b>[Added July 2000]</b>.</p>	<p>Verify that used oil marketers who transport used oil also comply with 40 CFR 279.40 through 40 CFR 279.47 (see checklist items PO.75.1 through PO.75.9).</p>
<p><b>PO.85.8.</b> Depending on their operations, used oil marketers are required to also meet the standards for processors and re-refiners (40 CFR 279.70(c)(3)) <b>[Added July 2000]</b>.</p>	<p>Verify that used oil marketers who process or re-refine used oil also comply with 40 CFR 279.50 through 40 CFR 279.59 (see checklist items PO.87.1 through PO.87.16).</p>

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**PO.85.9.** Depending on their operations, used oil marketers are required to also meet the standards for used oil burners (40 CFR 279.70(c)(3)) **[Added July 2000]**.

Verify that used oil marketers who burn off-specification used oil for energy recovery also comply with 40 CFR 279.60 through 40 CFR 279.67 (see checklist items PO.80.2 through PO.80.12).

**COMPLIANCE CATEGORY:  
PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**USED OIL**

**PO.90  
Dust Suppression**

**PO.90.1.** Used oil cannot be used for dust suppression unless allowed by the state (40 CFR 279.12(b) and 279.82) [Revised July 2000].

Verify that used oil is not used for dust suppression at the facility.





**Appendix 6-1**  
**Used Oil Classifications**  
**(40 CFR 279.10 and 279.11)**  
**[Revised June 1998/Reviewed July 2000]**

**Used Oils Which Are Required To Be Handled According to the Requirements in 40 CFR 279 (40 CFR 279.10(b)(2)(ii), 279.10(b)(2)(iii), 279.10(b)(3), 279.10(c)(2), 279.10(d), 279.10(e)(2), and 279.10(i))**

1. Used oil containing more than 1000 ppm of total halogens when the generator has demonstrated that the used oil does not contain hazardous waste.
2. Used metalworking oils/fluids containing chlorinated paraffins when they are recycled or disposed of and the generator has demonstrated that the used oil does not contain hazardous waste.
3. Used oils contaminated with CFCs that have been mixed with used oil from sources other
4. than refrigeration units and the generator has demonstrated that the used oil does not contain
5. hazardous waste.
6. Materials produced from used oil that are burned for energy recovery.
7. Mixtures of used oil and hazardous waste if the resultant mixture does not exhibit any characteristics of hazardous waste.
8. Mixtures of used oil and a waste that is hazardous solely because it exhibits the characteristic of ignitability and is not a listed waste.
9. Mixtures of used oil and conditionally exempt small quantity generator (CESQG) hazardous waste.
10. Mixtures of used oil and fuels or other fuel products except those marked onsite by the generator for use in the generators own vehicles if the used oil and the diesel fuel have been mixed.
11. Used oil burned for energy recovery and any fuel produced from used oil that exceeds the following allowable limits:

Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash Point	100 °× F minimum
Total halogens	4000 ppm maximum

12. Materials containing or otherwise contaminated with used oil that are burned for energy recovery. Used oil drained or removed from materials containing or otherwise contaminated with used oil.
13. Used oil at marketers or burners with any quantifiable level of PCBs (the standards in 40 CFR 761.20(a) must also be met for this type of oil).

**Used Oil That is Required To Be Handled as a Hazardous Waste (40 CFR 279.10(b))**

1. Mixtures of used oil and listed hazardous waste.
2. Used oil containing more than 1000 ppm total halogens
3. Used metalworking oils/fluids containing chlorinated paraffins if processed through a tolling agreement.
4. Used oil contaminated with CFCs removed from refrigeration units where the CFCs are destined for reclamation.
5. Mixtures of used oil and hazardous waste if the resultant mixture exhibits characteristics of a hazardous waste.

**Used Oil Not Subject to the Requirements of 40 CFR 279, Nor is it to be Handled as a Hazardous Waste, Unless Testing Indicates Hazardous Constituents (40 CFR 279.10(c)(1), 279.10(d)(2), 279.10(e)(1), 279.10(e)(3), 279.10(e)(4), and 279.10(f) through 279.10(h))**

1. Mixtures of used oil and diesel fuel mixed onsite by the generator of the used oil for use in the generator's own vehicles.
2. Materials that are reclaimed from used oil that are used beneficially and are not burned for energy recovery or used in a manner constituting disposal.
3. Materials derived from used oil that are disposed of or used in a manner constituting disposal.
4. Used oil re-refining distillation bottoms that are used as feedstock to manufacture asphalt products.
5. Wastewater discharges with de minimis quantities of used oil.
6. Used oil within a crude oil or natural gas pipeline.
7. Used oil on vessels.
8. Materials containing or otherwise contaminated with used oil from which the used oil has been properly drained or removed so that no signs of visible free-flowing remains.

## SECTION 7

### SOLID WASTE MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section addresses the collection, storage, and disposal of solid waste at FWS facilities. Solid waste is considered to be nonhazardous trash, rubbish, garbage, bulky wastes, liquids, or sludges generated by any facility's operations and activities. The handling and disposal of asbestos waste materials is addressed in Section 8, Special Pollutants Management.

Recycling and resource recovery activities are also included in this section because they are considered a form of solid waste management.

Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in **July 2000**, for example [**Added July 2000**].

#### B. Federal Legislation

- *Resource Conservation and Recovery Act (RCRA)* of 1976. This is the Federal law which governs the disposal of solid waste. Subtitle D of this act, as last amended in November 1984, Public Law (PL) 98-616, 42 U.S. Code (USC) 6941-6949a, establishes Federal standards and requirements for state and regional authorities respecting solid waste disposal. The objectives of this subtitle are to assist in developing and encouraging methods for the disposal of solid waste which are environmentally sound and which maximize the utilization of valuable resources recoverable from solid waste. The objectives are to be achieved through Federal technical and financial assistance to states and regional authorities for comprehensive planning (42 USC 6941).
- *The Solid Waste Disposal Act (SWDA)* of 1965, as amended. This act requires that Federal facilities comply with all Federal, state, interstate, and local requirements concerning the disposal and management of solid wastes. These requirements include permitting, licensing, and reporting.
- *The Occupational Safety and Health Act (OSHA)*. The general purpose of this act is to assure, as much as possible, every individual working in the United States safe and healthful working conditions. The control of medical waste is one aspect of assuring safe and healthy working conditions.
- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*. This EO of 13 October 1978 requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency

responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires each agency ensures that sufficient funds for environmental compliance are included in the agency budget.

- EO 13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*. This EO, dated 14 September 1998, mandates the head of each executive agency incorporate waste prevention and recycling in the agency's daily operations and work to increase and expand markets for recovered materials through greater Federal Government preference and demand for such products. Under this EO, it is the national policy to prefer pollution prevention, whenever feasible. Pollution that cannot be prevented should be recycled; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should be used only as a last resort. This EO also stipulates that agencies will comply with executive branch policies for the acquisition and use of environmentally preferable products and services and implement cost-effective procurement preference programs favoring the purchase of these products and services. Finally, the EO creates a Steering Committee, a Federal Environmental Executive (FEE), and a Task Force, and establishes Agency Environmental Executive (AEE) positions within each agency, to be responsible for ensuring the implementation of this order. The FEE, AEEs, and members of the Steering Committee and Task Force are to be full-time Federal Government employees. This EO revokes EO 12873. See the Pollution Prevention portion of the Hazardous Materials section of the ECAH for checklist items based on this EO **[Added April 2000]**.
- Federal regulations used to develop the checklist include:
  - EO 12088, *Federal Compliance with Pollution Control Standards*.
  - 7 CFR 330, *Federal Plant Pest Regulations, General, Plant Pests, Soil, Stone, Quarry Products, and Garbage*.
  - 29 CFR 1910.1030, *Bloodborne Pathogens*.
  - 40 CFR 243, *Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste*.
  - 40 CFR 245, *Promulgation Resource Recovery Facility Guidelines*.
  - 40 CFR 246, *Source Separation for Materials Recovery Guidelines*.

### C. State/Local Regulations

The Federal government set minimum national standards for municipal solid waste disposal in 40 CFR 258, but state and local governments are responsible for implementing and enforcing waste programs. Currently U.S. EPA has delegated its authority to implement various provisions of RCRA to all states, except Alaska, Hawaii, Iowa, and two U.S. territories. States are required to develop their own programs based on the Federal regulations. Most states and municipalities have already developed their own regulations governing the permitting, licensing, and operations of landfills, incinerators, and source separation/recycling programs **[Revised July 2000]**.

States are required to incorporate revised criteria for MSWLFs into their permit programs and gain approval from U.S. Environmental Protection Agency (USEPA). States that apply for and receive USEPA approval of their programs have the opportunity to provide a lot of flexibility in implementing the regulations. This flexibility allows states to take local conditions into account and gives them the authority to alter some of the requirements. Evaluators will need to determine if a state has been granted approval for the 40 CFR 258 program in order to accurately assess compliance with the criteria. Many states have also instigated categories of special wastes which cannot be placed in landfills or dumps, or may only be disposed of under specific circumstances **[Reviewed July 2000]**.

#### D. FWS/DOI Manuals

- 561 FWS 6, *Compliance Requirements SWDA - Solid Waste*. This chapter, dated 12 June 1995, provides guidance for the handling and disposition of solid waste material at Service facilities.
- 561 FW 13, *Compliance Requirements, Medical Waste*. This chapter, dated 10 April 1996, provides guidance for medical waste management at Service facilities.
- 561 FW 15, *Recycling and Waste Reduction*. This chapter, dated 30 January 1992, establishes policy for the operation of a recycling and waste reduction program.

#### E. Key Compliance Requirements

- Storage/Collection - Facilities are required to store all solid wastes and materials separated for recycling so that it does not cause a fire, safety, or health hazard. All facilities are required to operate their collection systems in a manner to protect the health and safety of personnel associated with the operation. All collection equipment is required to have a suitable cover to prevent spillage, and be constructed, operated, and maintained adequately. All facilities are required to collect solid wastes or materials separated for recycling according to a certain schedule, and in a safe, efficient manner (40 CFR 243.200-1, 243.201-1, 243.202-1(a) through 243.202-1(c), 243.203-1, and 243.204-1) [Reviewed July 2000].
- Solid Waste Containers - Facility personnel should be periodically informed about materials that are prohibited from disposal in solid waste receptacles (MP).
- Recycling - FWS facilities should participate in any state or local recycling programs and reduce the volume of solid waste materials at the source whenever practical. Facilities with offices of over 100 office workers are required to recover high-grade paper. Facilities at which more than 500 families reside are required to recycle newspapers. Any facility generating 10 tons or more of waste corrugated containers per month is required to segregate or collect separately for recycling or alternate energy use (40 CFR 246.200-1 and 246.202-1) [Reviewed July 2000].
- Open Dumping - 40 CFR 257 details the criteria for determining whether or not an activity would be considered an open dump for the purposes of state solid waste management planning under RCRA. See Appendix 7-1 for a list of the criteria that a facility or practice must meet in order for it to not be considered an open dump [Reviewed July 2000].
- Land Disposal Site Operations Other Than An MSWLF- Facilities should place cover material over the land disposal site at the end of each operating day. Land disposal sites that accept special wastes should have approval from the responsible agency and should provide a list of the excluded items to regular users. Facilities that operate land disposal sites should operate the sites in a manner that will protect water quality and control decomposition gases and vectors. Land disposal sites should be designed and operated in an aesthetically acceptable manner, and to be designed, constructed, and operated to protect the health and safety of personnel. Land disposal site cover material should minimize fire hazards, infiltration of precipitation, odors and litter, control gas venting and vectors, discourage scavenging, and provide a pleasing appearance. Municipal solid waste and cover material should be compacted to the smallest practicable volume. The operators of land disposal sites should maintain records and monitoring data (MP) [Reviewed July 2000].

- Land Disposal Site Closure Other Than An MSWLF - Upon closure of a site, a detailed description is required to be recorded as required by the area's land recording authority. Facilities should survey for and be aware of old disposal sites at the facility (MP) [Reviewed July 2000].
- New Landfills Other Than MSWLFs - New landfills are required to meet certain location and design criteria, which include evaluation of hydrogeology and onsite soil characteristics, and verification of easy access to vehicles. Plans for the design, construction, and operation of new sites or modification to existing sites are required to be prepared or approved by a professional engineer (MP) [Reviewed July 2000].
- Medical Waste - Contaminated reusable sharps and other regulated wastes are required to be placed in puncture resistant, color coded, leakproof containers, as soon as possible after use until properly reprocessed. Specimens of blood or other potentially infectious material are required to be placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping, and specific labeling and handling requirements are to be followed (29 CFR 1910.1030(d)).
- Medical Waste Containers - All bins, cans, and other receptacles intended for reuse that have the likelihood of becoming contaminated with blood or other potentially infectious materials are required to be inspected and decontaminated on a regularly scheduled basis. Labels affixed to containers of regulated wastes, refrigerators and freezers containing blood, and other containers used to store, transport, or ship blood or other potentially infectious materials must meet specific standards, which include the biohazard symbol, and being colored a fluorescent orange with contrasting-colored lettering and symbols (29 CFR 1910.1030(d)(4)(ii)(c) and 1910.1030(g)(1)(i)).
- Medical Waste Plan - Managers at Service facilities that regularly handle, store, or disposes of medical waste is required to have a Medical Waste Management Plan (561 FW 13.5).
- Recordkeeping - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### F. Key Compliance Definitions

- *Active Collection System* - a gas collection system that uses gas mover equipment (40 CFR 60.751) [Reviewed July 2000].
- *Active Landfill* - a landfill in which solid waste is being placed or a landfill that is planned to accept waste in the future (40 CFR 60.751) [Reviewed July 2000].
- *Active Life* - the period of operation beginning with the initial receipt of solid waste and ending with the completion of closure activities (40 CFR 258.2) [Reviewed July 2000].
- *Active Portion* - that part of a facility or unit that has received or is receiving wastes and that has not been closed (40 CFR 258.2) [Reviewed July 2000].
- *Alley Collection* - the collection of solid waste from containers placed adjacent to or in an alley (40 CFR 243.101) [Added July 2000].
- *Agricultural Solid Waste* - the solid waste that is generated by the rearing of animals, and the producing and harvesting of crops or trees (40 CFR 243.101) [Added July 2000].

- *Aquifer* - a geological formation, group of formations, or a portion of a formation capable of yielding significant quantities of groundwater to wells or springs (40 CFR 258.2) [Reviewed July 2000].
- *Blood* - human blood, human blood components, and products made from human blood (29 CFR 1910.1030(a)).
- *Bottom Ash* - the solid material that remains on a hearth or falls off the grate after thermal processing is complete (40 CFR 240.101(b)) [Reviewed July 2000].
- *Bulky Wastes* - large items of solid waste such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversize wastes, which large size precludes or complicates their handling by normal solid waste collection, processing, or disposal methods (40 CFR 243.101) [Reviewed July 2000].
- *Carryout Collection* - collection of solid waste from a storage area proximate to the dwelling unit(s) or establishment (40 CFR 243.101) [Added July 2000].
- *Closed Landfill* - a landfill in which solid waste is no longer being placed, and in which no additional solid wastes will be placed without first filing a notification of modification (40 CFR 60.751) [Reviewed July 2000].
- *Closure* - that point in time when a landfill becomes a closed landfill (40 CFR 60.751) [Reviewed July 2000].
- *Collection* - the act of removing solid waste (or materials which have been separated for the purpose of recycling) from a central storage point (40 CFR 243.101) [Reviewed July 2000].
- *Collection Frequency* - the number of times collection is provided in a given period of time (40 CFR 243.101) [Reviewed July 2000].
- *Commercial Solid Waste* - all types of solid waste generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes (40 CFR 243.101 and 40 CFR 60.751) [Reviewed July 2000].
- *Compactor Collection Vehicle* - a vehicle with an enclosed body containing mechanical devices that convey solid waste into the main compartment of the body and compress it into a smaller volume of greater density (40 CFR 243.101) [Added July 2000].
- *Construction and Demolition Wastes* - the waste building materials, packaging, and rubble resulting from the construction, renovation, repair, and demolition operation on pavements, houses, commercial buildings, and other structures (40 CFR 243.101) [Reviewed July 2000].
- *Contaminated* - the presence or the reasonably anticipated presence of blood or other potentially infectious materials on an item or surface (29 CFR 1910.1030(a)).
- *Contaminated Sharps* - any contaminated object that can penetrate the skin, including but not limited to, needles, scalpels, broken glass, broken capillary tubes, and exposed ends of dental wires (29 CFR 1910.1030(a)).

- *Controlled Landfill* - any landfill at which collection and control systems are required under 40 CFR 60.750 - 759 as a result of the nonmethane organic compounds (NMOC) emission rate. The landfill is considered controlled at the time a collection and control system design plan is submitted (40 CFR 60.751) [Revised June 1998, Reviewed July 2000].
- *Corrugated Container Waste* - discarded corrugated boxes (40 CFR 246.101) [Reviewed July 2000].
- *Curb Collection* - collection of solid waste placed adjacent to a street (40 CFR 243.101) [Added July 2000].
- *Decontamination* - the use of physical or chemical means to remove, inactivate, or destroy bloodborne pathogens on a surface or item to the point where they are no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal (29 CFR 1910.1030(a)).
- *Design Capacity* - the weight of solid waste of a specified gross calorific value that a thermal processing facility is designed to process in 24 h of continuous operation (40 CFR 240.101(d)).
- *Design Capacity* - in relation to air quality restrictions, the maximum amount of solid waste a landfill can accept, as indicated in terms of volume or mass in the most recent permit issued by the State, local, or Tribal agency responsible for regulating the landfill, plus any in-place waste not accounted for in the most recent permit. If the owner or operator chooses to convert the design capacity from volume to mass or from mass to volume to demonstrate its design capacity is less than 2.5 million megagrams or 2.5 million m<sup>3</sup>, the calculation must include a site specific density, which must be recalculated annually (40 CFR 60.751) [Revised June 1998, Reviewed July 2000].
- *Disposal Facility* - all contiguous land and structures, other appurtenances and improvements on the land used for disposal of solid waste (40 CFR 60.751) [Reviewed July 2000].
- *Domestic Wastes* - all types of wastes generated in the living spaces on board a ship except victual wastes (33 CFR 151.05).
- *Emission Rate Cutoff* - the threshold annual emission rate to which a landfill compares its estimated emission rate to determine if control under the regulation is required (40 CFR 60.751) [Reviewed July 2000].
- *Enclosed Combustor* - an enclosed firebox which maintains a relatively constant limited peak temperature generally using a limited supply of combustion air. An enclosed flare is considered and enclosed combustor (40 CFR 60.751) [Reviewed July 2000].
- *Existing MSWLF Unit* - any MSWLF unit that is receiving solid waste as of the appropriate dates specified in 40 CFR 258.1(e) (see Appendix 9-1). Waste placement in existing units must be consistent with past operating practices or modified practices to ensure good management (40 CFR 258.2) [Reviewed July 2000].
- *Facility* - all contiguous land and structures, other appurtenances and improvements on the land use for the disposal of solid waste (40 CFR 258.2) [Reviewed July 2000].
- *Flare* - an open combustor without enclosure or shroud (40 CFR 60.751) [Reviewed July 2000].



- *Fly Ash* - suspended particles, charred paper, dust, soot, and other partially oxidized matter carried in the products of combustion (40 CFR 240.101) **[Reviewed July 2000]**.
- *Food Waste* - the organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage (40 CFR 243.101) **[Reviewed July 2000]**.
- *Garbage* - in relation to solid waste coming from outside the continental United States, it is all waste material derived in whole or in part from fruits, vegetables, meats, or other plant or animal material, and other refuse of any character whatsoever that has been associated with any such material on board any means of conveyance, and including food scraps, table refuse, galley refuse, food wrappers, or packaging materials, and other waste materials from stores, food preparation areas, passengers; or crews quarters, dining rooms, or any other areas or means of conveyance. It also means meals and other food that were available for consumption by passengers and crew on an aircraft but were not consumed (7 CFR 330.400(b)).
- *Gas Mover Equipment* - the equipment used to transport landfill gas through the header system (40 CFR 60.751) **[Reviewed July 2000]**.
- *Graywater* - drainage from the dishwasher, shower, laundry, bath, and washbasin drains, and does not include drainage from toilets, urinals, hospitals, and cargo spaces (33 CFR 151.05).
- *Ground Water* - water below the land surface in a zone of saturation (40 CFR 258.2) **[Reviewed July 2000]**.
- *Hazardous Waste* - a waste or combination of wastes of a solid, liquid, contained gaseous, or semisolid form which may cause, or contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness, taking into account the toxicity of such waste, its persistence and degradability in nature, its potential for accumulation or concentration in tissue, and other factors that may otherwise cause or contribute to adverse acute or chronic effects on the health of persons or other organisms (40 CFR 243.101) **[Reviewed July 2000]**.
- *High-Grade Paper* - letterhead, dry copy papers, miscellaneous business forms, stationary, typing paper, tablet sheets, and computer printout paper and cards, commonly sold as "white ledger", "computer printout" and "tab card" grade by the wastepaper industry (40 CFR 246.101) **[Reviewed July 2000]**.
- *Household Waste* - any solid waste, (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use-recreation areas) (40 CFR 258.2 and 40 CFR 60.751) **[Reviewed July 2000]**.
- *Indian Lands of Indian Country* - this means (40 CFR 258.2) **[Reviewed July 2000]**:
  1. All land within the limits of any Indian reservation under the jurisdiction of the U.S. Government, notwithstanding the issuance of any patent, and including rights-of-way running throughout the reservation.
  2. All dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of the state.
  3. All Indian allotments, the Indian titles to which have not been extinguished, including rights of way running through the same.

- *Indian Tribe* - any Indian tribe, band, nation, or community recognized by the Secretary of the Interior (SOI) and exercising substantial governmental duties and powers on Indian lands (40 CFR 258.2) [Reviewed July 2000].
- *Industrial Solid Waste* - the solid waste generated by industrial processes and manufacturing that is not a hazardous waste (40 CFR 243.101) [Reviewed July 2000].
- *Industrial Solid Waste* - in relation to MSWLF, solid waste generated by manufacturing or industrial processes that is not a hazardous waste regulated under subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/byproducts; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste (40 CFR 258.2 and 40 CFR 60.751) [Reviewed July 2000].
- *Infectious Waste* - this includes (40 CFR 243.101) [Revised July 2000]:
  1. Equipment, instruments, utensils, and fomites of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies.
  2. Laboratory wastes, such as pathological specimens (e.g., all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites (any substance that may harbor or transmit pathogenic organisms) attendant thereto.
  3. Surgical operating room pathologic specimens and disposable fomites attendant thereto, and similar disposable materials from outpatient areas and emergency rooms.
- *Infectious Waste* - this includes (40 CFR 246.101) [Revised July 2000]:
  1. Equipment, instruments, utensils, and fomites (any substance that may harbor or transmit pathogenic organisms) of a disposable nature from the rooms of patients who are suspected to have or have been diagnosed as having a communicable disease and must, therefore, be isolated as required by public health agencies.
  2. Laboratory wastes, such as pathological specimens (e.g. all tissues, specimens of blood elements, excreta, and secretions obtained from patients or laboratory animals) and disposable fomites attendant thereto.
  3. Surgical operating room pathologic specimens and disposable fomites attendant thereto and similar disposable materials from outpatient areas and emergency rooms.
- *Institutional Solid Waste* - solid wastes generated by educational, health care, correctional and other institutional facilities (40 CFR 243.101) [Reviewed July 2000].
- *Interior Well* - any well or similar collection component located inside the perimeter of the landfill waste. A perimeter well located outside the landfill waste is not an interior well (40 CFR 60.751) [Revised June 1998, Reviewed July 2000].
- *Landfill* - an area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile as those terms are defined under 40 CFR 257.2 (40 CFR 60.751) [Added July 2000].
- *Lateral Expansion* - a horizontal expansion of the waste boundaries of an existing municipal solid waste landfill unit (40 CFR 258.2 and 40 CFR 60.751) [Reviewed July 2000].

- *Leachate* - in relation to MSWLFs, this is a liquid that has passed through or emerged from solid waste and contains soluble, suspended, or miscible materials removed from such waste (40 CFR 258.2) [Reviewed July 2000].
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *MARPOL 73/78* - the *International Convention for the Prevention of Pollution from Ships*, 1973 as amended by the Protocol of 1978 (33 CFR 151.05).
- *Medical/Pathological Wastes* - any solid waste that is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. This does not include hazardous waste or household waste (40 CFR 259.10).
- *Mining Wastes* - residues which result from the extraction of raw materials from the earth (40 CFR 243.101) [Reviewed July 2000].
- *Modification* - an increase in the permitted volume design capacity of the landfill by either horizontal or vertical expansion based on the permitted design capacity as of 30 May 1991 (40 CFR 60.751) [Added June 1998, Reviewed July 2000].
- *Municipal Solid Waste* - residential and commercial solid wastes generated within a community (40 CFR 240.101) [Reviewed July 2000].
- *Municipal Solid Waste Landfill* - an entire disposal facility in a contiguous geographical space, where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes (40 CFR 257.2) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion (40 CFR 60.751) [Added July 2000].
- *Municipal Solid Waste Landfill Emissions* - gas generated by the decomposition of organic waste deposited in an MSWLF or derived from the evolution of organic compounds in the waste (40 CFR 60.751) [Reviewed July 2000].
- *Municipal Solid Waste Landfill (MSWLF) Unit* - a discrete area of land or an excavation that received household waste and that is not a land application unit, surface impoundment, injection well, or waste pile. It may also receive other types of RCRA Subtitle D wastes, such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste and industrial solid waste. Such a landfill may be publicly or privately owned. A MSWLF unit may be a new MSWLF unit, and existing MSWLF unit, or a lateral expansion (40 CFR 258.2) [Reviewed July 2000].
- *New MSWLF Unit* - any MSWLF unit that has not received wastes prior to 9 October 1993, or prior to 9 October 1997 if the MSWLF unit disposes of less than 20 tons of municipal solid waste daily, based on an annual average and the MSWLF unit serves either (40 CFR 258.2) [Reviewed July 2000]:
  1. A community that experiences an annual interruption of at least 3 consecutive months of surface transportation that prevents access to a regional waste management facility.

2. A community that has no practicable waste management alternative and the landfill is located in an area that annually receives less than or equal to 25 in. of precipitation.

- *Nondegradable Waste* - any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metal (40 CFR 60.751) **[Reviewed July 2000]**.
- *Open Burning* - in relation to MSWLFs, the combustion of solid waste without (40 CFR 258.2) **[Reviewed July 2000]**:
  1. Control of combustion air to maintain adequate temperature for efficient combustion.
  2. Containment of the combustion reaction in an enclosed device to provide sufficient residence time and mixing for complete combustions.
  3. Control of the emission of the combustion product.
- *Open Burning* - burning of solid wastes in the open, such as in an open dump (40 CFR 240.101(r)) **[Reviewed July 2000]**.
- *Open Dump* - a land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, are susceptible to open burning, and are exposed to the elements, vectors, and scavengers (40 CFR 240.101) **[Reviewed July 2000]**.
- *Operator* - the person(s) responsible for the overall operation of a facility or part of a facility (40 CFR 258.2) **[Added July 2000]**.
- *Owner* - the person(s) who owns a facility or part of a facility (40 CFR 258.2) **[Added July 2000]**.
- *Passive Collection System* - a gas collection system that solely uses positive pressure within the landfill to move the gas rather than using gas mover equipment (40 CFR 60.751) **[Reviewed July 2000]**.
- *Regulated Wastes* - liquid or semi-liquid blood or other potentially infectious materials, contaminated items that would release blood or other potentially infectious materials in a liquid or semi-liquid state if compressed; items that are caked with dried blood or other potentially infectious materials and are capable of releasing these materials during handling, contaminated sharps, and pathological and microbiological wastes containing blood or other potentially infectious materials (29 CFR 1910.1030(a)).
- *Residential Solid Waste* - the wastes generated by the normal activities of households, including, but not limited to, food wastes, rubbish, ashes, and bulky wastes (40 CFR 243.101) **[Reviewed July 2000]**.
- *Rubbish* - A general term for solid waste, excluding food wastes and ashes, taken from residences, commercial establishments, and institutions (40 CFR 243.101) **[Added July 2000]**.
- *Runoff* - in relation to MSWLF, any rainwater, leachate, or other liquid that drains over land from any part of a facility (40 CFR 258.2) **[Reviewed July 2000]**.
- *Runon* - any rainwater, leachate, or other liquid that drains over land onto any part of a facility (40 CFR 258.2).
- *Sanitary Landfill* - a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in

thin layers, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day (40 CFR 240.101) [Reviewed July 2000].

- *Satellite Vehicle*- a small collection vehicle that transfers its load into a larger vehicle operating in conjunction with it (40 CFR 243.101) [Added July 2000].
- *Saturated Zone* - that part of the earth's crust in which all voids are filled with water (40 CFR 258.2) [Added July 2000].
- *Scavenging* - the uncontrolled and unauthorized removal of materials at any point in the solid waste management system (40 CFR 243.101) [Added July 2000].
- *Separate Collection* - collection of recyclable materials which have been separated at the point of generation and keeping those materials separated from other collected solid waste in separate compartments of a single collection vehicle or through the use of separate collection vehicles (40 CFR 246.101) [Reviewed July 2000].
- *Ship* - a vessel of any type whatsoever, operating in the marine environment (33 CFR 151.05).
- *Sludge* - the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins (40 CFR 240.101) [Reviewed July 2000].
- *Sludge* - in relation to MSWLF, any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant (40 CFR 258.2) [Reviewed July 2000].
- *Solid Waste* - in relation to MSWLF, any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial mining and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 USC 1342, or source, special nuclear, or byproduct material as defined by the *Atomic Energy Act* of 1954, as amended (68 Statute 932) (40 CFR 258.2) [Reviewed July 2000].
- *Solid Waste* - garbage, refuse, sludge, and other discarded solid materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved materials in domestic sewage or other significant pollutants in water resources (40 CFR 240.101) [Reviewed July 2000].
- *Solid Waste* - any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the *Atomic Energy Act of 1954*, as amended (42 U.S.C 2011 et seq.) (40 CFR 60.751) [Added July 2000].

- *Solid Waste Storage Container* - a receptacle used for the temporary storage of solid waste while awaiting collection (40 CFR 243.101) [Added July 2000].
- *Source Separation* - the setting aside of recyclable materials at their point of generation by the generator (40 CFR 246.101) [Reviewed July 2000].
- *Special Wastes* - nonhazardous solid wastes requiring handling other than that normally used for municipal solid wastes (40 CFR 240.101) [Reviewed July 2000].
- *State* - any of the several states, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (40 CFR 258.2) [Added July 2000].
- *State Director* - the chief administrative officer of the lead state agency responsible for implementing the state permit program for 40 CFR 257, subpart B and 40 CFR 258 regulated facilities (40 CFR 258.2) [Added July 2000].
- *Stationary Compactor* - a powered machine which is designed to compact solid waste or recyclable materials, and which remains stationary when in operation. (40 CFR 243.101) [Added July 2000].
- *Storage* - the interim containment of solid waste after generation and prior to collection for ultimate recovery or disposal (40 CFR 243.101) [Added July 2000].
- *Street Wastes* - materials picked up by manual or mechanical sweepings of alleys, streets, and sidewalks; wastes from public waste receptacles; and material removed from catch basins (40 CFR 243.101) [Added July 2000].
- *Sufficient Density* - any number, spacing, and combination of collection system components, including vertical wells, horizontal collectors, and surface collectors, necessary to maintain emission and migration control as determined by measures of performance (40 CFR 60.751) [Reviewed July 2000].
- *Sufficient Extraction Rate* - a rate sufficient to maintain a negative pressure at all wellheads in the collection system without causing air infiltration, including any wellheads connected to the system as a result of expansion or excess surface emissions, for the life of the blower (40 CFR 60.751) [Reviewed July 2000].
- *Thermal Processing* - processing of waste material by means of heat (40 CFR 240.101) [Reviewed July 2000].
- *Transfer Station* - a station at which solid wastes are concentrated for transport to a processing facility or land disposal site. A transfer station may be fixed or mobile (40 CFR 243.101) [Reviewed July 2000].
- *Universal Precautions* - an approach to infection control. According to the concept of Universal Precautions, all human blood and certain human body fluids are treated as if known to be infectious for HIV, HBV, and other bloodborne pathogens (29 CFR 1910.1030(a)).
- *Uppermost Aquifer* - the geologic formation nearest the natural ground surface that is an aquifer, as well as, lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary (40 CFR 258.2) [Reviewed July 2000].

- *Vector* - a carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another (40 CFR 240.202) [Reviewed July 2000].
- *Waste Management Unit Boundary* - a vertical surface located at the hydraulically downgradient limit of the unit. This vertical surface extends down into the uppermost aquifer (40 CFR 258.2) [Reviewed July 2000].





## SOLID WASTE MANAGEMENT PROTOCOL

### GUIDANCE FOR CHECKLIST USERS

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	REFER TO CHECKLIST ITEMS:
All Facilities	SW.1.1 through SW.1.5
Storage/Collection of Solid Waste	SW.10.1 through SW.10.8
Recycling	SW.25.1 through SW.25.3
Land Disposal Sites Other Than MSWLFs	
Specific Wastes	SW.30.1 through SW.30.4
Operations	SW.35.1 through SW.35.20
Closure	SW.40.1
Site Criteria for New Landfills Other Than MSWLFs	SW.45.1 through SW.45.3
Medical Waste	
Containers/Labeling/Storage Areas	SW.110.1 through SW.110.6
Documentation	SW.125.1

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Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in July 2000, for example [Added July 2000].

## SOLID WASTE MANAGEMENT

### Records To Review

- Record of current nonhazardous solid waste management practices
- Records of operational/closure history of all active and inactive disposal facilities
- State and Federal inspection reports
- Records of recycling practices, including the sale of materials for the purpose of recycling
- Solid waste removal contracts and inspection records

### Physical Features To Inspect

- Resource recovery facilities
- Incineration and land disposal facilities (active and inactive)
- Areas where nonhazardous waste is disposed
- Construction debris areas
- Waste receptacles
- Solid waste vehicle storage and washing areas
- Compost facilities
- Transfer stations
- Recycling centers

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>SW.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>SW.1.2.</b> FWS facilities are required to comply with state and local solid waste regulations (EO 12088, Section 1- 1).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local solid waste requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> <li>- license or permit requirements for existing onsite landfills</li> <li>- requirements for filing a closure plan for onsite landfills specifying monitoring and inspection procedures</li> <li>- design and operation specifications for solid waste receptacles</li> <li>- disposal of solid waste offsite only at licensed or permitted facilities</li> <li>- design and policy procedures of thermal processing of solid waste</li> <li>- analysis for hazardous properties of ash residues and sludge from air pollution control devices at coal-fired facility heating plant operations before sale or disposal</li> <li>- handling and disposal of medical, pathological, and infectious waste</li> <li>- recycling requirements</li> <li>- disposal of household wastes</li> <li>- construction/demolition debris</li> <li>- yard waste</li> <li>- disposal of used tires.)</li> </ul>

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.1.3.</b> Facilities will meet regulatory requirements issued since the finalization of this handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p>	<p>Determine if any new regulations concerning solid waste have been issued since the finalization of this handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p>
<p><b>SW.1.4.</b> FWS facilities should report all NOV's to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p>	<p>Determine if the facility has received an NOV relating to solid waste management.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p>
<p><b>SW.1.5.</b> Service facilities are required to maintain a permanent onsite record copy of any contracts for waste disposal and documentation of the final place of disposal (RP, 561 FW 5.6B(4)) [Citation Revised June 1998].</p>	<p>Verify that the facility has copies of any contracts for waste disposal and documentation of the final place of disposal.</p> <p>(NOTE: If the waste is a hazardous waste, this should be written up under the appropriate finding in the hazardous waste checklist.)</p>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.10</b></p> <p><b>STORAGE/COLLECTION OF SOLID WASTE</b></p> <p><b>SW.10.1.</b> All solid wastes and all materials separated for recycling are required to be stored according to specific guidelines (40 CFR 243.100(b) and 243.200-1) [Revised April 2000].</p>	<p>[NOTE: This section was Reviewed July 2000.]</p> <p>(NOTE: By calling 1-800-CLEAN-UP you can identify where to take paper, metal cans, glass bottles, tires, and other materials to be recycled for any town or city in the United States.)</p> <p>(NOTE: Federal agencies that have decided not to adopt the requirements contained in 40 CFR 243 are required to provide a report of the analysis and rationale used. See 40 CFR 243.100(i) for details on the content of this report [Added April 2000].)</p> <p>(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.)</p> <p>Verify that all solid wastes are stored so as not cause a fire, health, or safety hazard.</p> <p>Verify that all solid waste containing food wastes are stored in covered or closed containers that are nonabsorbent, leakproof, durable, easily cleaned, and designed for safe handling.</p> <p>Verify that solid waste containers are of an adequate size and number to contain all waste generated between collections.</p> <p>Verify that bulky wastes are stored so as not to create a nuisance and to avoid the accumulation of solid waste and water in and around the bulky items.</p> <p>Verify that reusable containers are capable of being serviced without the collector coming into contact with the waste.</p> <p>Verify that waste containers used for the storage of solid waste (or materials which have been separated for recycling) meet the standards established by ANSI for waste containers as follows:</p> <ul style="list-style-type: none"> <li>-Waste Containers--Safety Requirements, 1994, American National Standards Institute, ANSI Z245.30-1994</li> <li>-Waste Containers--Compatibility Dimensions, 1996, American National Standards Institute, ANSI Z245.60-1996.</li> </ul> <p>(NOTE: Copies may be obtained from American National Standards Institute, 11 W. 42nd Street, New York, NY 10036.)</p>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.10.2.</b> All facilities are required to operate their collection systems in a manner to protect the health and safety of personnel associated with the operation (40 CFR 243.100(b) and 243.201-1) [Revised April 2000].</p>	<p>Verify that the collection system is operated safely.</p> <p>(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.)</p>
<p><b>SW.10.3.</b> Collection equipment is required to be maintained according to certain standards if such equipment is considered to be operating in interstate or foreign commerce (40 CFR 243.100(b) and 243.202-1(a)) [Revised April 2000].</p>	<p>(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.)</p> <p>Verify that all vehicles used for the collection and transportation of solid waste meet all applicable standards established by the Federal Government including:</p> <ul style="list-style-type: none"> <li>- <i>Motor Carrier Safety Standards</i> (49 CFR 390 through 396)</li> <li>- <i>Noise Emission Standards for Motor Carriers Engaged in Interstate Commerce</i> (40 CFR 202)</li> <li>- <i>Federal Motor Vehicle Safety Standards</i> (49 CFR 500 through 580) (Federally owned collection equipment only).</li> </ul>
<p><b>SW.10.4.</b> All collection equipment is required to meet specific criteria (40 CFR 243.100(b), 243.202-1(b) and 243.202-1(d)) [Revised April 2000].</p>	<p>(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.)</p> <p>Verify that all vehicles used for the collection and transportation of solid wastes or materials separated for recycling are enclosed or have suitable cover to prevent spillage.</p> <p>Verify that collection equipment used for the collection, storage, and transportation of solid waste (or materials separated for recycling) meet the following ANSI standards:</p> <ul style="list-style-type: none"> <li>- <i>Mobile Refuse Collection and Compaction Equipment--Safety Requirements, 1992, American National Standards Institute, ANSI Z245.1-1992</i></li> </ul>

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.10.5.</b> Solid wastes or materials separated for recycling are required to be collected according to a certain schedule (40 CFR 243.100(b) and 243.203-1) [Revised April 2000].</p> <p><b>SW.10.6.</b> Solid waste is required to be collected in a safe, efficient manner (40 CFR 243.100(b) and 243.204-1) [Revised April 2000].</p> <p><b>SW.10.7.</b> As a MP, facility industrial shop waste receptacles should be inspected quarterly to verify that hazardous wastes are not being deposited (MP).</p>	<p align="center">- Stationary Compactors--Safety Requirements, 1997, American National Standards Institute, ANSI Z245.2-1997.</p> <p>(NOTE: A copy may be obtained from American National Standards Institute, 11 W. 42nd Street, New York, NY 10036.)</p> <p>(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.)</p> <p>Verify that solid wastes that contain food wastes are collected at a minimum of once during each week.</p> <p>Verify that bulky wastes are collected a minimum of once every 3 mo.</p> <p>Verify that all wastes are collected with sufficient frequency to inhibit the propagation or attraction of vectors and the creation of nuisances.</p> <p>(NOTE: These requirements apply to the collection of residential, commercial, and institutional solid wastes and street wastes. Excluded from these requirements are mining, agricultural, and industrial solid wastes; hazardous wastes; sludges; construction and demolition wastes; and infectious wastes.)</p> <p>Verify that solid wastes or materials separated for recycling are collected in a safe, efficient manner.</p> <p>Verify that the collection vehicle operator immediately cleans up any spillage caused by his operations.</p> <p>Verify that receptacles were inspected by reviewing records and interviewing personnel.</p> <p>Verify that corrective actions were taken where indicated.</p> <p>Verify that hazardous waste is not present in the solid waste receptacles at shops by a visual check.</p>

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**SW.10.8.** Service facilities are required to keep personnel informed about proper waste disposal procedures (RP, 561 FW 5.6B(11)) [Citation Revised June 1998].

Verify that a program exists at the facility to keep personnel informed about proper waste disposal practices.



**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p>SW.25</p> <p><b>RECYCLING</b></p> <p>SW.25.1. [Moved to GR.25.1. September 2000].</p> <p>SW.25.2. [Moved to GR.25.2 and Revised September 2000].</p> <p>SW.25.3. [Moved to GR.25.3 and Revised September 2000].</p>	<p>This section has been moved to Chapter 11, Greening [September 2000].</p> <p>(NOTE: See Chapter 11, Greening, GR.25.1.)</p> <p>(NOTE: See Chapter 11, Greening, GR.25.2.)</p> <p>(NOTE: See Chapter 11, Greening, GR.25.3.)</p>



**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>LAND DISPOSAL SITES OTHER THAN MSWLFs</b></p> <p><b>SW.30 Specific Wastes</b></p> <p><b>SW.30.1.</b> Facilities are required to identify what wastes can and cannot be accepted at the disposal facility in conjunction with the responsible agency (MP).</p> <p><b>SW.30.2.</b> Bulky wastes should be disposed of according to certain methods (MP).</p> <p><b>SW.30.3.</b> Water treatment plant sludges containing no free moisture and digested or heat treated waste water treatment plant sludges should be disposed of according to certain methods (MP).</p> <p><b>SW.30.4.</b> Incinerator and air pollution control residues should be disposed of according to certain methods (MP).</p>	<p>(NOTE: The USEPA has deleted 40 CFR 241 in its' entirety as a part of the transfer of responsibility to the states to regulate the issues formerly addressed in 40 CFR 241. Checklist items SW.30.1 through SW.30.4 were based on 40 CFR 241. These checklist items remain in the handbook as MPs during this time of transition for those facilities located in states which have not addressed the 40 CFR 241 issues at the time of the audit.)</p> <p>Verify that the facility has specifically identified what wastes can and cannot be accepted for disposal at the site.</p> <p>Verify that automobile bodies, furniture, and appliances are either salvaged or crushed and pushed onto the working face near the bottom of the cell.</p> <p>Verify that demolition and construction debris, tree stumps, and large timbers are pushed onto the working face near the bottom of the cell.</p> <p>Verify that water treatment plant sludges containing no free moisture and digested or heat treated wastewater treatment plant sludges are covered with soil or municipal solid wastes.</p> <p>Verify that incinerator and air pollution control residues are incorporated into the face and covered as necessary to prevent them from becoming airborne.</p>



**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>LAND DISPOSAL SITES OTHER THAN MSWLFs</b></p> <p><b>SW.35 Operations</b></p> <p><b>SW.35.1.</b> Open dumping is prohibited at the facility (40 CFR 257.1 (a)(2)) [Reviewed July 2000].</p> <p><b>SW.35.2.</b> Facilities should place cover material on land disposal sites at the end of each operating day (MP).</p> <p><b>SW.35.3.</b> Using information from the generation sources on the facility, the disposal facility operator, and the responsible agency are required to determine specific wastes that are excluded from disposal and identify them in plans (MP).</p> <p><b>SW.35.4.</b> Facilities which operate land disposal sites should provide a list of excluded materials to regular users (MP).</p>	<p>(NOTE: The USEPA has deleted 40 CFR 241 in its' entirety as a part of the transfer of responsibility to the states to regulate the issues formerly addressed in 40 CFR 241. Checklist items SW.35.2 through SW.35.20 were based on 40 CFR 241. These checklist items remain in the handbook as MPs during this time of transition for those facilities located in states which have not addressed the 40 CFR 241 issues at the time of the audit.)</p> <p>Verify that open dumping is not practiced at the facility.</p> <p>(NOTE: See Appendix 7-1 for a description of what constitutes open dumping.)</p> <p>Verify that cover material is put in place daily by arriving at the site before it opens.</p> <p>Verify that the disposal facility has designated what wastes are excluded from disposal at the site.</p> <p>Verify that the list of excluded wastes is documented in a plan.</p> <p>Verify that a list of excluded materials is displayed prominently at the site entrance.</p> <p>Verify that a list of excluded materials is given to all regular users of the site.</p>

**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.35.5.</b> The location, construction, and design of land disposal sites are required to meet the most stringent of applicable water quality standards and/ or be constructed, located, designed, and operated in a manner to provide adequate protection to ground and surface water used as drinking water supplies (MP).</p>	<p>Verify that applicable water quality standards are met and ground and surface water used as drinking water supplies are protected.</p>
<p><b>SW.35.6.</b> Land disposal sites should be operated in a manner which will protect water quality (MP).</p>	<p>Verify that surface water course and runoff are diverted from the land disposal site.</p> <p>Verify that the land disposal site is constructed and graded to promote rapid surface water runoff without excessive erosion.</p> <p>Verify that regrading is done as necessary to avoid ponding of precipitation and to maintain cover material integrity.</p> <p>Verify that siltation or retention basins or other approved methods of retarding runoff are used where necessary to avoid stream siltation or flooding problems.</p> <p>Verify that leachate collection and treatment systems are used where necessary to protect groundwater and surface water resources.</p> <p>Verify that municipal solid wastes and leachate are not in contact with groundwater or surface water.</p>
<p><b>SW.35.7.</b> Land disposal sites should operate in a manner which will protect air quality (MP).</p>	<p>Verify that there is no open burning of municipal solid wastes.</p> <p>Verify that dust control measures are initiated as necessary.</p>

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.35.8.</b> Land disposal sites are required to control decomposition gases as necessary to avoid posing a hazard to occupants of adjacent property (MP).</p>	<p>Verify that land disposal sites are controlling decomposition gases.</p>
<p><b>SW.35.9.</b> Land disposal sites should control decomposition gases according to the following recommended procedures (MP).</p>	<p>Verify that decomposition gases are not allowed to migrate laterally from the land disposal site.</p> <p>Verify that decomposition gases do not pose an explosion or toxicity hazard.</p>
<p><b>SW.35.10.</b> Land disposal sites are required to control vectors (MP).</p>	<p>Verify that conditions are maintained that are unfavorable for the harboring, feeding, and breeding of vectors.</p>
<p><b>SW.35.11.</b> Land disposal sites are required to be designed and operated in an aesthetically acceptable manner (MP).</p>	<p>Verify that the disposal site is designed and operated in an aesthetically acceptable manner.</p>
<p><b>SW.35.12.</b> For the land disposal site to be aesthetically acceptable, specific practices should be followed (MP).</p>	<p>Verify that blowing litter is controlled through portable litter fences or other devices.</p> <p>Verify that wastes that are easily moved by wind are covered as necessary to prevent their becoming airborne.</p> <p>Verify that onsite vegetation is cleared only as necessary.</p> <p>Verify that natural windbreaks are maintained.</p> <p>Verify that buffer strips and/or berms are used to screen the site from nearby residences and major roadways.</p> <p>Verify that salvage material is removed from the site frequently.</p>

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.35.13.</b> Land disposal site cover material must meet certain criteria (MP).</p>	<p>Verify that cover material is applied as necessary to:</p> <ul style="list-style-type: none"> <li>- minimize fire hazards</li> <li>- minimize infiltration of precipitation</li> <li>- minimize odors</li> <li>- minimize blowing litter</li> <li>- control gas venting</li> <li>- control vectors</li> <li>- discourage scavenging</li> <li>- provide a pleasing appearance.</li> </ul>
<p><b>SW.35.14.</b> Cover material should be applied according to specific recommendations (MP).</p>	<p>Verify that cover material is applied daily regardless of weather.</p> <p>Verify that the thickness of the compacted daily cover is no less than 6 in.</p> <p>Verify that intermediate cover is applied on areas where additional cells are not to be constructed for extended periods of time.</p> <p>Verify that final cover is applied on each area as it is completed or if the area is to remain idle for over 1 yr.</p> <p>Verify that the surface grade promotes surface water runoff without erosion to minimize infiltration.</p> <p>Verify that intermediate cover is at least 1-ft thick and final cover is at least 2- ft thick.</p>
<p><b>SW.35.15.</b> Municipal solid waste and cover material must be compacted to the smallest practicable volume (MP).</p>	<p>Verify that the solid waste and cover material is compacted to the smallest practicable volume.</p>
<p><b>SW.35.16.</b> Compaction of wastes and cover materials should be done according to recommended procedures (MP).</p>	<p>Verify that, on an operating day, municipal solid waste handling equipment is capable of performing the following functions:</p> <ul style="list-style-type: none"> <li>- spread solid waste in layers no more than 2-ft thick while confining it to the smallest practicable area</li> <li>- compact the spread solid wastes to the smallest practicable volume</li> <li>- place, spread, and compact the cover material daily.</li> </ul>



**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.35.17.</b> Land disposal sites are required to be designed, constructed, and operated to protect the health and safety of personnel (MP).</p> <p><b>SW.35.18.</b> Specific health and safety procedures should be followed in order to protect personnel at land disposal sites (MP).</p> <p><b>SW.35.19.</b> Operators of land disposal sites are required to maintain records and monitoring data to be provided, upon request, to the responsible agency (MP).</p>	<p>Verify that the health and safety of personnel are a consideration in the design, construction, and operation of the site.</p> <p>Verify that a safety manual is available to employees.</p> <p>Verify that personal safety devices, such as hearing and eye protection, are provided to facility employees.</p> <p>Verify that equipment is provided with safety devices.</p> <p>Verify that provisions to extinguish fires exist.</p> <p>Verify that communications equipment is available onsite.</p> <p>Verify that scavenging is prohibited.</p> <p>Verify that access to the site is controlled.</p> <p>Verify that traffic signs or markers are provided to promote an orderly traffic pattern to and from the discharge area.</p> <p>Verify that required records are available.</p> <p>(NOTE: Recommended records and monitoring data include:          – records of major operational problems, complaints, or difficulties          – qualitative and quantitative evaluations of the environmental impact of the land disposal site          – vector control efforts          – dust and litter control efforts          – quantitative measurements of the solid wastes handled          – descriptions of the solid waste materials received, identified by source of materials.)</p>

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**SW.35.20.** Records being maintained at land disposal site should cover specific topics (MP).

Verify that records are maintained and cover at least:

- major operational problems, complaints, or difficulties
- results of leachate sampling and analyses
- results of gas sampling and analyses
- results of groundwater and surface water quality sampling and analyses upstream and downstream of the site
- vector control efforts
- dust and litter control efforts
- quantitative measurements of the solid wastes handled
- description of solid waste materials received.

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>LAND DISPOSAL SITES OTHER THAN MSWLFs</b></p> <p><b>SW.40 Closure</b></p> <p><b>SW.40.1.</b> Upon closure of a site, a detailed description should be recorded with the area's land recording authority (MP).</p>	<p>(NOTE: The USEPA has deleted 40 CFR 241 in its' entirety as a part of the transfer of responsibility to the states to regulate the issues formerly addressed in 40 CFR 241. Checklist item SW.40.1 was based on 40 CFR 241. These checklist items remain in the handbook as MPs during this time of transition for those facilities located in states which have not addressed the 40 CFR 241 issues at the time of the audit.)</p> <p>Verify that, upon closure of a site, a detailed description is recorded with the area's land recording authority.</p>



**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.45</b></p> <p><b>SITE CRITERIA FOR NEW LANDFILLS OTHER THAN MSWLFs</b></p> <p><b>SW.45.1.</b> Site selection and utilization are required to be consistent with public health and welfare, air and water quality standards, and adaptable to appropriate land-use plans (MP).</p> <p><b>SW.45.2.</b> New landfills should meet certain location and design criteria (MP).</p> <p><b>SW.45.3.</b> Plans for the design, construction, and operation of new sites or modifications to existing sites are required to be prepared or approved by a professional engineer (MP).</p>	<p>(NOTE: The USEPA has deleted 40 CFR 241 in its' entirety as a part of the transfer of responsibility to the states to regulate the issues formerly addressed in 40 CFR 241. Checklist items SW.45.1 through SW.45.3 were based on 40 CFR 241. These checklist items remain in the handbook as MPs during this time of transition for those facilities located in states which have not addressed the 40 CFR 241 issues at the time of the audit.)</p> <p>Verify that the site and utilization are consistent with public health and welfare and other necessary environmental standards.</p> <p>Verify that the hydrogeology of the site has been evaluated.</p> <p>Verify that onsite soil characteristics have been evaluated.</p> <p>Verify that environmental factors, climatological conditions, and socioeconomic factors have been considered in site selection.</p> <p>Verify that the site is easily accessible to vehicles.</p> <p>Verify that the site location will not attract birds and pose a hazard to low-flying aircraft.</p> <p>Verify that plans have been prepared or approved by a professional engineer.</p>



**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>MEDICAL WASTE</b></p> <p><b>SW.110 Containers/Labeling/ Storage Areas</b></p> <p><b>SW.110.1.</b> Contaminated reusable sharps are required to be placed in containers which meet specific requirements as soon as possible after use until properly reprocessed (29 CFR 1910.1030 (d)(2)(viii) and 1910.1030 (d)(4)(ii)(E)).</p> <p><b>SW.110.2.</b> Specimens of blood or other potentially infectious material are required to be placed in a container that prevents leakage during collection, handling, processing, storage, transport, or shipping, and specific labeling and handling requirements followed (29 CFR 1910.1030 (d)(2)(xiii)).</p> <p><b>SW.110.3.</b> Contaminated sharps are to be discarded immediately in containers meeting specific requirements (29 CFR 1910.1030 (d)(4)(iii)(A)).</p>	<p>Verify that contaminated reusable sharps are placed in containers that are:</p> <ul style="list-style-type: none"> <li>- puncture resistant</li> <li>- labeled or color coded</li> <li>- leakproof on the sides and bottom.</li> </ul> <p>Verify that reusable sharps, that are contaminated with blood or other potentially infectious materials, are not stored or processed in a manner that required employees to reach by hand into the containers.</p> <p>Verify that containers are:</p> <ul style="list-style-type: none"> <li>- labeled and color coded</li> <li>- closed prior to being stored, transported, or shipped.</li> </ul> <p>(NOTE: When the facility utilizes Universal Precautions in the handling of all specimens, the labeling/color coding of specimens is not necessary if the containers are recognizable as containing specimens.)</p> <p>Verify that, if outside contamination of the primary container occurs, it is placed in a second container.</p> <p>Verify that, if the specimens could puncture the primary container, the primary container is placed in a secondary container which is puncture resistant.</p> <p>Verify that contaminated sharps are placed in containers that are:</p> <ul style="list-style-type: none"> <li>- closeable</li> <li>- puncture resistant</li> <li>- leakproof on sides and bottoms</li> <li>- labeled or color coded.</li> </ul>

**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
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**SW.110.4.** Regulated wastes other than sharps (see definitions) are required to be handled and placed in containers that meet specific standards (29 CFR 1910.1030(d)(4)(iii)(B)).

Verify that, during use, containers for contaminated sharps are:

- easily accessible
- maintained upright throughout use
- replaced routinely and not be allowed to overfill.

Verify that, when the containers of contaminated sharps are being moved from the area of use, the containers:

- are closed
- placed in a secondary container that is closeable if leakage is possible.

Verify that reusable containers are not opened, emptied, or cleaned manually or handled in any other manner that would expose employees to risk of cuts or abrasions.

(NOTE: Self-sheathing needles, after use, shall be disposed of in sharps containers.)

Verify that regulated wastes are placed in containers that:

- are closeable
- constructed to contain all contents and prevent leakage of fluids
- labeled or color coded
- closeable if leakage is possible
- closed prior to removal.

(NOTE: Regulated wastes which have been decontaminated need not be labeled or color-coded.)

Verify that, if outside contamination of the regulated waste occurs, it is placed in a second container that meets the following:

- are closeable
- constructed to contain all contents and prevent leakage of fluids
- labeled or color coded
- closeable if leakage is possible.



**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SW.110.5.</b> All bins, pails, cans, and similar receptacles intended for reuse, that have the likelihood of becoming contaminated with blood or other potentially infectious materials are required to be inspected and decontaminated on a regularly scheduled basis (29 CFR 1910.1030 (d)(4)(ii)(C)).</p> <p><b>SW.110.6.</b> Labels affixed to containers of regulated wastes, refrigerators and freezers containing blood or other potentially infectious materials, and other containers used to store, transport, or ship blood or other potentially infectious materials must meet specific standards (29 CFR 1910.1030 (g)(1)(ii)).</p>	<p>Verify that receptacles with the potential for contamination are regularly inspected and decontaminated.</p> <p>Verify that the labels:</p> <ul style="list-style-type: none"> <li>- include the biohazard symbol</li> <li>- are fluorescent orange or orange-red or predominantly so, with lettering and symbols in contrasting color</li> <li>- are affixed as closely as possible to the container by adhesive, string, or wire, to prevent loss or removal.</li> </ul> <p>(NOTE: Red bags or containers may be used as a substitute for labels.)</p> <p>(NOTE: The following are exempt from labeling requirements:</p> <ul style="list-style-type: none"> <li>- containers of blood, blood components, or blood products that are labeled as to their contents and have been released for transfusion or other clinical use</li> <li>- individual containers of blood or other potentially infectious materials that is placed in a labeled container during storage, transport, shipment, or disposal.)</li> </ul> <p>(NOTE: Regulated waste that has been decontaminated need not be labeled and color coded.)</p>



**COMPLIANCE CATEGORY:  
SOLID WASTE MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>MEDICAL WASTE</b></p> <p><b>SW.125 Documentation</b></p> <p><b>SW.125.1.</b> Facilities that regularly handle, store, or dispose of medical waste are required to prepare a Medical Waste Plan (RP, 561 FW 13.5A) [Citation Revised June 1998].</p>	<p>Verify that the plan include the following information:</p> <ul style="list-style-type: none"> <li>- categorization of waste streams as one of the following:               <ul style="list-style-type: none"> <li>- isolation waste</li> <li>- cultures and stocks of infectious agents and associated biologicals (examples include specimens from medical and pathology laboratories)</li> <li>- animal blood and blood products</li> <li>- pathological wastes (examples include tissues, organs, blood, and body fluids)</li> <li>- contaminated sharps</li> <li>- contaminated animal carcasses</li> <li>- body parts and bedding</li> <li>- miscellaneous laboratory waste (examples include specimen containers, slides, disposable gloves, lab coats, and aprons)</li> </ul> </li> <li>- segregation methodologies</li> <li>- packaging methodologies</li> <li>- storage methodologies</li> <li>- transportation mechanisms.</li> </ul>



## Appendix 7-1

### Open Dumping (40 CFR 257.1 through 257.3-8) [Reviewed July 2000]

Unless the following are met, a land disposal site is considered an open dump.

1. Facilities or practices in floodplains must not restrict the flow of the base flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste, so as to pose a hazard to human life, wildlife, or land or water resources.
2. Facilities or practices do not cause or contribute to the taking of any endangered or threatened species of plants, fish, or wildlife. Nor does it result in the destruction of or adverse modification of the critical habitat.
3. The facility does not cause a discharge of pollutants into the waters of the United States that is in violation of the requirements of the National Pollutant Discharge Elimination System (NPDES). It also does not cause a discharge of dredged materials or fill materials or cause nonpoint source pollution of waters of the United States that violated applicable legal requirements.
4. The facility or practice does not contaminate an underground drinking water source beyond the solid waste boundary or beyond a specified alternative boundary established by the state.
5. When solid waste is applied within 1 m (3 ft) of the surface of land used for the production of food chain crops the following are done:
  - a. the pH of the solid waste and soil mixture is 6.5 or greater at the time of each solid waste application, except for solid waste containing cadmium at concentrations of 2 mg/kg (dry weight) or less
  - b. the annual application of cadmium from solid waste does not exceed 0.5 kg/ha
  - c. the cumulative application of cadmium from solid wastes does not exceed:

Soil cation exchange capacity (meq/100g)	Maximum cumulative application (kg/ha)	
	Background soil pH less than 6.5	Background soil pH more than 6.5
Less than 5	5	5
5 to 15	5	10
More than 15	5	20

- d. when the background pH is less than 6.5, the cumulative application does not exceed the levels below provided the pH of the solid waste and soil mixture is adjusted to and maintained at 6.5 or greater whenever food-chain crops are grown:

Soil cation exchange capacity (meq/100g)	Maximum cumulative application (kg/ha)
less than 5	5
5 to 15	10
More than 15	20

6. When solid waste is applied within 1 m (3 ft) of the surface of land used for the production of animal feed the following are done:
- the pH of the solid waste and soil mixture is 6.5 or greater at the time of each solid waste application, or at the time the crop is planted, whichever occurs later, and the pH level is maintained whenever food chain crops are grown
  - there is a facility operating plan that demonstrates how human consumption will be avoided
  - future property owners are notified of the restrictions.
7. Solid waste containing concentrations of PCBs equal to or greater than 10 mg/kg (dry weight) is incorporated into the soil when applied to land used for producing animal feed, including pasture crops. Incorporation is not required if it is assured that the PCB content is less than 0.2 mg/kg (actual weight) in animal feed or less than 1.5 mg/kg (fat basis) in milk.
8. The onsite population of disease vectors is minimized through the periodic application of cover material or other techniques as appropriate so as to protect public health.
9. Sewage sludge that is applied or incorporated into the soil is treated by a process to significantly reduce pathogens prior to application or incorporation. Public access is controlled for at least 12 mo and grazing by animal who product are consumed by humans is prevented for at least one month.
10. Septic tank pumpings that are applied or incorporated into the soil is treated by a process to significantly reduce pathogens prior to application or incorporation unless public access is controlled for at least 12 mo and grazing by animal whose products are consumed by humans is prevented for at least 1 mo.
11. There is no open burning of residential, commercial, institutional, or industrial solid waste. (This does not apply to the infrequent burning of agricultural wastes in the field, silvicultural wastes for forest management purposes, landclearing debris, diseased trees, and debris from emergency cleanup operations and ordnance.)
12. The concentrations of explosive gases does not exceed:

- a. 25 percent of the LEL for the gases in the facility structures (excluding gas control or recovery system components)
  - b. the LEL for the gases at the property boundary.
13. The site is not a fire hazard.
  14. There is not uncontrolled public access.
  15. Facilities or practices where putrescible wastes that may attract birds and which occurs within 10,000 ft (3048 m) of any airport runway used by only piston-type aircraft does not pose a bird hazard to aircraft.

(NOTE: These requirements do not apply to the following:

1. agricultural wastes, including manure and crop residues, returned to the soil as fertilizers or soil conditioners
2. overburden resulting from mining operations intended for return to the mining site
3. and application of domestic sewage or treated domestic sewage
4. location and operation of septic tanks
5. solid or dissolved materials in irrigation return flows
6. industrial discharges which are point sources subject to NPDES
7. source, special nuclear or by-product material as defined by the *Atomic Energy Act*
8. hazardous waste disposal facilities which are subject to regulation
9. disposal of solid waste by underground well injection
10. municipal solid waste landfill units
11. use or disposal of sewage sludge on the land when it is used or disposed of in accordance with 40 CFR 503.)





## SECTION 8

### SPECIAL POLLUTANTS MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section is used to determine the compliance status of the management activities associated with:

1. Polychlorinated biphenyls (PCBs) and in-service and out-of-service PCB Items.
2. The removal of asbestos from buildings and its ultimate disposal.
3. Testing for potential radon exposure.
4. Limiting environmental noise.
5. Identification of lead based paint (LBP) in residences.

#### B. Federal Legislation

- *The Noise Control Act* of 1972. This act, Public Law (PL) 92-574 (42 U.S. Code (USC) 4901-4918), as amended:
  1. Establishes a means for effective coordination of Federal research and activities in noise control.
  2. Authorizes the establishment of Federal noise emission standards for products distributed in commerce.
  3. Provides information to the public respecting the noise emission and noise reduction characteristics of such products.

The following categories of products which produce noise are covered by this act:

1. Construction equipment.
2. Transportation equipment (including recreational vehicles and related equipment).
3. Any motor or engine (including any equipment of which an engine or motor is an integral part).
4. Electrical or electronic equipment.

The following articles are not covered by the act (42 USC 4902(3)):

1. Any aircraft, aircraft engine, propeller, or appliance.
2. Any military weapons or equipment designed for combat use.
3. Any rockets or equipment designed for research, experimental, or developmental work to be performed by the National Aeronautics and Space Administration (NASA).
4. Any other machinery or equipment designed for use in experimental work done by or for the Federal Government.

The manufacturer of a product is required to give notice to the prospective user about the level of the noise the product emits, or its effectiveness in reducing noise (42 USC 4907 (b)). Such notice may not be removed from the product or its container (42 USC 4909 (4)). The manufacturer is prohibited to remove or render ineffective any device or element of design incorporated into the product to control noise (42 USC 4909(2)).

- *Aviation Safety and Noise Abatement Act* of 1979. This act, PL 96-193 (49 USC Appendix 2103, 2104), as amended, relates to airport noise. Any airport operator may submit to the Secretary of Transportation a noise exposure map. Such maps shall set forth the noncompatible

uses in each area of the map, a description of the projected aircraft operations at such airport, and the ways in which such operations will affect such a map (49 USC 2103). Any airport operator who has submitted a noise exposure map and the related information may submit to the Secretary of Transportation a noise compatibility program. This program shall include measures which the operator has taken or proposes for the reduction of existing noncompatible uses and the prevention of the introduction of noncompatible uses within the area covered by the noise exposure map submitted (49 USC Appendix 2104).

- *The Toxic Substances Control Act (TSCA)*. This act, as last amended in 1986, 15 USC 2601-2671, is the Federal legislation which deals with the control of toxic substances. The act consists of three subchapters, one of which regulates the control of toxic substances, another governs asbestos hazard emergency response, and another subchapter regulates indoor radon abatement. The policy developed in TSCA on chemical substances is as follows (15 USC 2601(b)):
  1. Adequate data should be developed with respect to the effect of chemical substances and mixtures on health and the environment and that the development of such data should be the responsibility of those who manufacture and those who process such chemical substances and mixtures.
  2. Adequate authority should exist to regulate chemical substances and mixtures which present an unreasonable risk of injury to health or the environment, and to take action regarding chemical substances and mixtures.
  3. Authority over chemical substances and mixtures should be exercised in such a manner as not to impede unduly or create unnecessary economic barriers to technological innovation while fulfilling the primary purpose of this act to assure that such innovation and commerce in such chemical substances and mixtures do not present an unreasonable risk of injury to health or the environment.

Upon request by the U.S. Environmental Protection Agency (USEPA), each Federal Department and Agency is authorized to (15 USC 2625(a)):

1. Make its services, personnel, and facilities available (with or without reimbursement) to the USEPA to assist the USEPA in the administration of this act.
2. Furnish the USEPA with information, data, estimates, and statistics, and allow the USEPA access to all information in its possession as the USEPA may reasonably determine to be necessary for the administration of this act.

Under TSCA, the national long-term goal of the United States with respect to radon levels in buildings is that the air within U.S. buildings should be as free of radon as the ambient air outside of buildings (15 USC 2661). The head of each Federal Department or Agency that owns a Federal building must conduct a study for the purpose of determining the extent of radon contamination in such buildings. Such a study must include, in the case of a Federal building using a nonpublic water source (such as a well or other groundwater), radon contamination of the water. Such a study must be based on design criteria specified by the USEPA (15 USC 2669(a)(c)(e)).

An amendment of TSCA requires the creation of regulations governing lead-based paint activities to ensure that individuals engaged in such activities are properly trained; that training programs are accredited; and that contractors engaged in such activities are certified. Within 15 USC 2688 expressly mandates Federal agency compliance with all Federal, state, interstate, and local requirements, both substantive and procedural pertaining to lead-based paint, lead-based paint activities, and lead-based paint hazards. This section also expressly waives any immunity otherwise applicable to the United States, including immunity from penalties and fines levied by the USEPA and State agencies. (15 USC 2681 though 2692) **[Revised June 1998]**.

- *The Asbestos Hazard Emergency Response Act (AHERA)* of 1986. This act, last amended in November 1990, 15 USC 2641-2656, et. al., and 20 USC 4014, et al., is the Federal legislation governing the control and abatement of asbestos hazard present in school buildings. The purpose of this act is (15 USC 2641(b)):
  1. To provide for the establishment of Federal regulations which require inspection for asbestos-containing material (ACM) and implementation of appropriate response actions with respect to ACM in the nation's schools in a safe and complete manner.
  2. To mandate safe and complete periodic reinspection of school buildings following response actions, where appropriate.
  3. To require the USEPA to conduct a study to find out the extent of the danger to human health posed by asbestos in public and commercial buildings and the means to respond to any such danger.
  
- *The Hazardous Materials Transportation Act*. This act was amended in 1978 to regulate the transport of asbestos materials. The regulations are contained in 49 CFR 172-177. In particular, 49 CFR 177 requires that asbestos must be loaded, handled, and unloaded in a manner that will minimize occupational exposure to airborne asbestos. Asbestos wastes that are transported for disposal at landfills or other disposal facilities must meet all applicable requirements.
  
- Executive Order (EO) 12088. This EO, *Federal Compliance with Pollution Standards*, of 13 October 1978 requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities it funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.
  
- Federal regulations used to develop the checklist include:
  - EO 12088, *Federal Compliance with Pollution Control Standards*.
  - 40 CFR 61, Subpart M, *National Emission Standards for Hazardous Air Pollutants*.
  - 40 CFR 761, *PCB Manufacturing, Processing, Distribution in Commerce and Use Prohibitions*.
  - 40 CFR 763, *Asbestos-in-Schools*.

### C. State/Local Regulations

- *Noise* - State, regional, and local governmental agencies may develop zoning and planning ordinances which have the potential to effect FWS facilities and their operations. As a general rule, states tend to treat environmental noise as a source specific pollutant whose emissions will be controlled by the locally effected community.
  
- *PCBs* - According to the general structure of Federal regulatory programs, any state regulations must adopt the Federal regulations as a minimum set of requirements. In some cases, state regulations have been developed which regulate PCBs more stringently than the Federal program.

State PCB regulations may provide additional regulatory requirements beyond the Federal program to address a specific concern or activity sensitive in that state. State regulations may supersede the Federal regulations in areas including the following:

1. PCBs may be regulated as a hazardous waste.

2. PCBs may be regulated to a lower concentration. For example, regulated PCBs in one state are defined to be materials and fluids which contain PCBs at a concentration greater than 7 ppm.
  3. Shipments of PCBs may require manifest documents.
  4. Analysis may be required to quantify the PCB concentration in all PCB Items.
  5. Additional inspections of select PCB Items and specific disposal requirements for PCBs and PCB Items may also be required.
  6. Generators of PCBs and PCB Items may be required to obtain disposal permits.
- *Asbestos* - Many state and local governments have enacted standards more stringent than the Federal requirements concerning certification of asbestos workers and disposal of asbestos waste. If the facility is engaging in asbestos removal or disposal, contact the appropriate state and local agencies.
  - *Radon* - State and local governments may enact radon control standards.

#### D. FWS/DOI Manuals

- 561 FW 8, *Compliance Requirements TSCA/CAA - Asbestos*. This chapter, dated 12 June 1995, provides guidance for asbestos management at Service facilities.
- 561 FW 9, *Compliance Requirements TSCA - PCB*. This chapter, dated 22 March 1996, provides guidance for PCB management at Service facilities.
- 561 FW 12, *Compliance Requirements, Radon*. This chapter provides guidance for radon management at Service facilities.

#### E. Key Compliance Requirements

- *Personnel and PCBs* - Certain regulations and practices should be followed to ensure the health of personnel who come in contact with PCBs. These include provision of protective work-clothing, shower facilities, and facilities for washing hands during shift. Airborne contamination of PCBs should be assessed and certain precautionary practices followed to protect personnel, which include the wearing of respirators if contamination is above a certain level. Certain records and practices should be maintained for employees exposed to PCBs, including medical histories and physical examinations emphasizing liver and skin condition. **[Revised October 1998]**.
- *PCB Equipment Marking* - The following equipment is required to be marked indicating that they contain PCBs (40 CFR 761.40 and 761.45) **[Revised October 1998]**:
  1. PCB Containers with PCBs in concentrations of greater than 50 ppm.
  2. PCB Transformers (500 ppm or greater).
  3. PCB Large High-Voltage Capacitors.
  4. Equipment containing a PCB Transformer (500 ppm or greater) or a PCB Large High-Voltage Capacitor at the time of removal from service.
  5. PCB Large Low-Voltage Capacitors at the time of removal from service.
  6. Electric motors using PCB coolants with a concentration of greater than 50 ppm.
  7. Hydraulic systems using PCB hydraulic fluid with concentrations of greater than 50 ppm.
  8. Heat transfer systems (other than PCB Transformers) using PCB concentrations of greater than 50 ppm.
  9. PCB Article Containers containing any of the above.
  10. Each storage area used to store PCBs and PCB Items for disposal.

11. Transport vehicles loaded with PCB Containers that contain more than 45 kg (99.4 lb) of liquid PCBs with PCBs at concentrations  $\geq 50$  ppm or with one or more PCB Transformers with PCB concentrations of greater than 500 ppm are marked on each end and side.
  12. Vault doors, machinery room doors, fences, hallways, or means of access, other than a manhole or grate cover, to a PCB Transformer (500 ppm or greater).
  13. Voltage regulators with a PCB concentration of  $\geq 500$  ppm (individually).
  14. Vault doors, machinery room doors, fences, hallways, or means of access to voltage regulators with a PCB concentration  $\geq 500$  ppm.
- Records for PCBs - A written annual document log must be prepared by 1 July of each calendar year, covering the previous year for all facilities that use or store at any time at least 45 kg (99.4 lb) of PCBs contained in PCB Containers, or one or more PCB Transformers, or 50 or more PCB Large, High-, or Low-Voltage Capacitors. Owners and operators of PCB chemical waste landfills shall keep records on water analysis and operational records, including burial coordinates for 20 yr after disposal has ceased. Generators are required to maintain manifests and certificates of disposal (COD) for 3 yr (40 CFR 761.180(a), 761.180(d), and 761.180(f)) ) **[Revised October 1998]**.
  - PCB Transformers - PCB Transformers with PCBs of 500 ppm or greater, that are in use or in storage for reuse, must not pose an exposure risk to food and feed and are subject to registration requirements. Railroad transformers must not contain dielectric fluid with greater than 1000 ppm PCB and must be serviced according to specific requirements. Combustible materials, including, but not limited to, paints, solvents, plastics, paper, and sawn wood, must not be stored by a PCB Transformer. PCB transformers of concentrations of 500 ppm or greater in use in or near commercial buildings are subject to certain requirements. PCB transformers are required to be properly serviced, and inspections must be performed once every 3 mo for all in-service transformers. If the transformer is found to be leaking, it must be repaired or replaced to eliminate the source of the leak. When a PCB transformer is involved in a fire, the incident must be reported immediately to the National Response Center (NRC). Mineral oil transformers which are tested and found to be contaminated with 500 ppm PCBs or greater must meet specific requirements. (40 CFR 761.30(a)(1)(ii) through 761.30(a)(1)(v), 761.30(a)(1)(vii), 761.30(a)(1)(xv), 761.30(b)(1)(iv), 761.30(b)(2)(ii), 761.30(b)(2)(iii), 761.120(a), 761.120(b), 761.120(c), 761.123(d)(2), and 761.125) ) **[Revised October 1998]**.
  - PCB Spills - Spills of 10 lb or more of PCBs of concentrations of 50 ppm must be reported to the USEPA regional office. Spills of greater than 1 lb must be cleaned up and reported to the USEPA regional office and the NRC. The criteria for cleanup is based on whether the spill is of high or low concentration of PCBs (40 CFR 761.120, 761.123, and 761.125) ) **[Revised October 1998]**.
  - PCB Items - The use of PCBs in electromagnetic switches, voltage regulators, capacitors, heat transfer and hydraulic systems, circuit breakers, reclosers, and cable is allowed if applicable restrictions are met and precautions taken (40 CFR 761.30) ) **[Revised October 1998]**.
  - PCB Storage - PCBs and PCB Items at concentrations greater than 50 ppm that are to be stored before disposal must be stored in a facility that: assures the containment of PCBs, prevents rainfall from contacting PCBs and PCB Items, has a 6 in. curb, is correctly labeled, and follows the specific operational procedures required of PCB storage units. Storage prior to disposal is not to exceed 1 yr. Nonleaking and structurally undamaged PCB Large, High-Voltage Capacitors and PCB-Contaminated Electric Equipment that have not been drained of freeflowing dielectric fluid may be stored on pallets next to a storage area that complies with the storage area requirements if they are checked weekly. Containers used for the storage of PCBs must comply with the

shipping container specification of the Department of Transportation (DOT). Specific requirements must be met for the following: storage of PCB articles for re-use, storage of PCB household waste, storage of PCBs and PCB items in areas not in compliance with the storage area requirements, and storage of bulk PCB remediation waste or PCB bulk product (40 CFR 761.35 & 761.65) ) [Revised October 1998].

- PCB Transportation - A generator who offers a PCB Waste for transport to commercial offsite storage or offsite disposal must prepare a manifest. If the generator does not receive a signed copy of the manifest within 35 days from the date the waste was accepted by the initial transporter, the generator must immediately contact the transporter and/or owner or operator of the designated facility to determine the status of the PCB Waste (40 CFR 761.207 through 761.210 and 761.215) [Revised October 1998].
- PCB Disposal - For each shipment of manifested PCB Waste that a disposal facility accepts, the owner or operator of the disposal facility must prepare a certificate of disposal (COD). PCB-contaminated fluids of concentrations greater than or equal to 50 ppm, but less than 500 ppm, are required to be disposed of in a USEPA-approved incinerator, or chemical waste landfill, or a high efficiency boiler. PCB Liquids and Transformers with concentrations of 500 ppm or greater must be disposed of in either a USEPA-approved PCB incinerator or a chemical waste landfill. PCB Capacitors must be disposed of in either a solid waste landfill (nonleaking PCB Small Capacitor only) or an approved incinerator. PCB hydraulic machines containing PCBs at concentrations greater than or equal to 50 ppm may be disposed of as municipal solid waste when drained. PCB-Contaminated Electrical Equipment, except capacitors, shall be disposed of by draining off the free-flowing liquid and then disposing of the drained equipment in: 1) a municipal solid waste unit (except thermal treatment units), 2) an industrial furnace, or 3) any other approved disposal facility. PCB Articles and Containers shall be disposed of in a USEPA-approved incinerator or chemical waste landfill if all free-flowing liquids have been removed. The following disposal methods are prohibited for PCB disposal: 1) open burning, 2) processing of PCBs into non-liquid forms to circumvent high temperature incineration requirements, and 3) discharging of PCBs into a water treatment works or navigable waters (unless PCB concentration is equal to or less than 3 ppb, or is in accordance with a PCB discharge limit set in a permit). Land disposal of PCBs must be in accordance with specific parameters. When disposing of PCB bulk product using performance-based disposal, PCB bulk product may be disposed of in an approved incinerator or chemical waste landfill, a permitted hazardous waste landfill, or through any other approved alternative method. Otherwise, PCB bulk product must be disposed of in a permitted municipal or non-municipal, non-hazardous waste landfill. PCB household waste must be disposed of in a facility permitted to manage municipal or industrial solid waste, or in any other facility given approval to dispose of PCB bulk product waste (40 CFR 761.50(a)(1) through 761.50(a)(3), 761.50(a)(5), 761.60, 761.62(a) through 761.62(d), 761.63 and 761.218) [Revised October 1998].
- Asbestos Identification - Regions are required to implement a program to inspect buildings under their control for the presence of asbestos (561 FW 8.6A(1)).
- Renovation and Demolition of Asbestos-Containing Structures - Facilities that demolish structures containing asbestos above certain limits, must meet notification requirements, emission control requirements and wetting requirements. This applies to facilities that demolish structures containing at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of RACM on other components or at least 1 m<sup>3</sup> (35 ft<sup>3</sup>) off facility components, and facilities renovating structures and stripping or removing at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of friable asbestos on other facility components and at least 1 m<sup>3</sup> (35 ft<sup>3</sup>) off facility components. If the concentration of asbestos is less than this level,

then the facility must submit notification of demolition. Facilities being demolished under state or local governmental agency orders shall have the portion of the facility containing friable asbestos adequately wetted during the wrecking operation. When a facility is demolished by intentional burning, all regulated asbestos-containing materials (RACM) must be removed. No RACM shall be stripped, removed, or otherwise handled or distributed unless at least one onsite representative trained in asbestos removal is present. When air cleaning is used as a method of controlling emissions of asbestos to the outside air, the fabric filter collection systems are required to meet specific standards, unless alternative equipment is authorized for use by the USEPA (40 CFR 61.145 and 61.152).

- **Asbestos Labeling** - Warning labels must be affixed to ACM or PACM raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers 29 CFR 1910.1001(j)(4)(i). But according to FWS policy, all ACM left in place will be labeled to alert potential maintenance operations of the potential hazard (561 FW 8.6C(2)).
- **Asbestos Disposal** - Asbestos-containing waste must be wetted or bagged to prevent emissions to the air. Asbestos waste has to be disposed of in landfills that have been approved for the acceptance of asbestos-containing waste (40 CFR 61.150, 61.151, and 61.154).
- **Employees and Asbestos** - All employees working with asbestos at levels at or above the permissible exposure level (PEL) and/or excursion limit for 30 or more days per year are required to participate in a medical surveillance program (561 FW 8.6H).
- **Environmental Noise** - Making continuous or excessive noise at any time or any place by any means is prohibited when it interferes with an authorized use or project purpose. A single facility point of contact should be identified for noise complaints (MP).
- **Radon** - Radon monitoring is required at all Service buildings which are occupied. Monitoring is to be done according to specific priorities. Mitigation of buildings is based on the radon levels detected (561 FW 12).
- **Disclosure of Lead-Based Paint (LBP) and/or LBP Hazards** - When leasing or selling target housing, the facility is required to disclose any knowledge it has of the presence of known LBP and/or LBP hazards (40 CFR 745.100). Work done related to LBP activities must be done by certified individuals and firms according to approved work practices (40 CFR 745.220 - 745.229).
- **Notification of LBP Hazards Prior to Renovation** - Renovators are required to notify the owners and occupants of target housing prior to renovation of any LBP hazards (40 CFR 745.81 through 745.86) **[Added June 1998]**.
- **Recordkeeping** - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### **F. Key Compliance Definitions**

- **Abatement** - any measure or set of measures designed to permanently eliminate LBP hazards. Abatement includes, but is not limited to (40 CFR 745.223):
  1. The removal of LBP and lead-contaminated dust, the permanent enclosure or encapsulation of LBP, the replacement of lead painted surface or fixtures, and the removal or covering of lead contaminated soil.

2. All preparation, cleanup, disposal, and post-abatement clearance testing activities associated with such measures.
3. Specifically, abatement includes, but is not limited to:
  - a. Projects for which there is a written contract or other documentation, which provides that an individual or firm will be conducting activities in or to a residential dwelling or child-occupied facilities that either:
    - i. Shall result in the permanent elimination of LBP hazards.
    - ii. Are designed to permanently eliminate LBP hazards.
  - b. Projects resulting in the permanent elimination of LBP hazards, conducted by firms or individuals who are certified, unless such projects are covered by paragraph 4 of this definition.
  - c. Projects resulting in the permanent elimination of LBP hazards, conducted by firms or individuals who, through their company name or promotional literature, represent, advertising, or hold themselves out to be in the business of performing LBP activities as identified and defined in this regulation, unless such projects are covered by paragraph 4 of this definition.
  - d. Projects resulting in the permanent elimination of LBP hazards that are conducted in response to state or local abatement orders.
4. Abatement does not include renovation, remodeling, landscaping or other activities, when such activities are not designed to permanently eliminate LBP hazards, but, instead, are designed to repair, restore, or remodel a given structure or dwelling even though these activities may incidentally result in a reduction or elimination of LBP hazards. Furthermore, abatement does not include interim controls, operations, and maintenance activities, or other measures and activities designed to temporarily, but not permanently, reduce LBP hazards.

- *Active Waste Disposal Site* - any disposal site other than an inactive site (40 CFR 61.14).
- *Adequately Wetted* - sufficiently mixed or penetrated with liquid to prevent the release of particulates (40 CFR 61.14).
- *Air Compressor System* - air compressors, piping, receiver tanks, volume tanks and bottles, dryers, airlines, and related appurtenances (40 CFR 761.3) **[Added October 1998]**.
- *Asbestos* - substances comprised of or derived from actinolite, amosite, anthophyllite, chrysotile, crocidolite, or tremolite (40 CFR 61.14).
- *Asbestos-Containing Waste Materials* - mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of 40 CFR 141. This term also includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. However, as applied to demolition and renovation operations, this term includes regulated ACM waste and materials contaminated with asbestos including disposable equipment and clothing (40 CFR 61.141).
- *Asbestos Material* - asbestos or any material containing asbestos (40 CFR 61.141).
- *Asbestos Waste from Control Devices* - any waste material that contains asbestos and is collected by a pollution control device (40 CFR 61.141).
- *Capacitor* - a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric. Types of capacitors are as follows (40 CFR 761.3):
  1. *Small Capacitor* - a capacitor which contains less than 1.36 kg (3 lb) of dielectric fluid.



2. *Large, High-Voltage Capacitor* - a capacitor which contains 1.36 kg (3 lb) or more of dielectric fluid and which operates at 2000 V (a.c. or d.c.) or above.
  3. *Large, Low-Voltage Capacitor* - a capacitor which contains 1.36 kg (3 lb) or more of dielectric fluid and which operates at 2000 V (a.c. or d.c.).
- *Category I Nonfriable Asbestos-Containing Material (ACM)* - asbestos-containing packing, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos (40 CFR 61.141).
  - *Category II Nonfriable ACM* - any material including Category I nonfriable ACM containing more than 1 percent asbestos that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure (40 CFR 61.141).
  - *Chemical Waste Landfill* - landfill at which protection against risk of injury to health or the environment from mitigation of PCBs to land, water, or the atmosphere is provided from PCBs and PCB Items deposited therein by locating, engineering, and operating the landfill as required (40 CFR 761.3).
  - *Child-occupied Facility* - a building or a portion of a building constructed prior to 1978, visited regularly by the same child, 6 yr of age or under, on at least 2 different days within any week (Sunday through Saturday period), provided that each day's visit last at least 3 h and the combined weekly visit lasts at least 6 h, and the combined annual visits last at least 60 h. Child-occupied facilities may include, but are not limited to, day-care centers, preschools, and kindergarten classrooms (40 CFR 745.223).
  - *Cleanup Site* - the real extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a cleanup of PCB remediation waste, regardless of whether the site was intended for management of waste (40 CFR 761.3) **[Added October 1998]**.
  - *Clearance Levels* - values that indicate the maximum amount of lead permitted in dust on a surface following completion of an abatement activity (40 CFR 745.223).
  - *Commercial Asbestos* - any material containing asbestos that is extracted from ore and has value because of its asbestos content (40 CFR 61.141).
  - *Commercial Storer of PCB Waste* - the owner or operator of each facility that is subject to the PCB storage unit standards of Sec. 761.65(b)(1) or (c)(7) or meets the alternate storage criteria of Sec. 761.65(b)(2), and who engages in storage activities involving either PCB waste generated by others or that was removed while servicing the equipment owned by others and brokered for disposal. The receipt of a fee or any other form of compensation for storage services is not necessary to qualify as a commercial storer of PCB waste. A generator who only stores its own waste is subject to the storage requirements of Sec. 761.65, but is not required to obtain approval as a commercial storer. If a facility's storage of PCB waste generated by others at no time exceeds a total of 500 gallons of liquid and/or non-liquid material containing PCBs at regulated levels, the owner or operator is a commercial storer but is not required to seek USEPA approval as a commercial storer of PCB waste. Storage of one company's PCB waste by a related company is not considered commercial storage. A "related company" includes, but is not limited to: a parent company and its subsidiaries; sibling companies owned by the same parent company; companies owned by a common holding company; members of electric cooperatives; entities within the same Executive Agency as defined at 5 U.S.C. 105; and a company having a joint ownership interest in a facility from which PCB waste is generated (such as a jointly owned electric power generating station) where the PCB waste is stored by one of the co-owners of the

facility. A "related company" does not include another voluntary member of the same trade association. Change in ownership or title of a generator's facility, where the generator is storing PCB waste, does not make the new owner of the facility a commercial storer of PCB waste (40 CFR 761.3) [Revised October 1998].

- *Common Area* - a portion of a building generally accessible to all residents/users including, but not limited to, hallways, stairways, laundry and recreational rooms, playgrounds, community centers, and boundary fences (40 CFR 745.103).
- *Contract for the Purchase and Sale of Residential Real Property* - any contract or agreement in which one party agrees to purchase an interest in real property on which there is situated one or more residential dwellings used or occupied, or intended to be used or occupied, in whole or in part, as the home or residence of one or more persons (40 CFR 745.103).
- *Cutting* - to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching (40 CFR 61.141).
- *dBA* - sound level in decibels, measured using the A-weighting network of a sound level meter.
- *dB* - a sound level in decibels, measured using the C-weighting network of a sound level meter.
- *Decibel (dB)* - sound is measured in decibels. The zero on the decibel scale is based on the lowest sound level that a healthy, unimpaired human ear can hear. Decibels are not linear, but representative points on a sharply rising (exponential) curve.
- *Demolition* - the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of a facility (40 CFR 61.141).
- *Deteriorated Paint* - paint that is cracking, flaking, chipping, peeling, or otherwise separating from the substrate of a building component (40 CFR 745.223).
- *Disposal* - intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB Items (40 CFR 761.3).
- *Distinct Painting History* - the application history, as indicated by its visual appearance or a record of application, over time, of paint or other surface coatings to a component or room (40 CFR 745.223).
- *Documented Methodologies* - methods or protocols used to sample for the presence of lead in paint, dust, and soil (40 CFR 745.223).
- *Double Wash/Rinse* - a minimum requirement to cleanse solid surfaces (both impervious and nonimpervious) two times with an appropriate solvent or other material in which PCBs are at least 5 percent soluble (by weight) (40 CFR 761.123).
- *Dry Weight* - the weight of the sample, excluding the weight of the water in the sample. Prior to chemical analysis, the water may be removed by any reproducible method that is applicable to measuring PCBs in the sample matrix at the concentration of concern, such as air drying at ambient temperature, filtration, decantation, heating at low temperature followed by cooling in the

presence of a desiccant, or other processes or combinations of processes which would remove water but not remove PCBs from the sample. Analytical procedures which calculate the dry weight concentration by adjusting for moisture content may also be used (40 CFR 761.3) [Added October 1998].

- *Elevated Blood Level (EBL)* - an excessive absorption of lead that is a confirmed concentration of lead in whole blood of 20 micrograms/deciliter (dl) for a single venous test or of 15 - 19 micrograms/dl in two consecutive tests taken 3 to 4 mo apart (40 CFR 745.223).
- *Emergency Renovation Operation* - a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment (40 CFR 61.141).
- *Emergency Renovation Operations* - renovation activities, such as operations necessitated by non-routine failures of equipment, that were not planned but result from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, or threatens equipment and/or property with significant damage (40 CFR 745.83) [Added June 1998].
- *Emergency Situations* - for continuing use of a PCB Transformer exists when (40 CFR 761.3):
  1. Neither a non-PCB Transformer nor a non-PCB-contaminated transformer is currently in storage for reuse or readily available within 24 h for installation.
  2. Immediate replacement is necessary to continue service for power users.
- *Evaluation* - for LBP this means a risk assessment and/or inspection (40 CFR 745.103).
- *Facility Component* - any part of any facility, including equipment (40 CFR 61.141).
- *Friable Asbestos Material* - any material that contains more than 1 percent asbestos and can be crumbled, pulverized, or reduced to powder, when dry, by hand pressure (40 CFR 61.141).
- *Fugitive Source* - any source of emissions not controlled by an air pollution control device (40 CFR 61.141).
- *Glove Bag* - a sealed compartment with attached inner gloves used for the handling of ACM (40 CFR 61.141).
- *High Concentration PCBs* - PCBs that contain 500 ppm or greater PCBs, or those materials which the USEPA requires to be assumed to contain 500 ppm or greater PCBs in the absence of testing (40 CFR 761.123).
- *High Occupancy Area* - any area where PCB remediation waste has been disposed of onsite and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: 840 hours or more (an average of 16.8 h or more per week) for non-porous surfaces and 335 hours or more (an average of 6.7 hours or more per week) for bulk PCB remediation waste. Examples could include a residence, school, day care center, sleeping quarters, a single or multiple occupancy 40 hours per week work station, a school class room, a cafeteria in an industrial facility, a control room, and a work station at an assembly line (40 CFR 761.3) [Added October 1998].

- *In or Near Commercial Buildings* - within the interior of, on the roof of, attached to the exterior wall of, in the parking area serving, or within 30 m of a nonindustrial, nonsubstation building (40 CFR 761.3).
- *In Poor Condition* - the binding of the materials is losing its integrity as indicated by peeling, cracking, or crumbling of the material (40 CFR 61.141).
- *Inactive Waste Disposal Site* - any disposal site or portion of it where additional asbestos-containing waste material will not be deposited and where the surface is not disturbed by vehicular traffic (40 CFR 61.141).
- *Industrial Building* - a building directly used in manufacturing or technically productive enterprises (40 CFR 761.3).
- *Inspection* - for LBP this means (40 CFR 745.103):
  1. A surface by surface investigation to determine the presence of LBP as provided in section 302(c) of the *Lead Based Paint Poisoning and Prevention Act* (42 USC 4822).
  2. The provision of a report explaining the results of the investigation.
- *Lead-Based Paint (LBP)* - paint or other surface coatings that contain lead equal to or in excess of 1.0 mg/cm<sup>2</sup> or 0.5 percent by weight (40 CFR 745.103).
- *Lead Based Paint Activities* - in the case of target housing and child-occupied facilities, inspection, risk assessment, and abatement (40 CFR 745.223).
- *Lead-Based Paint Free Housing* - target housing that has been found to be free of paint or other surface coatings that contain lead equal to or in excess of 1.0 mg/cm<sup>2</sup> or 0.5 percent by weight (40 CFR 745.103).
- *Lead-Based Paint Hazard* - any condition that causes exposure to lead from lead-contaminated dust, lead contaminated soil, or lead-contaminated paint that is deteriorated or present in accessible surfaces, friction surfaces, or impact surfaces that would result in adverse human health effects as established by the appropriate Federal agency (40 CFR 745.103).
- *Lead Contaminated Dust* - surface dust in residential dwellings, or child-occupied facilities that contains an area or mass concentration of lead at or in excess of levels identified by the Administrator pursuant to TSCA section 403 (40 CFR 745.223).
- *Lead Contaminated Soil* - bare soil on residential real property and on the property of a child-occupied facility that contains lead at or in excess of levels identified by the Administrator pursuant to TSCA section 403 (40 CFR 745.223).
- *Leak or Leaking* - any instance in which a PCB Article, PCB Container, or PCB Equipment has any PCBs on any portion of its external surface (40 CFR 761.3).
- *Lessee* - any entity that enters into agreement to lease, rent, or sublease target housing, including but not limited to individuals, partnerships, corporations, trusts, government agencies, housing agencies, Indian tribes, and nonprofit organizations (40 CFR 745.103).
- *Lessor* - any entity that offers target housing for lease, rent, or sublease, including but not limited to individuals, partnerships, corporations, trusts, government agencies, housing agencies, Indian tribes, and nonprofit organizations (40 CFR 745.103).

- *Liquid PCBs* - a homogenous flowable material containing PCBs and no more than 0.5 percent by weight non-dissolved material (40 CFR 761.3) **[Added October 1998]**.
- *Low Concentration PCBs* - PCBs that are tested and found to contain less than 500 ppm PCBs or those PCB-containing materials which USEPA requires to be assumed to be at concentrations below 500 ppm (i.e., untested mineral oil dielectric fluid) (40 CFR 761.123).
- *Low Occupancy Area* - any area where PCB remediation waste has been disposed of onsite and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: less than 840 h (an average of 16.8 h/week) for non-porous surfaces and less than 335 h (an average of 6.7 h/week) for bulk PCB remediation waste. Examples could include an electrical substation or a location in an industrial facility where a worker spends small amounts of time per week (such as an unoccupied area outside a building, an electrical equipment vault, or in the non-office space in a warehouse where occupancy is transitory) (40 CFR 761.3) **[Added October 1998]**.
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *Mark* - the descriptive name, instructions, cautions, or other information applied to PCBs and PCB Items, or other objects subject to these regulations (40 CFR 761.3).
- *Marking* - the marking of PCB Items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of these regulations (40 CFR 761.3).
- *Mineral Oil PCB Transformers* - any transformer originally designed to contain mineral oil as the dielectric fluid and which has been tested and found to contain 500 ppm or greater PCBs (40 CFR 761.3).
- *Multi-family Dwelling* - a structure that contains more than one separate residential dwelling unit, which is used or occupied, or intended to be used or occupied, in whole or in part as the home or residence of one or more persons (40 CFR 745.223).
- *Multi-Family Housing* - a housing property consisting of more than four dwelling units (40 CFR 745.83) **[Added June 1998]**.
- *Non-Liquid PCBs* - materials containing PCBs that by visual inspection do not flow at room temperature (25 °C or 77 °F) or from which no liquid passes when a 100 g or 100 ml representative sample is placed in a mesh number 60 +/- 5 percent paint filter and allowed to drain at room temperature for 5 min (40 CFR 761.3) **[Added October 1998]**.
- *Non-PCB Transformers* - any transformer that contains less than 50 ppm PCB except that any transformer that has been converted from a PCB Transformer or a PCB-Contaminated transformer cannot be classified as a non-PCB Transformer until reclassification has occurred in accordance with the requirements of 40 CFR 761.30(a)(2)(v) (40 CFR 761.3).
- *Non-Porous Surface* - a smooth, unpainted solid surface that limits penetration of liquid containing PCBs beyond the immediate surface. Examples are: smooth uncorroded metal; natural gas pipe with a thin porous coating originally applied to inhibit corrosion; smooth glass; smooth glazed

ceramics; impermeable polished building stone such as marble or granite; and high density plastics, such as polycarbonates and melamines, that do not absorb organic solvents (40 CFR 761.3) [Added October 1998].

- *Nonscheduled Renovation* - a renovation operation necessitated by the routine failure of equipment, which is expected to occur within a given period based on past operating experience, but for which an exact date cannot be predicted (40 CFR 61.141).
- *Outside Air* - the air outside buildings and structures, including but not limited to, air under a bridge or an open ferry dock (40 CFR 61.141).
- *Owner* - any entity that has legal title to target housing, including but not limited to individuals, partnerships, corporations, trusts, government agencies, housing agencies, Indian tribes, and nonprofit organizations except where a mortgage holds legal title to property serving as collateral for a mortgage loan, in which case the owner would be the mortgagor (40 CFR 745.103).
- *PCB or PCBs* - a chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance (40 CFR 761.3).
- *PCB Article* - any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. This includes capacitors, transformers, electric motors, pumps, and pipes (40 CFR 761.3).
- *PCB Article Container* - any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs (40 CFR 761.3).
- *PCB Bulk Product Waste* - waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal was  $\geq 50$  ppm PCBs. PCB bulk product waste does not include PCBs or PCB Items regulated for disposal under 40 CFR 761.60(a) through (c), 761.61, 761.63, or 761.64. PCB bulk product waste includes, but is not limited to [Added October 1998]:
  1. Non-liquid bulk wastes or debris from the demolition of buildings and other man-made structures manufactured, coated, or serviced with PCBs. PCB bulk product waste does not include debris from the demolition of buildings or other man-made structures that is contaminated by spills from regulated PCBs which have not been disposed of, decontaminated, or otherwise cleaned up in accordance with subpart D of this part.
  2. PCB-containing wastes from the shredding of automobiles, household appliances, or industrial appliances.
  3. Plastics (such as plastic insulation from wire or cable; radio, television and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; caulking; adhesives; paper; Galbestos; sound deadening or other types of insulation; and felt or fabric products such as gaskets.
  4. Fluorescent light ballasts containing PCBs in the potting material (40 CFR 761.3).
- *PCB Capacitor* - any capacitor that contains  $\geq 500$  ppm PCB. Concentration assumptions applicable to capacitors appear under Sec. 761.2 (40 CFR 761.3) [Added October 1998].
- *PCB Concentration Assumptions* - the following assumption may be made in relation to PCB concentrations (40 CFR 761.2(a) [Added October 1998]:

1. Transformers with <3 pounds (1.36 kg) of fluid, circuit breakers, reclosers, oil-filled cable, and rectifiers whose PCB concentration is not established contain PCBs at <50 ppm.
  2. Mineral oil-filled electrical equipment that was manufactured before 2 July 1979, and whose PCB concentration is not established is PCB-Contaminated Electrical Equipment (i.e., contains  $\geq 50$  PCB, but <500 ppm PCB).
  3. All pole-top and pad-mounted distribution transformers manufactured before 2 July 1979 are assumed to be mineral-oil filled.
  4. Electrical equipment manufactured after 2 July 1979 is non-PCB (i.e., <50 ppm PCBs). If the date of manufacture of mineral oil-filled electrical equipment is unknown, assume it to be PCB-Contaminated.
  5. Transformers manufactured prior to 2 July 1979, that contain 1.36 kg (3 pounds) or more of fluid other than mineral oil and whose PCB concentration is not established, are PCB Transformers (i.e.,  $\geq 500$  ppm). If the date of manufacture or the type of dielectric fluid is unknown, assume the transformer to be a PCB Transformer.
  6. A capacitor manufactured prior to 2 July 1979, whose PCB concentration is not established contains  $\geq 500$  ppm PCBs.
  7. A capacitor manufactured after 2 July 1979 is non-PCB (i.e., <50 ppm PCBs). If the date of manufacture is unknown, assume the capacitor contains  $\geq 500$  ppm PCBs.
  8. A capacitor marked at the time of manufacture with the statement "No PCBs" in accordance with Sec. 761.40(g) is non-PCB.
- *PCB-Contaminated* - a non-liquid material containing PCBs at concentrations  $\geq 50$  ppm but <500 ppm; a liquid material containing PCBs at concentrations  $\geq 50$  ppm but <500 ppm or where insufficient liquid material is available for analysis, a non-porous surface having a surface concentration  $>10 \mu\text{g}/100 \text{ cm}^2$  but  $<100 \mu\text{g}/100 \text{ cm}^2$ , measured by a standard wipe test as defined in 40 CFR 761.123 (40 CFR 761.3) [Added October 1998].
  - *PCB-Contaminated Electrical Equipment* - any electrical equipment including, but not limited to, transformers (including those used in railway locomotives and self-propelled cars), capacitors, circuit breakers, reclosers, voltage regulators, switches (including sectionalizers and motor starters), electromagnets, and cable, that contains PCBs at concentrations of  $\geq 50$  ppm and <500 ppm in the contaminating fluid. In the absence of liquids, electrical equipment is PCB-Contaminated if it has PCBs at  $>10 \mu\text{g}/100 \text{ cm}^2$  and  $<100 \mu\text{g}/100 \text{ cm}^2$  as measured by a standard wipe test (as defined in 40 CFR 761.123) of a non-porous surface (40 CFR 761.3) [Revised October 1998].
  - *PCB Equipment* - any manufactured item, other than a PCB Container or a PCB Article container, which contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures (40 CFR 761.3).
  - *PCB Field Screening Test* - a portable analytical device or kit which measures PCBs. PCB field screening tests usually report less than or greater than a specific numerical PCB concentration. These tests normally build in a safety factor which increases the probability of a false positive report and decreases the probability of a false negative report. PCB field screening tests do not usually provide: an identity record generated by an instrument; a quantitative comparison record from calibration standards; any identification of PCBs; and/or any indication or identification of interferences with the measurement of the PCBs. PCB field screening test technologies include, but are not limited to, total chlorine colorimetric tests, total chlorine x-ray fluorescence tests, total chlorine microcoulometric tests, and rapid immunoassay tests (40 CFR 761.3) [Added October 1998].

- *PCB Household Waste* - PCB waste that is generated by residents on the premises of a temporary or permanent residence for individuals (including individually owned or rented units of a multi-unit construction), and that is composed primarily of materials found in wastes generated by consumers in their homes. PCB household waste includes unwanted or discarded non-commercial vehicles (prior to shredding), household items, and appliances or appliance parts and wastes generated on the premises of a residence for individuals as a result of routine household maintenance by or on behalf of the resident. Bulk or commingled liquid PCB wastes at concentrations of  $\geq 50$  ppm, demolition and renovation wastes, and industrial or heavy duty equipment with PCBs are not household wastes (40 CFR 761.3) **[Added October 1998]**.
- *PCB Item* - any PCB Article, PCB Article Container, PCB Container, PCB Equipment, or anything that deliberately or unintentionally contains or has as a part of it any PCB or PCBs (40 CFR 761.3) **[Revised October 1998]**.
- *PCB/Radioactive Waste* - PCBs regulated for disposal under subpart D of this part that also contain source, special nuclear, or byproduct material subject to regulation under the *Atomic Energy Act of 1954*, as amended, or naturally-occurring or accelerator-produced radioactive material (40 CFR 761.3) **[Added October 1998]**.
- *PCB Remediation Waste* - waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed of prior to 18 April 1978, that are currently at concentrations  $\geq 50$  ppm PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was  $\geq 500$  ppm PCB beginning on 18 April 1978, or  $\geq 50$  ppm PCB beginning on 2 July 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under 40 CFR 761. PCB remediation waste means soil, rags, and other debris generated as a result of any PCB spill cleanup, including, but not limited to (40 CFR 761.3) **[Revised April 2000]**:
  1. Environmental media containing PCBs, such as soil and gravel; dredged materials, such as sediments, settled sediment fines, and aqueous decantate from sediment.
  2. Sewage sludge containing  $< 50$  ppm PCBs and not in use according to 40 CFR 761.20(a)(4); PCB sewage sludge; commercial or industrial sludge contaminated as the result of a spill of PCBs including sludges located in or removed from any pollution control device; aqueous decantate from an industrial sludge.
  3. Buildings and other manmade structures (such as concrete floors, wood floors, or walls contaminated from a leaking PCB or PCB-contaminated transformer), porous surfaces, and non-porous surfaces.
- *PCB Sewage Sludge* - sewage sludge as defined in 40 CFR 503.9(w) which contains  $\geq 50$  ppm PCBs, as measured on a dry weight basis (40 CFR 761.3) **[Added October 1998]**.
- *PCB Transformer* - any transformer that contains  $\geq 500$  ppm PCBs. For PCB concentration assumptions applicable to transformers containing 1.36 kg (3 lbs.) or more of fluid other than mineral oil, see 40 CFR 761.2. For provisions permitting reclassification of electrical equipment, including PCB Transformers, containing  $\geq 500$  ppm PCBs to PCB-contaminated Electrical Equipment, see 40 CFR 761.30(a) and (h) (40 CFR 761.3) **[Revised October 1998]**.
- *PCB Waste* - those PCBs and PCB Items that are subject to the disposal requirements of Subpart D of 761 (40 CFR 761.3).
- *Paint in Poor Condition* - more than 10 ft<sup>2</sup> of deteriorated paint or exterior components with large surface areas; or more than 2 ft<sup>2</sup> of deteriorated paint on interior components with large surface



areas (e.g, walls, ceilings, floors, doors); or more than 10 percent of the total surface area of the component is deteriorated on interior or exterior components with small surface areas (window sills, baseboards, soffits, trim) (40 CFR 745.223).

- *Pamphlet* - the USEPA pamphlet developed under section 406(a) of TSCA for use in complying with this and other rulemakings under Title IV of TSCA and the Residential Lead-Based Paint Hazard Reduction Act, or any state or tribal pamphlet approved by USEPA pursuant to 40 CFR 745.326 that is developed for the same purpose. This includes reproductions of the pamphlet when copied in full and without revision or deletion of material from the pamphlet (except for the addition or revision of state or local sources of information) (40 CFR 745.83)[**Added June 1998**].
- *Particulate Asbestos Material* - finely divided particles of asbestos or material containing asbestos (40 CFR 61.141).
- *Permanently Covered Soil* - soil which has been separated from human contact by the placement of a barrier consisting of solid, relatively impermeable materials, such as pavement or concrete. Grass, mulch, and other landscaping materials are not considered permanent covering (40 CFR 745.223).
- *Person* - any natural or judicial person including any individual, corporation, partnership, or association; any Indian tribe, state, or political subdivision thereof; any interstate body; and any department, agency, or instrumentality of the Federal Government (40 CFR 745.83)[**Added June 1998**].
- *Planned Renovation Operations* - a renovation operation, or a number of such operations, in which the amount of friable asbestos material that will be removed or stripped within a given period of time can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience (40 CFR 61.141).
- *Porous Surface* - any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal; fibrous glass or glass wool; unglazed ceramics; ceramics with a porous glaze; porous building stone such as sandstone, travertine, limestone, or coral rock; low-density plastics such as styrofoam and low-density polyethylene; coated (varnished or painted) or uncoated wood; concrete or cement; plaster; plasterboard; wallboard; rubber; fiberboard; chipboard; asphalt; or tar paper. For purposes of cleaning and disposing of PCB remediation waste, porous surfaces have different requirements than non-porous surfaces (40 CFR 761.3) [**Added October 1998**].
- *Posing an Exposure Risk to Food or Feed* - being in any location where human food or animal feed products could be exposed to PCBs released from a PCB Item (40 CFR 761.3).
- *Purchaser* - an entity that enters into an agreement to purchase an interest in target housing, including but not limited to individuals, partnerships, corporations, trusts, government agencies, housing agencies, Indian tribes, and nonprofit organizations (40 CFR 745.103).
- *Radon* - an inert, colorless, odorless, naturally occurring radioactive gas that is formed from the radioactive decay of radium (Ra) atoms (561 FW 12.4B).
- *Reduction* - measures designed to reduce or eliminate human exposure to lead-based paint hazards through methods including interim controls and abatement (40 CFR 745.103).

- *Regulated Asbestos-Containing Material (RACM)* - includes friable asbestos material; Category I nonfriable ACM that has become friable; Category I nonfriable ACM that has been subjected to grinding, casting, cutting, or abrading; and Category II nonfriable ACM that has a high probability of becoming crumbled, crushed, or pulverized (40 CFR 61.141).
- *Remove* - to take out RACM from any structure (40 CFR 61.141).
- *Renovation* - altering in any way one or more structure components. Operations in which load-supporting structural members are wrecked or taken out are excluded (40 CFR 61.141).
- *Renovation* - the modification of any existing structure, or portion thereof, that results in the disturbance of painted surfaces, unless that activity is performed as part of an abatement as defined by this part (40 CFR 745.223). The term renovation includes (but is not limited to): the removal or modification of painted surfaces or painted components (e.g., modification of painted doors, surface preparation activity (such as sanding, scraping, or other such activities that may generate paint dust)); the removal of large structures (e.g., walls, ceiling, large surface replastering, major re-plumbing); and window replacement (40 CFR 745.83) **[Added June 1998]**.
- *Renovator* - any person who performs for compensation a renovation. (40 CFR 745.83) **[Added June 1998]**.
- *Research and Development (R&D) for PCB Disposal* - demonstrations for commercial PCB disposal approvals, pre-demonstration tests, tests of major modifications to previously approved PCB disposal technologies, treatability studies for PCB disposal technologies which have not been approved, development of new disposal technologies, and research on chemical transformation processes including, but not limited to, biodegradation (40 CFR 761.3) **[Added October 1998]**.
- *Residential Dwelling* - for LBP this means (40 CFR 745.103):
  1. A single family dwelling, including attached structures such as porches and stoops.
  2. A single family dwelling unit in a structure that contains more than one separate residential dwelling unit, and in which such unit is used or occupied, in whole or in part, as the residence of one or more persons.
- *Retrofill* - to remove PCB or PCB-contaminated dielectric fluid and replace it with either PCB, PCB-contaminated, or non-PCB dielectric fluid (40 CFR 761.3).
- *Risk Assessment* - an onsite investigation to determine and report the existence, nature, severity, and location of LBP hazards in residential dwellings, including (40 CFR 745.103):
  1. Information gathering regarding the age and history of the housing and occupancy by children under age 6.
  2. Visual inspections.
  3. Limited wipe sampling or other environmental sampling techniques.
  4. Other activity as may be appropriate.
  5. Provision of a report explaining the results of the investigation.
- *Rupture of a PCB Transformer* - a violent or nonviolent break in the integrity of a PCB Transformer caused by an overtemperature and/or overpressure condition that results in the release of PCBs (40 CFR 761.3).
- *Seller* - any entity that transfers legal title to target housing, in whole or in part, in return for consideration, including but not limited to individuals, partnerships, corporations, trusts,

government agencies, housing agencies, Indian Tribes, and nonprofit organizations. The term seller also includes (40 CFR 745.103):

1. An entity that transfers shares in a cooperatively owned project, in return for consideration.
  2. An entity that transfers its interest in a leasehold, in jurisdictions or circumstances where it is legally permissible to separate the fee title from the title to the improvement, in return for consideration.
- *Sewage Sludge* - sewage sludge as defined in Sec. 503.9(w) of this chapter that contains < 50 ppm (on a dry weight basis) PCBs (40 CFR 761.3) [Added October 1998].
  - *Soil Washing* - the extraction of PCBs from soil using a solvent, recovering the solvent from the soil, separating the PCBs from the recovered solvent for disposal, and then disposal or reuse of the solvent (40 CFR 761.3) [Added October 1998].
  - *Standard Wipe Sample* - a sample collected for chemical extraction and analysis using the standard wipe test as defined in 40 CFR 761.123. Except as designated elsewhere in part 761, the minimum surface area to be sampled shall be 100 cm<sup>2</sup> (40 CFR 761.3) [Added October 1998].
  - *Strip* - to take off RACM from any part of a facility (40 CFR 61.141).
  - *Structural Member* - any load-supporting member of a structure, such as beams and load-supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls (40 CFR 61.141).
  - *SW-846* - the document having the title "SW-846, Test Methods for Evaluating Solid Waste," which is available from either the National Technical Information Service (NTIS, U.S. Department of Commerce, 5285 Port Royal Rd., Springfield, VA 22161, telephone: (703) 487-4650 or the U.S. Government Printing Office (U.S. GPO, 710 North Capitol St., NW., Washington, DC 20401, telephone: (202) 783-3238 (40 CFR 761.3) [Added October 1998].
  - *Target Housing* - any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless any child who is less than 6 yr of age resides or is expected to reside in such housing) or any zero-bedroom dwelling (40 CFR 745.103 and 40 CFR 745.223).
  - *TSCA PCB Coordinated Approval* - the process used to recognize other Federal or state waste management documents governing the storage, cleanup, treatment, and disposal of PCB wastes. It is the mechanism under TSCA for accomplishing review, coordination, and approval of PCB waste management activities which are conducted outside of the TSCA PCB approval process, but require approval under the TSCA PCB regulations at 40 CFR part 761 (40 CFR 761.3) [Added October 1998].
  - *Unit* - a particular building, structure, or cell used to manage PCB waste (including, but not limited to, a building used for PCB waste storage, a landfill, an industrial boiler, or an incinerator) (40 CFR 761.3) [Added October 1998].
  - *Visible Emissions* - any emissions which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed water vapor (40 CFR 61.141).
  - *Wet Weight* - reporting chemical analysis results by including either the weight, or the volume and density, of all liquids (40 CFR 761.3) [Added October 1998].

- *Zero-Bedroom Dwelling* - any residential dwelling in which the living area is not separated from the sleeping area. The term includes efficiencies, studio apartments, dormitory housing, military barracks, and rentals of individual rooms in residential dwellings (40 CFR 745.103).

## SPECIAL POLLUTANTS MANAGEMENT

### GUIDANCE FOR CHECKLIST USERS

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	REFER TO CHECKLIST ITEMS:
All Facilities	SP.1.1 through SP.1.4
PCB Management	
General	SP.5.1 through SP.5.5
Records	SP.10.1 through SP.10.3
Transformers	SP.15.1 through SP.15.11
Spills	SP.20.1 through SP.20.4
PCB Items	SP.25.1 through SP.25.5
PCBs in Research	SP.30.1
Storage	SP.35.1 through SP.35.9
Transportation	SP.40.1 and SP.40.2
Disposal	SP.45.1 through SP.45.15
Asbestos Management	
General	SP.55.1 through SP.55.4
Renovation and Demolition of Asbestos- Containing Structures	SP.60.1 through SP.60.9
Personnel Training	SP.65.1 and SP.65.2
Disposal	SP.70.1 through SP.70.4
Radon Gas	SP.80.1 through SP.80.3
Environmental Noise	SP.85.1
LBP Management	
General	SP.95.1
Notification Requirements	SP.100.1 and SP.100.4
Training Requirements	SP.105.1 and SP.105.2
Work Practice Standards	SP.110.1 through SP.110.4

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## **SPECIAL POLLUTANTS MANAGEMENT**

### **Records To Review**

- Inspection, storage, maintenance, and disposal records for PCBs or PCB Items
- PCB Equipment inventory and sampling results
- Correspondence with regulatory agencies concerning PCB noncompliance situations
- Records of asbestos training program
- Asbestos survey results
- Records of onsite disposal and transportation and offsite disposal of asbestos
- Regulatory inspection reports
- Radon survey results
- Noise complaint log
- Lead based paint survey results

### **Physical Features To Inspect**

- PCB storage areas
- Transformers
- Equipment, fluid, and other items at the facility containing PCBs
- Pipe, spray-on, duct, and troweled cementitious insulation and boiler lagging
- Ceiling and floor tiles
- Piping at hatcheries
- Power generating or other noise
- Emergency generators





**COMPLIANCE CATEGORY:  
SPECIAL POLLUTANTS MANAGEMENT  
Fish and Wildlife Management**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>SP.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>SP.1.2.</b> FWS facilities are required to comply with state and local regulations (EO 12088, Section 1-1).</p> <p><b>SP.1.3.</b> Facilities will meet regulatory requirements issued since the finalization of this handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:          - definitions of PCB-contaminated          - PCB storage, labeling, and disposal requirements          - certification of individuals sampling and/or working with asbestos          - renovation and demolition procedures          - asbestos handling and disposal procedures          - motor vehicle noise          - construction noise          - noise from shooting and firing ranges.)</p> <p>Determine if any new regulations concerning PCBs, asbestos, and radon have been issued since the finalization of this handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p>

**COMPLIANCE CATEGORY:  
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**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**SP.1.4.** FWS facilities should report all NOV's to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].

Determine if the facility has received an NOV relating to air quality.  
Verify that the NOV was reported to the Region and the EFC.

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Management**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>PCBs</b></p> <p><b>SP.5 General</b></p> <p><b>SP.5.1.</b> Certain records and practices are required for employees exposed to PCBs (RP, 561 FW 9.6D) [Citation Revised June 1998].</p>	<p>(NOTE: 40 CFR 761 applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Substances that are regulated include, but are not limited to: dielectric fluids; solvents; oils; waste oils; heat transfer fluids; hydraulic fluids; paints or coatings; sludges; slurries; sediments; dredge spoils; soils; materials containing PCBs as a result of spills; and other chemical substances or combinations of substances, including impurities and byproducts and any byproduct, intermediate, or impurity manufactured at any point in a process. Requirements applicable to PCBs at concentrations &lt; 50 ppm also apply to contaminated surfaces at PCB concentrations <math>\leq 10/100 \text{ cm}^2</math>. Requirements applicable to PCBs at concentrations &gt; 50 ppm to &lt; 500 ppm also apply to contaminated surfaces at PCB concentrations <math>&gt; 10/100 \text{ cm}^2</math> to &lt; <math>100\mu^2</math>. Requirements applicable to PCBs at concentrations <math>\geq 500</math> ppm also apply to contaminated surfaces at PCB concentrations <math>\geq 100\mu^2</math>. See also the definition for PCB Concentration Assumptions. (40 CFR 761.1(b)(1) and 761.1(b)(2)) [Added October 1998].)</p> <p>Verify that employees exposed to PCBs on the job are identified.</p> <p>Verify that such employees are provided protection and training, including the provision of protective clothing, shower facilities, and facilities for washing hands.</p> <p>Verify that written notification is provided to employees with exposure risk of related training programs.</p> <p>Verify that airborne contamination of PCBs are assessed and precautionary practices followed to protect personnel, including the wearing of respirators in most cases.</p> <p>Verify that medical histories are maintained and physical examination performed emphasizing liver and skin conditions for employees exposed to PCBs.</p>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Management**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.5.2.</b> Facilities that use or store at any time at least 45 kg (99.4 lb) of PCBs contained in PCB Containers or one or more PCB Transformers (500 ppm or greater), or 50 or more PCB Large, High-, or Low-Voltage Capacitors are required to keep an inventory (40 CFR 761.180(a)(2)(iii) through 761.180(a)(2)(vi)).</p>	<p>Determine if the facility uses or stores at any time at least 45 kg (99.4 lb) of PCBs contained in PCB Containers or one or more PCB Transformers (500 ppm or greater), or 50 or more PCB Large, High, or Low Voltage Capacitors.</p> <p>Verify that the facility has an inventory/record of the following:</p> <ul style="list-style-type: none"> <li>- total number (by type) of PCB Articles, PCB Article Containers, and PCB Containers placed into storage for disposal or disposed of during the calendar year</li> <li>- total weight placed into storage for disposal or disposed of during the calendar year of:               <ul style="list-style-type: none"> <li>- PCBs in PCB Articles</li> <li>- contents of PCB Article Container</li> <li>- contents of PCB Containers</li> <li>- bulk PCB Waste</li> </ul> </li> <li>- a list of PCBs and PCB Items remaining in-service at the end of the calendar year. The total weight of any PCBs and PCB Items in containers including identification of container contents and the total number of PCB Transformers, PCB Large, High- and Low-Voltage Capacitors, and the total weight of PCBs in PCB Transformers.</li> </ul>
<p><b>SP.5.3.</b> Storage rooms and certain equipment that contains PCBs must be marked with an M<sub>L</sub> marking (40 CFR 761.40 and 761.45). [Revised April 2000].</p>	<p>(NOTE: Marking Format is Large PCB Mark (M<sub>L</sub>) letters and striping, on a white or yellow background, sufficiently durable to equal or exceed the life of the PCB Article. The size shall be 15.25 cm (6 in.) on each side. If the article is too small to accommodate this size, a smaller label (M<sub>s</sub>) may be used.)</p> <p>Verify that the following equipment is marked with an M<sub>L</sub> marking that can be easily read by any person inspecting or servicing the equipment (see Appendix 8-1 for a sample of the marking):</p> <ul style="list-style-type: none"> <li>- PCB Containers with PCBs in concentrations of &gt; 50 ppm at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal from use if not already marked</li> <li>- PCB Transformers (500 ppm or greater)</li> <li>- PCB Large High-Voltage Capacitors at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal from use if not already marked</li> <li>- equipment containing a PCB Transformer (500 ppm or greater) or a PCB Large High-Voltage Capacitor at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal from use if not already marked</li> </ul>

**COMPLIANCE CATEGORY:  
SPECIAL POLLUTANTS MANAGEMENT  
Fish and Wildlife Management**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- PCB Large Low-Voltage Capacitors at the time of removal from service</li> <li>- electric motors using PCB coolants with a concentration &gt; 50 ppm</li> <li>- hydraulic systems using PCB hydraulic fluid with concentrations &gt; 50 ppm</li> <li>- heat transfer systems (other than PCB Transformers) using PCB concentrations &gt; 50 ppm</li> <li>- PCB Article Containers containing any of the above</li> <li>- each storage area used to store PCBs and PCB Items for disposal</li> <li>- transport vehicles loaded with PCB Containers that contain &gt; 45 kg (99.4 lb) of liquid PCBs with PCBs at concentrations &gt;= 50 ppm or with one or more PCB Transformers with PCB concentrations of &gt; 500 ppm are marked on each end and side</li> <li>- vault doors, machinery room doors, fences, hallways, or means of access, other than a manhole or grate cover, to a PCB Transformer (500 ppm or greater)</li> <li>- voltage regulators which contain 1.36 kg (3 lb) or more of dielectric fluid with a PCB concentration of &gt;= 500 ppm (individually)</li> <li>- vault doors, machinery room doors, fences, hallways, or means of access, other than grates or manhole covers, to voltage regulators that contain 1.36 kg (3 lb) or more of dielectric fluid with a PCB concentration of &gt;= 500 ppm.</li> </ul> <p>Verify that, if one or more PCB Large High-Voltage Capacitors is installed in a protected location such as a pole, structure, or behind a fence, then the pole, structure, or fence is marked and a record or procedure identifying the PCB Capacitor is maintained.</p> <p>Verify that all PCB Equipment containing a PCB Small Capacitor is marked at the time of manufacture with the statement "This equipment contains PCB Capacitor(s)".</p> <p>Verify that each Large Low Voltage Capacitor, each Small Voltage Capacitor normally used in an alternating current circuit, and each fluorescent light ballast built between 1 July 1978 and 1 July 1998 that does not contain PCBs were marked at the time of manufacture with the statement "No PCBs".</p> <p>Verify that all marks are placed in a position on the exterior of the PCB Items, storage units, or transport vehicles so that the marks can be easily read by any person inspecting or servicing the marked PCB Items, storage units, or transport vehicles.</p>

**COMPLIANCE CATEGORY:  
SPECIAL POLLUTANTS MANAGEMENT  
Fish and Wildlife Management**

**REGULATORY  
REQUIREMENTS:**

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(NOTE: Marking of PCB-Contaminated Electrical Equipment (50 to 500 ppm) is not required.)

Verify that, after 26 April 1999, all PCB Large Low Voltage Capacitors not previously marked, are marked individually, or if one or more such Capacitors in a protected location such as on a power pole, or in a structure, or behind a fence, the pole, fence, or structure is marked.

Verify that any containers of chemical substances or mixtures that is manufactured and that contains < 500 ppm PCB (0.05% on a dry weight basis), including PCB that is a byproduct or impurity, is marked according to any permit requirements contained in the EPA exemption to manufacture.

Verify that a record is maintained after 26 April 1999 of those PCB Large Low Voltage Capacitors in a protected location.

Verify that, after 26 April 1999, all equipment containing a PCB Transformer or a PCB Large, High, or Low Voltage Capacitor are marked.

Verify that the vault door, machinery room door, fence, hallway, or means of access, other than grates and manhole covers, to a PCB Transformer are marked with the M<sub>L</sub> mark.

(NOTE: A mark other than the M<sub>L</sub> mark may be used if:

- the program using an alternative mark was started prior to 15 August, 1985 and can be substantiated with documentation
- prior to 15 August 1985, coordination between the transformer owner and primary first department occurred, and the primary fire department knows, accepts, and recognizes what the alternative marks mean and this can be substantiated with documentation
- the EPA Regional Administrator was informed in writing of the use of the alternative mark by 3 October 1988
- the EPA Regional Administrator approved the use of an alternative mark.

(NOTE: Appendix 8-2 contains a list of manufacturers that produced PCB-Contaminated dielectric fluid.)

(NOTE: The annual document log/inventory should contain a list of all PCB equipment at the site.)

**COMPLIANCE CATEGORY:  
SPECIAL POLLUTANTS MANAGEMENT  
Fish and Wildlife Management**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.5.4.</b> Generators, transporters, and disposers of PCB Waste are required to have an USEPA identification number (40 CFR 761.202 through 761.205) [Revised October 1998].</p>	<p>(NOTE: Some facilities are exempt from the notification requirement and do not have a specified PCB storage area as regulated by 40 CFR 761.65 and just temporarily store before they transport for disposal.)</p> <p>Determine if the facility is a generator, transporter, or disposer of PCB Waste.</p> <p>Verify that generators of PCB waste have a USEPA identification number before processing, storing, dispensing, transporting, or offering for transport PCB waste.</p> <p>Verify that transporters or disposers of PCB waste have a USEPA identification number.</p> <p>Verify that, if required, Form 7710-53, Notification of PCB Waste Activity, was filed with USEPA by 4 April 1990 and a USEPA identification number was obtained.</p> <p>(NOTE: When a facility has previously notified USEPA of its PCB waste handling activities using EPA Form 7710-53 and those activities change, the facility must resubmit EPA Form 7710-53 to reflect those changes no later than 30 days from when a change is made. Examples of when a PCB waste handler must renotify the Agency include, but are not limited to, the following: the company changes location of the facility; or the company had notified solely as engaging in a certain type of PCB waste handling activity and now wishes to engage in another PCB waste activity (e.g., previously only commercially stored PCB waste and now wishes to transport PCB waste).</p>
<p><b>SP.5.5.</b> PCB Concentrations are required to be established by certain methods (40 CFR 761.2(b)) [Added October 1998].</p>	<p>Verify that PCB concentrations have been established one of the following ways:</p> <ul style="list-style-type: none"> <li>- testing the equipment</li> <li>- permanent label, mark, or other documentation from the manufacturer of the equipment indicating its PCB concentration at the time of manufacture</li> <li>- service records or other documentation indicating the PCB concentration of all fluids used in servicing the equipment since it was first manufactured.</li> </ul> <p>(NOTE: See the definition of PCB Concentration Assumptions for further clarification.)</p>





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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PCB MANAGEMENT</b></p> <p><b>SP.10 Records</b></p> <p><b>SP.10.1.</b> A written annual document log must be prepared by July 1 of each calendar year, covering the previous year when at least 45 kg (99.4 lb) of PCBs contained in PCB Containers or one or more PCB Transformers (500 ppm or greater), or 50 or more PCB Large, High-, or Low-Voltage Capacitors is used or stored at any time (40 CFR 761.180(a)) [Revised October 1998].</p>	<p>(NOTE: 40 CFR 761 applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Substances that are regulated by this part include, but are not limited to: dielectric fluids; solvents; oils; waste oils; heat transfer fluids; hydraulic fluids; paints or coatings; sludges; slurries; sediments; dredge spoils; soils; materials containing PCBs as a result of spills; and other chemical substances or combinations of substances, including impurities and byproducts and any byproduct, intermediate, or impurity manufactured at any point in a process. Requirements applicable to PCBs at concentrations &lt; 50 ppm also apply to contaminated surfaces at PCB concentrations <math>\leq 10/100 \text{ cm}^2</math>. Requirements applicable to PCBs at concentrations &gt; 50 ppm to &lt; 500 ppm also apply to contaminated surfaces at PCB concentrations <math>&gt; 10/100 \text{ cm}^2</math> to <math>&lt; 100\mu^2</math>. Requirements applicable to PCBs at concentrations <math>\geq 500 \text{ ppm}</math> also apply to contaminated surfaces at PCB concentrations <math>\geq 100\mu^2</math>. See also the definition for PCB Concentration Assumptions.(40 CFR 761.1(b)(1) and 761.1(b)(2)) [Added October 1998].)</p> <p>Verify that the annual document log and annual records (manifests, records of inspections and cleanups, certificates of disposal) are kept for at least 3 yr after PCBs and PCB items are no longer used or stored in the listed quantities.</p> <p>Review the written annual document log for the following:</p> <ul style="list-style-type: none"> <li>- identification of facility</li> <li>- calendar year covered</li> <li>- manifest number for every manifest generated</li> <li>- total number (by type) of PCB Articles, PCB Article Containers, and PCB Containers placed into storage for disposal or disposed of during the calendar year</li> <li>- total weight placed into storage for disposal or disposed of during the calendar year of: <ul style="list-style-type: none"> <li>- PCBs in PCB Articles</li> <li>- contents of PCB Article Container</li> <li>- contents of PCB Containers</li> <li>- bulk PCB Waste</li> </ul> </li> <li>- a list of PCBs and PCB Items remaining in-service at the end of the calendar year. The total weight of any PCBs and PCB Items in containers including identification of container contents and the total number of PCB Transformers, PCB Large, High- and Low-Voltage Capacitors, and the total weight of PCBs in PCB Transformers</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- a record of each telephone call or other form of verification to confirm the receipt of PCB Waste transported by independent transport</li> <li>- the name, address, and telephone number of the person to whom the item was transferred, date of transfer, and the serial number of the item or internal identification number whenever a PCB Item, except small capacitors, with a concentration <math>\geq 50</math> ppm is distributed in commerce for reuse.</li> </ul> <p>(NOTE: In this context, PCB Voltage Regulators will be recorded as PCB Transformers.)</p> <p>Verify that the annual document log contains the following for each manifest, for unmanifested waste, and for any PCBs or PCB Items received from or shipped from another facility owned or operated by the generator:</p> <ul style="list-style-type: none"> <li>- date removed from service for disposal (first date material placed in PCB Container)</li> <li>- date placed into transport for offsite storage/disposal</li> <li>- date of disposal (if known)</li> <li>- weight of PCB Wastes:               <ul style="list-style-type: none"> <li>- total bulk for PCB wastes</li> <li>- in each article for PCB Transformers or Capacitors</li> <li>- total in each container for PCB Containers</li> <li>- total weight of contents and of the PCB Article (in kilograms) in each PCB Article Container</li> </ul> </li> <li>- serial number or other unique identification number (except for bulk wastes)</li> <li>- description of the contents for PCB Containers and Article Containers.</li> </ul> <p>Determine if the following information is provided by reviewing the annual document log:</p> <ul style="list-style-type: none"> <li>- all signed manifests generated or received during the calendar year</li> <li>- all CODs that have been generated or received during the calendar year.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.10.2.</b> Owners and operators of PCB chemical waste landfills shall keep records on water analysis and operational records, including burial coordinates, for 20 yr after disposal has ceased (40 CFR 761.180(d)).</p> <p><b>SP.10.3.</b> Storage and disposal facilities for PCBs shall maintain specific records for 3 yr (40 CFR 761.180(f)).</p>	<p>Verify that proper records are being kept for the required 20 yr.</p> <p>Verify that facilities, which store or dispose of PCBs, collect and maintain the following records for 3 yr:</p> <ul style="list-style-type: none"> <li>- all documents, correspondence, and data that have been provided by any state or local government</li> <li>- all documents, correspondence, and data provided to the state or local governments by the facility</li> <li>- any applications and related correspondence concerning wastewater discharge permits, solid waste permits, building permits, or other permits and authorizations.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PCB MANAGEMENT</b></p> <p><b>SP.15 Transformers</b></p> <p><b>SP.15.1.</b> Facilities with transformers on their property that do not belong to FWS, should know whether or not the transformers are PCB Transformers (MP).</p> <p><b>SP.15.2.</b> PCB Transformers with PCBs of 500 ppm or greater that are in use or in storage for reuse shall not pose an exposure risk to food and feed (40 CFR 761.30(a)(1)(i)).</p> <p><b>SP.15.3.</b> PCB Transformers with concentrations of PCBs of 500 ppm or greater are subject to certain registration requirements (40 CFR 761.30(a)(1)(vi)) [Revised October 1998].</p>	<p>(NOTE: 40 CFR 761 applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Substances that are regulated by this part include, but are not limited to: dielectric fluids; solvents; oils; waste oils; heat transfer fluids; hydraulic fluids; paints or coatings; sludges; slurries; sediments; dredge spoils; soils; materials containing PCBs as a result of spills; and other chemical substances or combinations of substances, including impurities and byproducts and any byproduct, intermediate, or impurity manufactured at any point in a process. Requirements applicable to PCBs at concentrations &lt; 50 ppm also apply to contaminated surfaces at PCB concentrations <math>\leq 10/100 \text{ cm}^2</math>. Requirements applicable to PCBs at concentrations &gt; 50 ppm to &lt; 500 ppm also apply to contaminated surfaces at PCB concentrations <math>&gt; 10/100 \text{ cm}^2</math> to <math>&lt; 100\mu^2</math>. Requirements applicable to PCBs at concentrations <math>\geq 500 \text{ ppm}</math> also apply to contaminated surfaces at PCB concentrations <math>\geq 100\mu^2</math>. See also the definition for PCB Concentration Assumptions (40 CFR 761.1(b)(1) and 761.1(b)(2)) [Added October 1998].)</p> <p>Determine if the facility has transformers on the property not belonging to the facility.</p> <p>Verify that the facility is aware of the concentration of PCBs in the transformer through either a label on the transformer or documentation from the owners of the transformer.</p> <p>Determine if there are any PCB Transformers on the facility, in use or in storage for reuse, that pose an exposure risk to food and feed, by reviewing the inventory.</p> <p>Verify that all PCB Transformers, including those in storage for reuse, are registered with the USEPA, National Programs Division, Office of Pollution Prevention and Toxics with the following information:</p> <ul style="list-style-type: none"> <li>- name and address</li> <li>- contact name and telephone number</li> <li>- address where transformers are located, for mobile sources such as a ship provide the name of the ship</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.15.4.</b> Railroad transformers must not contain dielectric fluid with greater than 1000 ppm PCB and must be serviced according to specific requirements (40 CFR 761.30(b)(1)(vi), 761.30(b)(2)(ii), and 761.30(b)(2)(iii)) <b>[Citation Revised October 1998].</b></p>	<ul style="list-style-type: none"> <li>- number of PCB Transformers and total weight in kilograms of PCBs contained in the transformers</li> <li>- whether any transformers at the location contain flammable dielectric fluid (optional)</li> <li>- signature of the owner, operator, or other authorized representative certifying the accuracy of the information submitted.</li> </ul> <p>(NOTE: A transformer owner who assumes a transformer is a PCB-Contaminated transformer, and discovers after 28 December 1998 that it is a PCB-Transformer, must register the newly-identified PCB Transformer, in writing, with the USEPA no later than 30 days after it is identified as such. This requirement does not apply to transformer owners who have previously registered with the USEPA PCB Transformers located at the same address as the transformer that they assumed to be PCB-Contaminated and later determined to be a PCB Transformer.</p> <p>(NOTE: A person who takes possession of a PCB Transformer after 28 December 1998 is not required to register or re-register the transformer with the USEPA.)</p> <p>Verify that records of each registration (e.g., a copy of the registration and the return receipt signed by USEPA) is retained with the required inspection records.</p> <p>Verify that railroad transformers do not exceed 1000 ppm PCB.</p> <p>Verify that servicing of a railroad transformer is only done with dielectric fluid containing less than 1000 ppm PCB.</p> <p>Verify that, if the coil is removed from the casing of a railroad transformer, it is refilled with dielectric fluid containing 50 ppm or less PCB.</p> <p>(NOTE: Dielectric fluid may be filtered through activated carbon or otherwise industrially processed for the purpose of reducing the PCB concentration in the fluid.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.15.5.</b> Combustible materials, including but not limited to paints, solvents, plastics, paper, and sawn wood, must not be stored by a PCB Transformer (40 CFR 761.30(a)(1)(viii)).</p>	<p>Verify that all combustible materials have been removed from the area within a PCB Transformer enclosure (i.e., vault or partitioned area) and the area within 5 m [16.40 ft] of a PCB Transformer or PCB Transformer enclosure.</p>
<p><b>SP.15.6.</b> PCB Transformers of concentrations of 500 ppm or greater in use in or near commercial buildings are subject to certain requirements (40 CFR 761.30(a)(1)(ii) through 761.30(a)(1)(v) and 761.30(a)(1)(vii) [Revised October 1998].</p>	<p>Determine if any transformers are located in or near commercial buildings by reviewing the inventory.</p> <p>Verify that no network PCB Transformers with higher secondary voltages (<math>\neq</math>/<math>&gt;</math> than 480 V, including 480/277 V systems) are in or near commercial buildings.</p> <p>Verify that network PCB Transformers with higher secondary voltages which are removed from service are either reclassified to PCB Contaminated or non-PCB status, placed into storage for disposal, or disposed.</p> <p>Verify that procedure/policy exists prohibiting installation of PCB Transformers that have been placed into storage for reuse or that have been removed from another location.</p> <p>(NOTE: Retrofilled mineral oil PCB Transformers may be installed for reclassification purposes. But, it must be tested 3 mo after installation and appropriately classified based on the results of testing the fluid within. If the PCB concentration remains at 500 ppm or <math>&gt;</math>, the transformer must be retrofilled again until the transformer can be classed a non-PCB or PCB-Contaminated or removed from service.)</p> <p>Verify that all higher secondary voltage radial PCB transformers in use in or near commercial buildings, and lower secondary voltage network PCB Transformers are equipped with electrical protection to avoid transformer ruptures caused by high current faults (i.e., current limiting fuses).</p> <p>Verify that all lower secondary voltage network PCB Transformers not located in sidewalk vaults (network transformers with secondary voltages below 480 volts), in use in or near commercial buildings have been removed from service.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.15.7.</b> PCB Transformers are required to be properly serviced (40 CFR 761.30(a)(2)).</p>	<p>Verify that all lower secondary voltage radial PCB Transformers are equipped with electrical protection to detect sustained high current faults and provide for the complete deenergization of the transformer of the complete deenergization of the faulted phase of the transformer within several hundredths of a second.</p> <p>Verify that all radial PCB Transformers with higher secondary voltages (480 volts and above, including 480/277 volt systems) in use in or near commercial buildings are equipped with protection to avoid transformer ruptures caused by sustained low current faults.</p> <p>Verify that PCB Transformers in use in or near commercial buildings are registered with the building's owner and includes the following information:</p> <ul style="list-style-type: none"> <li>- specific location</li> <li>- principal constituent of the dielectric fluid</li> <li>- the type of transformer installation (e.g., 208/120 volt network, 208/120 volt radial).</li> </ul> <p>Verify that servicing activities are properly conducted as follows:</p> <ul style="list-style-type: none"> <li>- transformers classified as PCB-Contaminated Electrical Equipment (50 to 500 ppm PCB) are only serviced with dielectric fluid containing less than 500 ppm PCB</li> <li>- the transformer coil is not removed during servicing of PCB Transformers with PCB concentrations of 500 ppm or greater</li> <li>- PCBs removed during servicing are captured and are either reused as dielectric fluid or disposed of properly</li> <li>- the PCBs from a PCB Transformer with PCB concentrations of 500 ppm or greater are not mixed with or added to dielectric fluid from PCB-Contaminated Electrical Equipment (50 to 500 ppm PCB)</li> <li>- dielectric fluids containing less than 500 ppm PCB that are mixed with fluids containing 500 ppm or greater are not used as dielectric fluid in any transformers classified as PCB-Contaminated Electrical Equipment (50 to 500 ppm PCB).</li> </ul> <p>(NOTE: PCB Transformers may be serviced with dielectric fluid at any concentration.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.15.8.</b> Inspections must be performed once every 3 mo for all in use or stored for reuse PCB Transformers with &gt; 500 ppm PCB (40 CFR 761.30(a)(1)(ix) and 761.30(a)(1)(xii) through 761.30(a)(1)(xiv)) <b>[Revised April 2000].</b></p>	<p>Verify that applicable transformers in use or stored for reuse are inspected at least once every 3 mo by reviewing inspection records.</p> <p>Verify that there are 30 days between inspections.</p> <p>(NOTE: These inspections may take place any time during the 3-month periods: January-March, April-June, July-September, and October-December as long as there is a minimum of 30 days between inspections. The visual inspection must include investigation for any leak of dielectric fluid on or around the transformer. The extent of the visual inspections will depend on the physical constraints of each transformer installation and should not require an electrical shutdown of the transformer being inspected.)</p> <p>Verify that the following information is recorded for each PCB Transformer inspection:</p> <ul style="list-style-type: none"> <li>- location of transformer</li> <li>- dates of each visual inspection</li> <li>- date when any leak was discovered</li> <li>- name of person conducting inspection</li> <li>- location and estimate of the dielectric fluid quantity for any leaks</li> <li>- date and description of any cleanup, containment, or repair performed</li> <li>- results of any containment daily inspections for transformers with uncorrected active leaks</li> <li>- registration of the PCB Transformer</li> <li>- records of transfer of ownership in compliance with 40 CFR 761.180(a)(2)(ix) (see checklist item SP.10.1).</li> </ul> <p>(NOTE: Reduced visual inspections of at least once every 12 mo are allowed for PCB Transformers with either of the following:</p> <ul style="list-style-type: none"> <li>- impervious, undrained, secondary containment capacity of at least 100 percent of the total dielectric fluid volume of all transformers so contained</li> <li>- a PCB Transformer that has been tested and found to contain &lt; 60,000 ppm PCBs (after 3 mo of in-service use if the transformer has been serviced for purposes of reducing the PCB concentration).</li> </ul> <p>These inspections may take place any time during the calendar year as long as there is a minimum of 180 days between inspections.)</p> <p>(NOTE: Increased visual inspections of once a week are required for any PCB Transformer in use or stored for reuse that poses an exposure risk to food or feed.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.15.9.</b> PCB Transformers with PCB concentrations of 500 ppm or greater found to be leaking during an inspection must be repaired or replaced to eliminate the source of the leak (40 CFR 761.30(a)(1)(x)).</p> <p><b>SP.15.10.</b> When a PCB Transformer with concentrations of PCBs 500 ppm or greater is involved in a fire, the facility is required to immediately report the incident to the NRC (40 CFR 761.30(a)(1)(xi)).</p> <p><b>SP.15.11.</b> Mineral oil transformers which are tested and found to be contaminated with 500 PPM or greater must meet specific requirements (40 CFR 761.30(a)(1)(xv) [Added October 1998].</p>	<p>Verify that records of inspection and maintenance are kept for 3 yr after disposal.</p> <p>Determine if cleanup and/or containment of released PCBs has been initiated within 48 h of its detection or as soon as possible.</p> <p>Verify that leaking PCB Transformers are inspected daily.</p> <p>Determine if plans exist to repair or replace transformers to eliminate the source of the leak.</p> <p>Verify that cleaned up material is disposed of according to appropriate requirements.</p> <p>Determine if any PCB Transformers have been involved in any incident where sufficient heat and/or pressure was generated to result in the violent or nonviolent rupture of a PCB Transformer and the release of PCBs.</p> <p>Verify that the NRC was notified and the following measures were taken:</p> <ul style="list-style-type: none"> <li>- floor drains were blocked</li> <li>- water runoff was contained.</li> </ul> <p>Verify that mineral oil transformers that are tested and found to be contaminated with 500 PPM PCB or greater meet all the storage and handling requirements of 40 CFR 761.</p> <p>Verify that the following additional steps are taken:</p> <ul style="list-style-type: none"> <li>- fire-related incidents are reported immediately after discovery</li> <li>- mark the transformer within 7 days after discovery</li> <li>- mark the vault door, machinery room door, fence, hallway, or other means of access to the PCB Transformer within 7 days after discovery</li> <li>- register the transformer with the building owner within 7 days.</li> </ul>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>PCB MANAGEMENT</b></p> <p><b>SP.20 Spills</b></p> <p><b>SP.20.1.</b> Spills of 10 lb or more of PCBs of concentrations of 50 ppm or greater are required to be reported (40 CFR 761.50(a)(4), 761.120(a)(1), 761.123(d)(2), and 761.125(a)) <b>[Revised October 1998]</b>.</p>	<p>(NOTE: 40 CFR 761 applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Substances that are regulated by this part include, but are not limited to: dielectric fluids; solvents; oils; waste oils; heat transfer fluids; hydraulic fluids; paints or coatings; sludges; slurries; sediments; dredge spoils; soils; materials containing PCBs as a result of spills; and other chemical substances or combinations of substances, including impurities and byproducts and any byproduct, intermediate, or impurity manufactured at any point in a process. Requirements applicable to PCBs at concentrations &lt; 50 ppm also apply to contaminated surfaces at PCB concentrations <math>\leq 10/100 \text{ cm}^2</math>. Requirements applicable to PCBs at concentrations &gt; 50 ppm to &lt; 500 ppm also apply to contaminated surfaces at PCB concentrations <math>&gt; 10/100 \text{ cm}^2</math> to &lt; <math>100\mu^2</math>. Requirements applicable to PCBs at concentrations <math>\geq 500 \text{ ppm}</math> also apply to contaminated surfaces at PCB concentrations <math>\geq 100\mu^2</math>. See also the definition for PCB Concentration Assumptions (40 CFR 761.1(b)(1) and 761.1(b)(2)) <b>[Added October 1998]</b>.)</p> <p>Verify that, when a spill of 10 lb or more directly contaminates surface water, sewers, or drinking water, the Regional USEPA office is notified within 24 h after discovery of the spill and acts on the guidance given by the USEPA.</p> <p>Verify that, if a spill of 10 lb or more directly contaminates grazing land or a vegetable garden, the USEPA regional office is notified within 24 h after discovery and begins cleanup of the spill.</p> <p>Verify that when a spill of 10 lb or more occurs that does not directly contaminate surface waters, sewers, drinking water supplies, grazing land, or a vegetable garden, the USEPA regional office is notified within 24 h after discovery of the spill and begins decontamination of the spill area.</p> <p>(NOTE: Spills of greater than 1 lb by weight of PCBs must be reported to the NRC under 40 CFR 302.1 through 302.6, see appropriate checklist items in Section 3, Hazardous Materials Management.)</p> <p>(NOTE: Spills and other uncontrolled discharges of PCBs at concentrations of <math>\geq 50 \text{ ppm}</math> constitute the disposal of PCBs.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.20.2.</b> All notifications of PCB spills to the NRC or USEPA are to be coordinates, when feasible, with the Regional Spill Coordinator and/or Environmental Coordinator (RP, 561 FW 9.7B) [Citation Revised June 1998].</p> <p><b>SP.20.3.</b> Cleanup of low concentration spills of less than 1 lb of PCBs (less than 270 gal of untested mineral oil) must be done according to specific requirements (40 CFR 761.120(a)(2), 761.120(b), 761.120(c), and 761.125(b)).</p>	<p>Verify that all notifications of PCB spills to the NRC or USEPA are coordinates, when feasible, with the Regional Spill Coordinator and/or Environmental Coordinator prior to the actual notification.</p> <p>Verify that solid surfaces are double washed/rinsed and all indoor, residential surfaces other than vault areas are cleaned to 10 micrograms/100 cm<sup>2</sup> by standard commercial wipe tests.</p> <p>Verify that all soil within the spill area (visible traces of soil and buffer of 1 lateral foot around the visible traces) is excavated and the ground restored to its original status by backfilling with clean soil (soil with less than 1 ppm PCB).</p> <p>Verify that the above cleanup requirements are done within 48 h after identifying the spill unless an emergency or adverse weather delays the process.</p> <p>Verify that the cleanup is documented with records and certification of decontamination and the records are maintained for 5 yr.</p> <p>(NOTE: The final numerical cleanup standards do not apply to spills directly into surface waters, drinking water, sewers, grazing lands, and vegetable garden.)</p> <p>(NOTE: The USEPA may impose more stringent or less stringent cleanup requirements on a case by case basis depending on conditions such as possibility of groundwater contamination.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.20.4.</b> Cleanup of high-concentration spills and low concentration spills involving 1 lb or more of PCBs by weight (270 gal or more of untested mineral oil) must be done according to specific requirements (40 CFR 761.120(a)(2), 761.120(b), 761.120(c), and 761.125(c)).</p>	<p>Verify that the following actions are taken within 24 h (or within 48 h for PCB Transformer with PCB concentrations of greater than 500 ppm) of discovery of the spill:</p> <ul style="list-style-type: none"> <li>- notification to the USEPA regional office and the NRC</li> <li>- the area of the spill is cordoned off or otherwise identified to include the area with visible traces of the spill and a 3-ft buffer zone. If there are no visible traces, the area of the spill may be estimated.</li> <li>- clearly visible signs are placed advising persons to avoid the area</li> <li>- the area of visible contamination is recorded and documented, identifying the extent and center of the spill</li> <li>- cleanup of visible traces of the fluid from hard surfaces is initiated</li> <li>- removal of all visible traces of the spill on soil and other media such as gravel, sand, etc., is started.</li> </ul> <p>Verify that, if the spill occurs in an outdoor substation, the following is done:</p> <ul style="list-style-type: none"> <li>- contaminated solid surfaces are cleaned to a PCB concentration of 100 micrograms/cm<sup>2</sup> (as measured by standard wipe tests)</li> <li>- soil contaminated by the spill is cleaned to either 25 ppm PCBs by weight or 50 ppm PCBs by choice of the facility if a label or notice is placed in the area indicating the level of cleanup</li> <li>- post-cleanup sampling is done.</li> </ul> <p>Verify that, if the spill occurs in a restricted access area other than an outdoor substation, the following is done:</p> <ul style="list-style-type: none"> <li>- high-contact solid surfaces are cleaned to 10 micrograms/100 cm<sup>2</sup> (as measured by standard wipe tests)</li> <li>- low-contact, indoor, impervious solid surfaces are decontaminated to 10 micrograms/100 cm<sup>2</sup></li> <li>- low contact, indoor, nonimpervious surfaces are cleaned to either 10 micrograms or 100 micrograms/100 cm<sup>2</sup> and encapsulated at the option of the facility</li> <li>- low-contact, outdoor surfaces (both impervious and nonimpervious) are cleaned to 100 micrograms/100 cm<sup>2</sup></li> <li>- soil contaminated by the spill is cleaned to 25 ppm PCBs by weight</li> <li>- post-cleanup sampling is done.</li> </ul>

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	<p>Verify that spills in nonrestricted access locations are decontaminated as follows:</p> <ul style="list-style-type: none"> <li>- furnishings, toys, and other easily replaceable household items are disposed of and replaced</li> <li>- indoor solid surfaces and high-contact outdoor solid surfaces are cleaned to 10 micrograms/100 cm<sup>2</sup> (as measured by standard wipe tests)</li> <li>- indoor vault areas and low-contact, outdoor, impervious solid surfaces are decontaminated to 10 micrograms/100 cm<sup>2</sup></li> <li>- at the option of the facility, low-contact, outdoor, nonimpervious solid surfaces are cleaned to either 10 or 100 micrograms/100 cm<sup>2</sup> and encapsulated</li> <li>- soil is decontaminated to 10 ppm PCBs by weight provided that the soil is excavated to a minimum depth of 10 in. and replaced with clean soil</li> <li>- post-cleanup sampling is done.</li> </ul> <p>Verify that records documenting all cleanup and decontamination are maintained for 5 yr.</p> <p>(NOTE: The occurrence/discovery of the spill on the weekend or overtime costs are not considered acceptable reasons to delay response.)</p> <p>(NOTE: The final numerical cleanup standards do not apply to spills directly into surface waters, drinking water, sewers, grazing lands, and vegetable gardens.)</p> <p>(NOTE: The USEPA may impose more stringent or less stringent cleanup requirements on a case by case basis depending on conditions such as possibility of groundwater contamination.)</p>

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<p><b>PCB MANAGEMENT</b></p> <p><b>SP.25 PCB Items</b></p> <p><b>SP.25.1.</b> PCBs may be used in heat transfer and hydraulic systems in a manner other than a totally enclosed manner at concentrations less than 50 ppm if specific requirements are met (40 CFR 761.30(d) through 761.30(e)) [Revised October 1998].</p> <p><b>SP.25.2.</b> Electromagnets, switches, and voltage regulators may contain PCBs at any concentrations if certain requirements are met (40 CFR 761.30 (h)) [Revised October 1998].</p>	<p>(NOTE: 40 CFR 761 applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Substances that are regulated by this part include, but are not limited to: dielectric fluids; solvents; oils; waste oils; heat transfer fluids; hydraulic fluids; paints or coatings; sludges; slurries; sediments; dredge spoils; soils; materials containing PCBs as a result of spills; and other chemical substances or combinations of substances, including impurities and byproducts and any byproduct, intermediate, or impurity manufactured at any point in a process. Requirements applicable to PCBs at concentrations &lt; 50 ppm also apply to contaminated surfaces at PCB concentrations <math>\leq 10/100 \text{ cm}^2</math>. Requirements applicable to PCBs at concentrations &gt; 50 ppm to &lt; 500 ppm also apply to contaminated surfaces at PCB concentrations <math>&gt; 10/100 \text{ cm}^2</math> to &lt; <math>100\mu^2</math>. Requirements applicable to PCBs at concentrations <math>\geq 500 \text{ ppm}</math> also apply to contaminated surfaces at PCB concentrations <math>\geq 100\mu^2</math>. See also the definition for PCB Concentration Assumptions (40 CFR 761.1(b)(1) and 761.1(b)(2)) [Added October 1998].)</p> <p>Determine if testing has been conducted to demonstrate that heat transfer or hydraulic systems that formerly contained PCBs at a concentration greater than 50 ppm now contain less than 50 ppm PCB.</p> <p>Verify that no fluid containing greater than 50 ppm PCB is added to heat transfer or hydraulic systems.</p> <p>Verify that no electromagnets are used or stored that contain greater than 500 ppm PCB and pose an exposure risk to food or feed.</p> <p>Verify that the use and storage for reuse of voltage regulators that contain 1.36 kg (3 lb) or more of dielectric fluid with a PCB concentration of <math>\geq 500 \text{ ppm}</math> meet the following:</p> <ul style="list-style-type: none"> <li>- mark the regulator as required in 40 CFR 761.40 (see checklist item SP.5.3.)</li> <li>- report any fire-related incidents immediately to the NRC</li> <li>- conduct inspections as applicable to PCB Transformers</li> <li>- comply with the recordkeeping and reporting requirements of 40 CFR 761.180.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.25.3.</b> Capacitors may contain PCBs at any concentration subject to certain requirements (40 CFR 761.30 (l)).</p> <p><b>SP.25.4.</b> Circuit breakers, reclosers, and cable may contain PCBs at any concentration for remainder of their useful lives subject to certain conditions (40 CFR 761.30 (m)).</p> <p><b>SP.25.5.</b> The continued used of porous surfaces contaminated by spills of liquid PCBs regulated for disposal must meet specific parameters (40 CFR 761.30(p)) [Added April 2000].</p>	<p>Verify that electromagnets, switches, and voltage regulators that contain 500 ppm or greater PCB are not rebuilt and no removal or reworking of internal components is done during servicing.</p> <p>Verify that electromagnets, switches, and voltage regulators that contain between 50 and 500 ppm PCB (PCB-contaminated Electrical Equipment) are only serviced with dielectric fluid that contains less than 500 ppm PCB.</p> <p>Verify that PCBs removed or captured are either reused as dielectric fluid or disposed of properly.</p> <p>Verify that dielectric fluid containing a mixture of fluids with less than 500 ppm PCBs are not used as dielectric fluid in any electrical equipment.</p> <p>Verify that all PCB Large, High- and Low-Voltage Capacitors that pose an exposure risk to food and feed have been removed.</p> <p>Verify that all PCB Large, High- and Low-Voltage Capacitors are in use only in restricted-access electrical substations, or in a contained and restricted-access indoor area.</p> <p>Verify that capacitors have been free from leaks of dielectric PCBs.</p> <p>Verify that any circuit breakers, reclosers, and cables used at the facility are serviced using only dielectric fluid which contains less than 50 ppm PCB and have been free from leaks.</p> <p>Verify that the following conditions are met when using porous surfaces contaminated by spills of liquid PCBs at concentrations <math>\geq</math> 50 ppm:</p> <ul style="list-style-type: none"> <li>- the source of PCB contamination is removed or contained to prevent further release to porous surfaces</li> <li>- if the porous surface is accessible to superficial surface cleaning, a double wash rinse procedure is conducted on the surface to remove surface PCBs and the treated surface is allowed to dry for 24 h.</li> </ul>



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Verify that, after accessible surfaces have been cleaned, and for all surfaces inaccessible to cleanup:

- the surface is completely covered with one of the following to prevent the release of PCBs:
  - two solvent resistant and water repellent coatings of contrasting colors to allow for a visual indication of wear through or loss of outer coating integrity
  - a solid barrier fastened to the surface and covering the contaminated area or all accessible parts of the contaminated area.
- the surface is marked with the M<sub>L</sub> Mark in a location easily visible to individuals present in the area; the M<sub>L</sub> Mark is placed over the encapsulated area or the barrier to the encapsulated area
- M<sub>L</sub> Marks are replaced when worn or illegible.

Verify that a porous surface contaminated with PCBs is not removed from its location or current use except for removal for disposal.



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**PCB MANAGEMENT**

**SP.30  
PCBs in Research**

**SP.30.1.** The use of PCBs in research is subject to certain conditions (40 CFR 761.30(j)) [Revised April 2000].

(NOTE: 40 CFR 761 applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Substances that are regulated by this part include, but are not limited to: dielectric fluids; solvents; oils; waste oils; heat transfer fluids; hydraulic fluids; paints or coatings; sludges; slurries; sediments; dredge spoils; soils; materials containing PCBs as a result of spills; and other chemical substances or combinations of substances, including impurities and byproducts and any byproduct, intermediate, or impurity manufactured at any point in a process. Requirements applicable to PCBs at concentrations < 50 ppm also apply to contaminated surfaces at PCB concentrations  $\leq 10/100 \text{ cm}^2$ . Requirements applicable to PCBs at concentrations > 50 ppm to < 500 ppm also apply to contaminated surfaces at PCB concentrations  $> 10/100 \text{ cm}^2$  to  $< 100\mu^2$ . Requirements applicable to PCBs at concentrations  $\geq 500 \text{ ppm}$  also apply to contaminated surfaces at PCB concentrations  $\geq 100\mu^2$ . See also the definition for PCB Concentration Assumptions (40 CFR 761.1(b)(1) and 761.1(b)(2)) [Added October 1998].)

Verify that, if PCBs are used for research and development in other than a totally enclosed manner, the following are met:

- the PCBs and PCBs in analytical reference samples derived from waste materials are obtained from authorized sources
- storage of all PCB wastes resulting from R&D activities is in compliance with 40 CFR 761.65(b) (see checklist items SP.35.1. and SP.35.2) and disposed of in accordance with 40 CFR 761.64
- there is no manufacture, processing, or distribution without a TSCA exemption to do so.

(NOTE: No manifests are required if the residuals, unused analytical reference samples, or PCB waste material are returned either to the physical location where the samples were collected or a location where other regulated PCBs from the physical location where the samples were collected are being stored for disposal.)

(NOTE: Authorized R&D activities include, but are not limited to: the chemical analysis of PCBs, including analyses to determine PCB concentration; studies of environmental transport processes; studies of biochemical transport processes; studies of effects of PCBs on the environment; and studies of health effects. Authorized R&D activities do not include research, development, or analysis for the development of any PCB product.)

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(NOTE: No person may manufacture, process, or distribute in commerce PCBs for research and development unless they have been granted an exemption to do so under TSCA section 6(e)(3)(B).)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PCB MANAGEMENT</b></p> <p><b>SP.35 Storage</b></p> <p><b>SP.35.1.</b> PCBs and PCB Items at concentrations of 50 ppm or more that are to be stored before disposal must be stored in a facility meeting specific structural requirements (40 CFR 761.65(a) through 761.65(b)(1)) [Revised October 1998].</p>	<p>(NOTE: 40 CFR 761 applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Substances that are regulated by this part include, but are not limited to: dielectric fluids; solvents; oils; waste oils; heat transfer fluids; hydraulic fluids; paints or coatings; sludges; slurries; sediments; dredge spoils; soils; materials containing PCBs as a result of spills; and other chemical substances or combinations of substances, including impurities and byproducts and any byproduct, intermediate, or impurity manufactured at any point in a process. Requirements applicable to PCBs at concentrations &lt; 50 ppm also apply to contaminated surfaces at PCB concentrations <math>\leq 10/100 \text{ cm}^2</math>. Requirements applicable to PCBs at concentrations &gt; 50 ppm to &lt; 500 ppm also apply to contaminated surfaces at PCB concentrations <math>&gt; 10/100 \text{ cm}^2</math> to <math>&lt; 100\mu^2</math>. Requirements applicable to PCBs at concentrations <math>\geq 500 \text{ ppm}</math> also apply to contaminated surfaces at PCB concentrations <math>\geq 100\mu^2</math>. See also the definition for PCB Concentration Assumptions (40 CFR 761.1(b)(1) and 761.1(b)(2)) [Added October 1998].)</p> <p>Verify that the following provisions are present by inspecting the PCB storage area:</p> <ul style="list-style-type: none"> <li>- the roof and walls of the building in which the PCBs are stored are constructed so as to exclude rainfall from contacting PCBs and PCB items</li> <li>- an adequate floor that has continuous curbing with a minimum 6 in high curb. The curbing will provide a containment volume equal to at least two times the internal volume of the largest PCB Article or PCB Container or 25% of the total internal volume of all PCB Articles or PCB Containers stored there, whichever is greater.</li> <li>- drains, valves, floor drains, expansion joints, sewer lines or other openings that would allow liquids to flow from the curbed area are not present</li> <li>- floors and curbing are constructed of Portland cement, concrete, or a continuous, smooth, nonporous surface that prevents or minimizes penetration of the PCBs</li> <li>- location is not below a 100-yr flood water elevation</li> <li>- the storage area is marked with the label in Appendix 8-1.</li> </ul>

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(NOTE: PCB/radioactive wastes are not required to be stored in an area with a minimum 6 in. high curbing. However, the floor and curbing must still provide a containment volume equal to at least two times the internal volume of the largest PCB Container or 25 percent of the total internal volume of all PCB Containers stored there, whichever is greater.)

Verify that PCB waste is removed from storage and disposed of within 1 yr from the date it was determined to be PCB waste and the decision was made to dispose of it.

(NOTE: This date is the date of removal from service for disposal and the point at which the 1-yr time frame for disposal begins. PCB/radioactive waste removed from service for disposal is exempt from the 1-yr time limit provided a written record documents all attempts to secure disposal and the written record is available for review and the waste is managed in accordance with all other applicable Federal, state, and local laws and regulations for the management of radioactive material.)

(NOTE: Any person storing PCB waste that is subject to the 1-yr time limit may provide written notification to the USEPA Regional Administrator for the Region in which the PCB waste is stored that their continuing attempts to dispose of or secure disposal for their waste within the 1-yr time limit have been unsuccessful. Upon receipt of the notice by the USEPA Regional Administrator, the time for disposal is automatically extended for 1 additional year (2 years total) if the following conditions are met:

- the notification is received by the USEPA Regional Administrator at least 30 days before the initial 1-yr time limit expires and the notice identifies the storer, the types, volumes, and locations of the waste and the reasons for failure to meet the initial 1-yr time limit
- a written record documenting all continuing attempts to secure disposal is maintained until the waste is disposed of
- the written record required is available for inspection or submission if requested by USEPA
- continuing attempts to secure disposal were initiated within 270 days after the time the waste was first subject to the 1-yr time limit requirement.

Failure to initiate and continue attempts to secure disposal throughout the total time the waste is in storage shall automatically disqualify the notifier from receiving an automatic extension under this section.)

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<p><b>SP.35.2.</b> PCBs and PCB Items may also be stored in other areas that do not comply with the storage area requirements when specific parameters are met (40 CFR 761.65(b)(2) and 761.65(c)(1)) [Revised October 1998].</p>	<p>Verify that if PCBs and PCB Items designated for disposal are stored in a storage unit that is not approved and does not meet design requirements, the unit meets one of the following conditions:</p> <ul style="list-style-type: none"> <li>-it is permitted to manage hazardous waste in containers and spills of PCBs are properly cleaned up</li> <li>-it qualifies for interim status under section 3005 of RCRA to manage hazardous waste in containers, meets the requirements for containment at 40 CFR. 264.175, and spills of PCBs are properly cleaned up</li> <li>-it is permitted by a state authorized under section 3006 of RCRA to manage hazardous waste in containers, and spills of PCBs are properly cleaned up</li> <li>-it is approved or otherwise regulated pursuant to a State PCB waste management program no less stringent in protection of health or the environment than the applicable TSCA requirements</li> <li>-it is subject to a TSCA Coordinated Approval that includes provisions for storage of PCBs</li> <li>-it has a TSCA PCB waste management approval that includes provisions for storage.</li> </ul> <p>Verify that only the following PCB Items are stored and a notation is attached to the PCB Item or Container indicating the date the item was removed from service for storage in noncompliant storage areas used as a temporary 30-day storage area:</p> <ul style="list-style-type: none"> <li>-nonleaking PCB Articles and PCB Equipment</li> <li>-leaking PCB Articles and PCB Equipment placed in a nonleaking PCB Container that contains sufficient sorbent material to absorb liquid contained on the PCB Article or equipment</li> <li>-PCB Containers in which nonliquid PCBs have been placed</li> <li>-PCB Containers containing liquid PCBs at a concentration <math>\geq 50</math> provided Spill, Prevention, Control, and Countermeasure (SPCC) plan has been prepared for the temporary storage area and the liquid PCB waste is in DOT authorized packaging or stationary bulk storage tanks.</li> </ul>

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<p><b>SP.35.3.</b> Nonleaking and structurally undamaged PCB Large, High- Voltage Capacitors and PCB-Contaminated Electric Equipment that have not been drained of free flowing dielectric fluid may be stored on pallets next to a storage area that complies with the storage area requirements (40 CFR 761.65(c)(2)).</p>	<p>Determine if available unfilled storage space in the storage area is equal to at least 10 percent of the volume of capacitors and electrical equipment stored outside.</p> <p>Verify that capacitors and equipment stored outside the storage facility are on pallets and inspected at least weekly.</p>
<p><b>SP.35.4.</b> Specific operational procedures are required at PCB storage units (40 CFR 761.65(c)(4), 761.65(c)(5), and 761.65(c)(8)) <b>[Revised October 1998]</b>.</p>	<p>Verify that the following practices are conducted at any area where PCBs or PCB Items are stored:</p> <ul style="list-style-type: none"> <li>-movable equipment used for handling PCBs and PCB Items that directly contact PCBs is not removed from storage unit unless decontaminated</li> <li>-inspections for leaks of all PCB Items in storage are done at least once every 30 days</li> <li>-any leaking PCB Items and their contents are immediately transferred to properly marked non-leaking containers and the spilled or leaked materials are immediately cleaned up and any spill absorbent material properly disposed</li> <li>-PCB Items are marked with the date when they are removed from service for disposal</li> <li>-PCB Items are positioned so that they can be located by the marked date</li> <li>-stationary storage containers for liquid PCBs have a record that includes quantity and date of each batch added to the container or removed from the container.</li> </ul>
<p><b>SP.35.5.</b> Containers used for the storage of PCBs must comply with the shipping container specification of the DOT (40 CFR 761.65(c)(6) and 761.65(c)(7)) <b>[Revised October 1998]</b>.</p>	<p>Verify that any container used for the storage of liquid or non-liquid PCB waste is in accordance with the requirements in the DOT Hazardous Materials Regulations (HMR) at 49 CFR parts 171 through 180.</p> <p>Verify that PCB wastes not subject to the HMR (i.e., PCB wastes at concentrations of &lt;20 ppm or &lt;1 pound of PCBs regardless of concentration) are packaged in accordance with Packaging Group III, unless other hazards associated with the PCB waste cause it to require packaging in accordance with Packaging Groups I or II.</p>



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(NOTE: For purposes of describing PCB waste not subject to DOT's HMR on a manifest, one may use the term "Non-DOT Regulated PCBs.")

Verify that, if containers other than those meeting HMR performance standards are used for storage of PCB/radioactive waste, the following requirements are met:

- containers are non-leaking
- containers are designed to prevent the buildup of liquids if such containers are stored in an area meeting containment requirements as well as all other applicable State or Federal regulations or requirements for control of radioactive materials.
- containers meet all regulations and requirements pertaining to nuclear criticality safety.

(NOTE: Acceptable container materials currently include polyethylene and stainless steel provided that the container material is chemically compatible with the wastes being stored. Other containers may be used to store both liquid and non-liquid PCB/radioactive wastes if the users are able to demonstrate, to the appropriate Regional Administrator and other appropriate regulatory authorities (i.e., Nuclear Regulatory Commission, Department of Energy, or the Department of Transportation), that the use of such containers is protective of health and the environment as well as public health and safety.)

(NOTE: The following DOT-specified containers that conform to the requirements of 49 CFR, chapter I, subchapter C in effect on 30 September 1991, may be used for storage and transportation activities that are not subject to DOT regulation, and may be used on a transitional basis as permitted at 49 CFR 171.14. For liquid PCBs: Specification 5 container without removable head, Specification 5B container without removable head, Specification 6D overpack with Specification 2S or 2SL polyethylene containers, or Specification 17E container. For non-liquid PCBs: Specification 5 container, Specification 5B container, or Specification 17C container.)

(NOTE: Stationary storage containers for liquid PCBs can be larger than those specified in DOT Specs 5, 5B, or 17C may be used for nonliquid PCBs when such containers will provide as much protection against leaking and exposure to the environment as the DOT-specified containers.)

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<p><b>SP.35.6.</b> Commercial storers of PCB Waste must have final storage approval (40 CFR 761.65(d)).</p> <p><b>SP.35.7.</b> PCB Articles may be stored for reuse if specific parameters are met (40 CFR 761.35) [Added October 1998].</p>	<p>Verify that, if the containers larger than DOT-approved containers are used, an SPCC plan covering the containers storing PCBs has been prepared.</p> <p>Determine if the facility is a commercial storer of PCB or has a commercial storer of PCB Waste at the facility.</p> <p>Verify that the commercial storer has final storage approval from the USEPA Regional Administrator for PCB Waste.</p> <p>(NOTE: Commercial storers were required to file for final storage approval by 2 August 1990. After filing for final approval, they will operate under interim approval until the final decision is made on approval.)</p> <p>(NOTE: The following facilities may be exempt from this requirements for storage approval:</p> <ul style="list-style-type: none"><li>- storage areas at transfer facilities unless the PCB Waste is stored at the facility for more than 10 consecutive days between destinations</li><li>- storage areas at RCRA-permitted facilities if the facility proves to the Regional Administrator that the facility's existing RCRA closure plan substantially meets the requirements for a TSCA closure plan</li><li>- storage areas ancillary to a TSCA approved disposal facility if the disposal approval contain an expiration date and the current disposal approval's closure and financial responsibility conditions specifically extend to storage areas ancillary to disposal.)</li></ul> <p>Verify that PCB Articles are not stored in an area that is not designed, constructed, and operated in compliance with 40 CFR 761.65(b) for more than 5 yr after the date the Article was originally removed from use or 5 yr after 25 August 1998, whichever is later.</p> <p>Verify that, when storing PCB Articles in a noncompliant area, the following are met:</p> <ul style="list-style-type: none"><li>- all applicable use and marking requirements are met</li><li>- records including the following are kept, starting at the time the PCB Article is removed from use or 28 August 1998:<ul style="list-style-type: none"><li>- the date of removal or 28 August 1998 if the removal date is not known</li><li>- projected location and future use of the Article</li><li>- the date the PCB Article is scheduled for repair, if applicable.</li></ul></li></ul>

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<p><b>SP.35.8.</b> PCB household waste must be stored according to specific parameters (40 CFR 761.63) [Added October 1998].</p> <p><b>SP.35.9.</b> The storage of bulk PCB remediation waste or PCB bulk product waste must meet certain requirements (40 CFR 761.65(c)(9)) [Added October 1998].</p>	<p>(NOTE: Storage for reuse may be done in a noncompliant area for more than 5 yr if written approval has been received from the USEPA Regional Administrator.)</p> <p>(NOTE: A PCB Article may be stored for reuse indefinitely in:  <ul style="list-style-type: none"> <li>- a unit in compliance with 40 CFR 761.65(b)</li> <li>- a unit permitted to manage hazardous waste containers.)</li> </ul> </p> <p>Verify that PCB household waste stored in a unit regulated for storage of PCB waste is not commingled with PCB waste.</p> <p>Verify that Bulk PCB remediation waste or PCB bulk product waste is not stored at the clean-up site or site of generation for more than 180 days.</p> <p>Verify that the following conditions are met:</p> <ul style="list-style-type: none"> <li>- the waste is placed in a pile designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting.</li> <li>- the waste does not generate leachate through decomposition or other reactions.</li> <li>- the storage site has: <ul style="list-style-type: none"> <li>- a liner that is designed, constructed, and installed to prevent any migration of wastes off or through the liner into the adjacent subsurface soil, groundwater, or surface water at any time during the active life (including the closure period) of the storage site</li> <li>- a liner constructed of materials that have appropriate chemical properties and sufficient strength and thickness to prevent failure due to pressure gradients (including static head and external hydrogeologic forces), physical contact with the waste or leachate to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation</li> <li>- a liner placed upon a foundation or base capable of providing support to the liner and resistance to pressure gradients above and below the liner to prevent failure of the liner due to settlement, compression, or uplift</li> <li>- a liner installed to cover all surrounding earth likely to be in contact with the waste</li> </ul> </li> </ul>

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- an appropriate cover that covers all of the stored waste likely to be contacted by precipitation, and is secured so as not to be functionally disabled by winds expected under normal seasonal meteorological conditions at the storage site
- a run-on control system designed, constructed, operated, and maintained such that:
  - it prevents flow onto the stored waste during peak discharge from at least a 25-yr storm
  - it collects and controls at least the water volume resulting from a 24-h, 25-yr storm.

Verify that collection and holding facilities (e.g., tanks or basins) are emptied or otherwise managed expeditiously after storms to maintain design capacity of the system.

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**Fish and Wildlife Management**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>PCB MANAGEMENT</b></p> <p><b>SP.40</b> <b>Transportation</b></p>             <p><b>SP.40.1.</b> A generator who offers a PCB waste for transport for commercial offsite storage or offsite disposal must prepare a manifest (40 CFR 761.207 through 761.210) [Revised October 1998].</p>	<p>(NOTE: 40 CFR 761 applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs or PCB Items. Substances that are regulated by this part include, but are not limited to: dielectric fluids; solvents; oils; waste oils; heat transfer fluids; hydraulic fluids; paints or coatings; sludges; slurries; sediments; dredge spoils; soils; materials containing PCBs as a result of spills; and other chemical substances or combinations of substances, including impurities and byproducts and any byproduct, intermediate, or impurity manufactured at any point in a process. Requirements applicable to PCBs at concentrations &lt; 50 ppm also apply to contaminated surfaces at PCB concentrations <math>\leq 10/100 \text{ cm}^2</math>. Requirements applicable to PCBs at concentrations &gt; 50 ppm to &lt; 500 ppm also apply to contaminated surfaces at PCB concentrations <math>&gt; 10/100 \text{ cm}^2</math> to &lt; <math>100\mu^2</math>. Requirements applicable to PCBs at concentrations <math>\geq 500</math> ppm also apply to contaminated surfaces at PCB concentrations <math>\geq 100\mu^2</math>. See also the definition for PCB Concentration Assumptions (40 CFR 761.1(b)(1) and 761.1(b)(2)) [Added October 1998].)</p> <p>(NOTE: This applies to PCB wastes as defined in 40 CFR 761.3. This includes PCB wastes with PCB concentrations below 50 ppm where the PCB concentration below 50 ppm was the result of dilution. But there is no manifest requirement for material currently below 50 ppm that derives from pre-18 April 1978 spills of any concentration, pre-2 July 1979 spills of &lt; 500 ppm PCBs, or decontaminated materials.)</p> <p>Verify that a manifest has been prepared when needed and that it contains (use USEPA Form 8700-22):</p> <ul style="list-style-type: none"> <li>-the identity of PCB Waste, the earliest date of removal from service for disposal and the weight in kilograms of the waste for bulk load of PCBs</li> <li>-the unique identifying number of each PCB Article Container or PCB Container, the date of removal from service, type of waste, and the weight of PCB waste contained</li> <li>-the serial number if available or other identification for each PCB Article not in a PCB Container or PCB Article Container, the date of removal from service for disposal, and weight in kilograms of the PCB waste in each PCB Article.</li> </ul> <p>Verify that sufficient copies are prepared to supply the generator, the initial transporter, each subsequent transporter, and the owner or operator of the disposal facility with one legible copy each for their records, and one additional copy to be signed and returned to the generator by the owner or operator of the disposal facility.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.40.2.</b> If the generator does not receive a signed copy of the manifest within 35 days of the date the waste was accepted by the initial transporter, the generator is required to immediately contact the transporter and/or owner or operator of the designated facility to determine the status of the PCB Waste (40 CFR 761.215(a) and 761.215(b)) <b>[Revised October 1998]</b>.</p>	<p>Verify that the generator maintains a copy of the signed manifest for at least 3 yr after receipt of waste by the initial transporter.</p> <p>Verify that a procedure is in place so that if the generator does not receive a copy within 35 days of the date the waste was accepted by the initial transporter, the transporter and/or designated facility is immediately contacted.</p> <p>Verify that, if the generator does not receive a copy within 45 days of the date the waste was accepted by the initial transporter, an Exception Report is filed with the USEPA no later than 45 days from the date on which the generators should have received the manifest.</p> <p>Verify that the Exception Report contains the following information:</p> <ul style="list-style-type: none"> <li>- a legible copy of the manifest for which the generator does not have confirmation of delivery</li> <li>- a cover letter signed by the generator or his authorized representative explaining the efforts taken to locate the PCB Waste and the results of those efforts.</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.45.3.</b> Except in specific instances, PCB liquids at concentrations <math>\geq 50</math> ppm must be disposed of in an approved incinerator (40 CFR 761.60(a)) [Revised October 1998].</p>	<p>Verify that, except as identified below, PCB liquids at concentration <math>\geq 50</math> ppm are disposed of in an incinerator that meets the requirements of 40 CFR 761.70.</p> <p>Verify that, if mineral oil dielectric fluid with PCB concentrations at <math>\geq 50</math> ppm and <math>&lt; 500</math> ppm are disposed of in a high efficiency boiler, the boiler meets the requirements in 40 CFR 761.71(a).</p> <p>Verify that, if liquids with PCB concentrations at <math>\geq 50</math> ppm and <math>&lt; 500</math> ppm other than mineral oil dielectric fluid are disposed of in a high efficiency boiler, the boiler meets the requirements in 40 CFR 761.71(b).</p> <p>Verify that liquids from incidental sources, such as precipitation, condensation, leachate, or load separation with PCB concentrations at <math>\geq 50</math> ppm and <math>&lt; 500</math> ppm, are associated with PCB Articles or non-liquid PCB wastes are disposed of in a chemical waste landfill that complies with 40 CFR 761.75 and:</p> <ul style="list-style-type: none"> <li>- disposal does not violate land disposal restriction regulations</li> <li>- information, if provided to or obtained by the owner or operator of the chemical waste landfill, that shows the liquids do not exceed 500 ppm and are not an ignitable waste.</li> </ul>
<p><b>SP.45.4.</b> Checklist item deleted. [Deleted October 1998].</p>	<p>Checklist item deleted due to 29 June 1998 regulatory revision.</p>
<p><b>SP.45.5.</b> Checklist item deleted. [Deleted October 1998].</p>	<p>Checklist item deleted due to 29 June 1998 regulatory revision.</p>
<p><b>SP.45.6.</b> PCB Transformers with PCB concentrations of 500 ppm or greater shall be disposed of in either a USEPA approved incinerator or a chemical waste landfill (40 CFR 761.60(b)(1)).</p>	<p>Determine if the PCB Transformers are being disposed of at a USEPA-approved incinerator or a chemical waste landfill.</p> <p>Verify that, if disposal is being done at a chemical waste landfill, the transformer is drained of all free-flowing liquids, filled with solvent, allowed to stand for at least 18 h, and than drained thoroughly.</p>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>SP.45.7.</b> PCB Capacitors must be disposed of in accordance with certain requirements (40 CFR 761.60(b)(2) and 761.60(b)(4)(ii)) [Revised October 1998].</p> <p><b>SP.45.8.</b> PCB hydraulic machines containing PCBs at concentrations <math>\geq 50</math> ppm must be decontaminated or disposed of according to specific parameters (40 CFR 761.50(b)(2) and 761.60(b)(3)) [Revised April 2000].</p>	<p>Verify that disposal of PCB Capacitors was done as follows:</p> <ul style="list-style-type: none"> <li>- PCB Small Capacitors (less than 1.36 kg (3 lb) of PCBs) are disposed of in a solid waste landfill</li> <li>- PCB Large, High- or Low-Voltage Capacitors (greater than 1.36 kg (3 lb) of PCBs) containing more than 500 ppm are incinerated in a USEPA-approved incinerator.</li> </ul> <p>(NOTE: The Large, High- or Low-Voltage capacitors may be disposed of in a chemical waste landfill upon approval of the USEPA.)</p> <p>Verify that Large Capacitors that contain <math>\geq 50</math> ppm but <math>&lt; 500</math> ppm are disposed of in an approved disposal facility.</p> <p>Verify that capacitors in storage are placed in DOT-approved containers with absorbent material.</p> <p>Determine if PCB hydraulic machines are going for disposal or being decontaminated.</p> <p>Verify that PCB hydraulic machines with PCB concentrations at <math>\geq 50</math> ppm, such as die casting machines, are disposed of by one of the following methods:</p> <ul style="list-style-type: none"> <li>- in accordance with decontamination standards and procedures in 40 CFR 761.79</li> <li>- in a facility that is permitted, licensed, or registered to manage municipal solid waste or nonmunicipal nonhazardous waste (excluding thermal treatment units)</li> <li>- in a scrap metal recovery oven or smelter operating in compliance with 40 CFR 761.72</li> <li>- in an approved disposal facility.</li> </ul> <p>Verify that all free-flowing liquid is removed from each machine and disposed of appropriately.</p> <p>(NOTE: If the PCB liquid contains <math>\geq 1000</math> ppm, the hydraulic machine must be decontaminated or flushed with a solvent that contains <math>&lt; 50</math> ppm PCB.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.45.9.</b> PCB-Contaminated Electrical Equipment, except capacitors, must meet specific disposal requirements (40 CFR 761.50(b)(2) and 761.60(b)(4)) <b>[Revised April 2000].</b></p>	<p>Verify that any person disposing of PCB-Contaminated Electrical Equipment, except capacitors, does so by removing all free-flowing liquid from the equipment.</p> <p>Verify that free-flowing liquid is disposed of as required under 761.60(a) (see checklist item SP.45.3).</p> <p>Verify that the equipment is disposed of with no free-flowing liquids by one of the following methods:</p> <ul style="list-style-type: none"> <li>- in accordance with 40 CFR 761.79</li> <li>- in a facility that is permitted, licensed, or registered to manage municipal solid waste or nonmunicipal nonhazardous waste (excluding thermal treatment units)</li> <li>- in a scrap metal recovery oven or smelter operating in compliance with 40 CFR 761.72</li> <li>- in an approved disposal facility.</li> </ul> <p>Verify that any person disposing of Large Capacitors that contain <math>\geq</math> 50 ppm but <math>&lt;</math> 500 ppm PCBs does so in an approved disposal facility.</p>
<p><b>SP.45.10.</b> PCB Articles not otherwise addressed in this section shall be decontaminated or disposed of properly (40 CFR 761.50(b)(2), 761.60(b)(6)(i), 761.60(b)(6)(ii), and 761.60(b)(8)) <b>[Revised April 2000].</b></p>	<p>Determine if PCB Articles are going for disposal or being decontaminated.</p> <p>Verify that PCB Articles with concentrations at 500 ppm or greater are disposed of in either:</p> <ul style="list-style-type: none"> <li>- a USEPA-approved incinerator</li> <li>- a chemical waste landfill if all free-flowing liquids have been removed.</li> </ul> <p>Verify that PCB Articles with PCB concentration between 50 and 500 ppm are drained of all free-flowing liquid.</p> <p>Verify that free-flowing liquid is disposed of as required under 761.60(a) (see checklist item SP.45.3).</p> <p>Verify that PCB-Contaminated Articles with no free-flowing liquids are disposed of by one of the following methods:</p> <ul style="list-style-type: none"> <li>- in accordance with 40 CFR 761.79</li> <li>- in a facility that is permitted, licensed, or registered to manage municipal solid waste or nonmunicipal nonhazardous waste (excluding thermal treatment units)</li> <li>- in a scrap metal recovery oven or smelter operating in compliance with 40 CFR 761.72</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.45.11.</b> PCB Containers shall be disposed of properly (40 CFR 761.60(c)).</p> <p><b>SP.45.12</b> Certain disposal methods for PCBs are prohibited (40 CFR 761.50(a)(1) through 761.50(a)(3) and 761.50(a)(5)) <b>[Added October 1998].</b></p>	<p>- in an approved disposal facility.</p> <p>(NOTE: Storage for disposal of PCB-Contaminated Articles from which all free-flowing liquids have been removed is not regulated under 40 CFR 761.50 through 761.79.)</p> <p>(NOTE: Recordkeeping and reporting requirements in 40 CFR 761.180 through 761.218 do not apply to PCB-Contaminated Articles from which all free-flowing liquids have been removed.)</p> <p>Verify that persons disposing of PCB Articles wear or use protective clothing or equipment to protect against dermal contact or inhalation of PCBs or materials containing PCBs.</p> <p>Verify that PCB Containers with concentrations of 500 ppm or greater are disposed of in one of the following ways:</p> <ul style="list-style-type: none"> <li>- in a USEPA-approved incinerator</li> <li>- in a chemical waste landfill, if first the container is drained of any liquid PCBs.</li> </ul> <p>Verify that PCB Containers used to contain only PCBs at concentrations less than 500 ppm are drained of PCB liquid prior to disposal as municipal solid waste.</p> <p>Verify that no open burning of PCBs is performed.</p> <p>Verify that liquid PCBs are not processed into nonliquid forms to circumvent high temperature incineration requirements.</p> <p>Verify that water containing PCBs are not discharged to a treatment works or to a navigable waters unless the PCB concentration is 3 µg/L (approximately 3 ppb), or unless the discharge is in accordance with a PCB discharge limit included in a permit.</p> <p>(NOTE: When land disposing of nonliquid PCBs, otherwise applicable sampling requirements may be avoided by presuming that the PCBs are &gt;/= 500 ppm if no free-flowing liquids are present.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.45.13.</b> Performance-based disposal of PCB bulk product waste must be in accordance with specific parameters (40 CFR 761.50(b)(4), 761.62(a) and 761.62(c)) [Revised April 2000].</p>	<p>Verify that PCB bulk product waste is disposed of as follows when using performance-based disposal:</p> <ul style="list-style-type: none"> <li>- in an incinerator approved under 40 CFR 761.70</li> <li>- in a chemical waste landfill approved under 40 CFR 761.75</li> <li>- in a permitted hazardous waste landfill</li> <li>- under an approved alternate disposal method</li> <li>- in accordance with the decontamination provisions of 40 CFR 761.79</li> <li>- for metal surfaces in contact with PCBs, in accordance with the thermal decontamination provisions of 40 CFR. 761.79(c)(6)</li> <li>- in accordance with a TSCA PCB Coordinated Approval.</li> </ul> <p>Verify that, if bulk product waste is disposed of in a manner other than prescribed in 40 CFR 761.62(a) or 761.62(b), approval has been received from the USEPA Regional Administrator in the Region where the disposal site is located for disposal or storage occurring in a single USEPA Region; or the Director of the National Program Chemicals Division, for disposal occurring in more than one USEPA Region.</p> <p>(NOTE: This applies to PCB Items where PCB Articles are no longer intact and nonleaking.)</p>
<p><b>SP.45.14.</b> Disposal of PCB bulk product waste in solid waste landfills must be in accordance with specific parameters (40 CFR 761.62(b) through 761.62(d)) [Revised April 2000].</p>	<p>Verify that, when PCB bulk product waste is disposed of in a solid waste landfill, the landfill is facility permitted, licensed, or registered by a state as a municipal or nonmunicipal nonhazardous waste landfill.</p> <p>(NOTE: The following PCB bulk product waste may be disposed of in a facility permitted, licensed, or registered by a state as a municipal or nonmunicipal nonhazardous waste landfill:</p> <ul style="list-style-type: none"> <li>- plastics (such as plastic insulation from wire or cable; radio, television, and computer casings; vehicle parts; or furniture laminates); preformed or molded rubber parts and components; applied dried paints, varnishes, waxes or other similar coatings or sealants; caulking; Galbestos; nonliquid building demolition debris; or nonliquid PCB bulk product waste from the shredding of automobiles or household appliances from which PCB small capacitors have been removed (shredder fluff)</li> <li>- other sampled PCB bulk product waste that leaches PCBs at &lt;10 µg/L of water measured with a procedure used to simulate leachate generation.)</li> </ul>

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	<p>Verify that, if disposal of offsite PCB bulk product waste is done at a waste management facility not having a commercial PCB storage or disposal approval, a written notice is provided to the facility a minimum of 15 days in advance of the first shipment from the same disposal waste stream.</p> <p>Verify that the written notice states that the PCB bulk product waste may include components containing PCBs at <math>\geq 50</math> ppm based on analysis of the waste in the shipment or application of a general knowledge of the waste stream (or similar material) that is known to contain PCBs at those levels, and that the PCB bulk product waste is known or presumed to leach <math>\geq 10 \mu\text{g/L}</math> PCBs.</p> <p>Verify that, if materials other than those listed in the NOTE are disposed of in a facility that is permitted, licensed, or registered by a state to manage municipal solid waste or nonmunicipal nonhazardous waste, the following are met:</p> <ul style="list-style-type: none"> <li>- the PCB bulk product waste is segregated from organic liquids disposed of in the landfill unit</li> <li>- leachate is collected from the landfill unit and monitored for PCBs.</li> </ul> <p>Verify that, if materials other than those listed in the NOTE are disposed at a waste management facility not having a commercial PCB storage or disposal approval, a written notice to the facility a minimum of 15 days in advance of the first shipment from the same disposal waste stream and with each shipment thereafter.</p> <p>Verify that the written notice states that the PCB bulk product waste may include components containing PCBs at <math>\geq 50</math> ppm based on analysis of the waste in the shipment or application of a general knowledge of the waste stream (or similar material) that is known to contain PCBs at those levels, and that the PCB bulk product waste is known or presumed to leach <math>\geq 10 \mu\text{g/L}</math> PCBs.</p> <p>Verify that, for any disposal of PCB bulk product waste, a written record is maintained of all sampling and analysis of PCBs or notifications made for 3 yr from the date of the waste's generation.</p> <p>Verify that any release of PCBs (including but not limited to leachate) from the landfill unit is cleaned up in accordance with 40 CFR 761.61.</p>

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<p><b>SP.45.15.</b> PCB household waste must be disposed of according to specific parameters (40 CFR 761.63) [Added October 1998].</p>	<p>(NOTE: Bulk product waste as described in the NOTE may be disposed of as daily landfill cover as long as the daily cover remains in the landfill and is not released or dispersed by wind or other action or under asphalt as part of a road bed.)</p> <p>Verify that any person disposing of PCB bulk product waste maintains a written record of all sampling and analysis of PCBs or notifications for 3 yr from the date of the waste's generation.</p> <p>(NOTE: The requirements in Subpart C: <i>Marking of PCBs and PCB Items</i>, Subpart J: <i>General Record and Reports</i>, and Subpart K: <i>PCB Waste Disposal Records and Reports</i> do not apply to the wastes addressed in this checklist item.)</p> <p>Verify that, if bulk product waste is disposed of in a manner other than prescribed in 40 CFR 761.62(a) or 761.62(b), approval has been received from the USEPA Regional Administrator in the Region where the disposal site is located for disposal or storage occurring in a single USEPA Region; or the Director of the National Program Chemicals Division, for disposal occurring in more than one USEPA Region.</p> <p>Verify that PCB household waste is managed in a facility permitted, licensed, or registered by a state to manage municipal or industrial solid waste, or in a facility with an approval to dispose of PCB bulk product waste.</p> <p>(NOTE: PCB household waste managed according to these parameters is not subject to any other requirements under 40 CFR 761.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>ASBESTOS MANAGEMENT</b></p> <p><b>SP.55 General</b></p> <p><b>SP.55.1.</b> Regions are required to implement a program to inspect buildings under their control for the presence of asbestos (RP, 561 FW 8.6A(1)) [Citation Revised June 1998].</p> <p><b>SP.55.2.</b> Warning labels must be affixed to ACM or PACM in specific circumstances (29 CFR 1910.1001(j)(4)(i)).</p>	<p>Verify that the buildings and facility support system have been surveyed for the presence of asbestos.</p> <p>Verify that warning labels are affixed to all raw materials, mixtures, scrap, waste, debris, and other products containing asbestos fibers, or to their containers.</p> <p>Verify that, when a building owner or employer identifies previously installed ACM and/or PACM, labels or signs are affixed or posted so that employees will be notified of what materials contain ACM and/or PACM.</p> <p>Verify that the employer attaches such labels in areas where they will clearly be noticed by employees who are likely to be exposed, such as at the entrance to mechanical rooms/areas.</p> <p>(NOTE: Signs required by 29 CFR 1910.1001(j)(3) may be posted in lieu of labels, so long as they contain information required for labeling.)</p> <p>(NOTE: The intent of these requirements is to warn any individual who might be disturbing the ACM and/or PACM. A label may be affixed to the ACM or PACM itself, or a sign may be posted on the door to the room that indicates which parts of the room contain ACM or PACM. The signs must be located in a place where an individual who was going to disturb the ACM/PACM for any reason would see them. Color coding may be used for pipes or similar structures. It is not sufficient simply to have a map of the facility that indicates where ACM/PACM is located, nor is it sufficient simply to tell the employees where such material is located.)</p>

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<p><b>SP.55.3.</b> Warning labels must be in compliance with specific requirements (29 CFR 1910.1001(j)(4)(ii)).</p> <p><b>SP.55.4.</b> All ACM left in place will be labeled to alert potential maintenance operations of the potential hazard (RP, 561 FW 8.6C(2)) [Citation Revised June 1998].</p>	<p>(NOTE: These provisions do not apply in either of the following provisions:</p> <ul style="list-style-type: none"> <li>- asbestos fibers have been modified by a bonding agent, coating, binder, or other material, provided that the manufacturer can demonstrate that during any reasonably foreseeable use, handling, storage, disposal, processing, or transportation, no airborne concentration of fibers of asbestos in excess of the TWA PEL and/or excursion limit will be released</li> <li>- asbestos is present in a product in concentrations less than one percent.)</li> </ul> <p>Verify that warning labels include the following information:</p> <p align="center"><b>DANGER CONTAINS ASBESTOS FIBERS AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD</b></p> <p>Verify that ACM at the facility is labeled.</p>



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**ASBESTOS  
MANAGEMENT**

**SP.60  
Renovation and  
Demolition of Asbestos  
Containing Structures**

**SP.60.1.** Certain notification requirements must be met when demolishing structures (40 CFR 61.145(a)(1), 61.145(a)(3), and 61.145(b)) **[Revised October 1998].**

(NOTE: This applies to Federal facilities that demolish structures containing at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of RACM on other components or at least 1 m<sup>3</sup> (35 ft<sup>3</sup>) off facility components, and Federal facilities renovating structures and stripping or removing at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of friable asbestos on other facility components and at least 1 m<sup>3</sup> (35 ft<sup>3</sup>) off facility components.)

Determine if the USEPA or state (if the state has primacy) has been provided with written notice of intent to demolish or renovate at least 10 working days before demolition begins and as early as possible before renovation begins.

Verify that the written notice contains the following information:

- name of the owner/operator and telephone number
- name and address of facility
- description of facility being renovated or demolished (size, age, prior use)
- estimates of approximate amount (linear feet or surface area) of asbestos present in the structure
- location of the structure
- scheduled start and completion dates of renovation or demolition
- nature of planned demolition or renovation methods to be used
- procedures for asbestos emissions control
- name and location of waste disposal site where asbestos will be disposed
- whether or not it is a revised notification
- certification that at least one trained person will supervise.

(NOTE: Notifications following these guidelines must also be submitted for facilities being demolished under an order of a state or local governmental agency because the facility is structurally unsound and in danger of imminent collapse.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.60.2.</b> Facilities demolishing a facility with RACM of less than 80 linear meters (260 linear feet) on pipes and less than 15 m<sup>2</sup> (160 ft<sup>2</sup>) on other facility components and less than 1 m<sup>3</sup> (35 ft<sup>3</sup>) off facility components are required to submit notification of demolition (40 CFR 61.145(a)(2) and 61.145(b)).</p> <p><b>SP.60.3.</b> Facilities that demolish structures are required to meet certain emission control requirements (40 CFR 61.145(a)(1) through 61.145(a)(3) and 61.145(c)(1) through 61.145(c)(3)).</p>	<p>Verify that a written notice of intent to demolish has been submitted to the Administrator at least 10 working days before demolition and includes:</p> <ul style="list-style-type: none"> <li>- the name and address of owner and operator</li> <li>- description of the facility being demolished including the size, age, and prior use</li> <li>- estimate of the approximate amount of friable asbestos present</li> <li>- location of the facility</li> <li>- schedule</li> <li>- procedures to be used.</li> </ul> <p>(NOTE: These requirements apply to facilities that demolish structures which contain at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of RACM on other facility components and facilities renovating structures and stripping or removing at least 80 linear meters (260 linear feet) of friable asbestos on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of friable asbestos on other facility components or 1 m<sup>3</sup> (35 ft<sup>3</sup>) or more off facility components.)</p> <p>Verify that all RACMs are removed from facilities being demolished or renovated before any wrecking or dismantling unless:</p> <ul style="list-style-type: none"> <li>- it is a Category I nonfriable ACM that is not in poor condition and is not friable</li> <li>- the RACM is on a facility component that is encased in concrete or other similar material and is adequately wetted whenever exposed during demolition</li> <li>- it was not accessible for testing and is not discovered until after demolition began and, as a result of demolition, the materials cannot be safely removed</li> <li>- it is Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder, during demolition.</li> </ul> <p>Verify that, when a facility component that contains or is covered or coated with RACM is being taken out of the facility in units or sections:</p> <ul style="list-style-type: none"> <li>- they are adequately wetted when RACM are exposed during cutting and disjoints operations, and</li> </ul>

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**SP.60.4.** Emissions from facility components that have been taken out in units or in sections from facilities being demolished under state or local orders or facilities being demolished or renovated with at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of RACM on other facility components or at least 1 m<sup>3</sup> (35 ft<sup>3</sup>) off facility components must be controlled (40 CFR 61.145 (c)(4) and 61.145(c)(5)).

- the units or sections are carefully lowered to ground level.
- Verify that RACM is adequately wetted when it is being stripped from facility components while it remains in place in the facility except in renovation operation where wetting would unavoidably damage equipment and the facility:
- requests a determination from the Administrator as to whether unavoidable damage would occur and supply Administrator with the information needed to make the decision
  - uses one of the following emission control methods:
    - a local exhaust ventilation and collection system
    - a glove bag system
    - leaktight wrapping to contain all RACM.
- Verify that facility components are either stripped or contained in leaktight wrappings.
- Verify that facility components removed from facility as units or in sections for stripping meet the following:
- RACM is adequately wet during stripping operations
  - a local exhaust ventilation and collection system designed and operated to capture emissions is in use
  - the exhaust system exhibits no visible emissions to outside air.
- Verify that, when wetting operations are stopped because of the temperature, a record of the temperature is made and kept on file for 2 yr.
- (NOTE: For large facility components such as reactor vessels, large tanks, and steam generators, but not beams, stripping is not required if the following are met:
- the component is removed, transported, stored, disposed of, or reused without disturbing the RACM
  - the component is encased in leaktight wrapping and labeled.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.60.5.</b> Emissions from RACM that has been removed or stripped from facilities being demolished under state or local orders or facilities being demolished or renovated with at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of RACM on other facility components or 1 m<sup>3</sup> (35 ft<sup>3</sup>) or greater off facility components must be controlled (40 CFR 61.145 (c)(6)).</p>	<p>Verify that asbestos materials that have been removed or stripped meet the following:</p> <ul style="list-style-type: none"> <li>- materials are adequately wet, and remain wet until collected for disposal</li> <li>- materials are carefully lowered to the ground or lower floor (not dropped or thrown)</li> <li>- materials not removed as units or in sections are transported to the ground via dust-tight chutes or containers if they are removed more than 50 ft above ground level.</li> </ul>
<p><b>SP.60.6.</b> When the temperature at the point of wetting is below 0°C [32°F] and facilities are being demolished under state or local orders or facilities with at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of RACM other facility components or at least 1 m<sup>3</sup> (35 ft<sup>3</sup>) off facility components are being demolished or renovated, specific exemptions and requirements apply (40 CFR 61.145(c)(7)).</p>	<p>Verify that facility components coated or covered with RACM materials are removed as units or in sections to the maximum extent possible.</p> <p>(NOTE: Wetting is not required at this temperature,)</p> <p>Verify that, when wetting operations are stopped because of freezing temperatures, the temperature is recorded in the areas containing the facility components at the beginning, middle, and end of each work day.</p> <p>Verify that the temperature records are kept for 2 yr.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.60.7.</b> Facilities being demolished under state or local governmental agency orders shall have the portion of the facility containing friable asbestos adequately wetted during the wrecking operation (40 CFR 61.145 (c)(9)).</p> <p><b>SP.60.8.</b> When a facility is demolished by intentional burning, all RACM, including Category I and II nonfriable ACM must be removed (40 CFR 61.145(c)(10)).</p> <p><b>SP.60.9.</b> When air cleaning is used as a method for controlling emissions of asbestos to the outside air, the fabric filter collection systems are required to meet specific standards unless alternative equipment is authorized for use by the USEPA (40 CFR 61.152).</p>	<p>Verify that, in facilities being demolished under state or local governmental agency orders, the portion of the facility that contains friable asbestos materials is adequately wetted during the wrecking operation.</p> <p>Verify that complex removal is done before burning.</p> <p>Verify that fabric filter collection systems meet the following requirements:</p> <ul style="list-style-type: none"> <li>- airflow permeability does not exceed 9 m<sup>3</sup>/min/m<sup>2</sup> (30 ft<sup>3</sup>/min/ft<sup>2</sup>) for woven fabrics or 11 m<sup>3</sup>/min/m<sup>2</sup> (35 ft<sup>3</sup>/min/ft<sup>2</sup>) for felted fabrics</li> <li>- the felted fabric weighs at least 475 g/m<sup>2</sup> (14 oz/yd<sup>2</sup>) and is at least 1.6 mm (1/16 in.) thick throughout</li> <li>- the use of synthetic fabrics containing fill yarn other than that which is spun is avoided.</li> </ul>



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**REGULATORY  
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**ASBESTOS  
MANAGEMENT**

**SP.65  
Personnel Training**

**SP.65.1.** No RACM shall be stripped, removed, or otherwise handled or disturbed unless at least one onsite representative trained in asbestos removal is present (40 CFR 61.145(c)(8)).

**SP.65.2.** All employees working with asbestos at levels at or above the permissible exposure level (PEL) and/or excursion limit for 30 or more days per year are required to participate in a medical surveillance program (RP, 561 FW 8.6H) [Citation Revised June 1998].

Verify that a trained person is present.

Verify that the individual receives refresher training every 2 yr.

(NOTE: This applies to quantities of at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m<sup>2</sup> (160 ft<sup>2</sup>) of RACM on other facility components or 1 m<sup>3</sup> (35 ft<sup>3</sup>) or greater off facility components.)

(NOTE: The current PEL is an airborne concentration of asbestos of 0.1 fiber/cc of air or higher as calculated as an 8-h time weighted average (TWA). The excursion limit is 0.1 fiber/cc of air or higher as measured over a 30-min period.)

Verify that appropriate personnel participate in the program.





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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>ASBESTOS MANAGEMENT</b></p> <p><b>SP.70 Disposal</b></p> <p><b>SP.70.1.</b> Asbestos-containing waste materials are required to be disposed of properly (40 CFR 61.150(a) through 61.150(b)).</p>	<p>(NOTE: These requirements do not apply to Categories I or II nonfriable ACM that did not become crumbled, pulverized, or reduced to powder.)</p> <p>Verify that no visible emissions are discharged to the outside air during the collection, processing, packaging, transporting, or depositing of asbestos-containing waste material, or that the facility uses one of the following methods:</p> <ul style="list-style-type: none"> <li>- the asbestos-containing waste is adequately wetted</li> <li>- the asbestos-containing waste is processed into nonfriable forms</li> <li>- an alternative method approved by the USEPA.</li> </ul> <p>Verify that, if the waste is wetted, the following is done:</p> <ul style="list-style-type: none"> <li>- asbestos waste from control devices is mixed with water to form a slurry and the other materials are adequately wetted</li> <li>- no visible emissions are discharged or air cleaning is used to control the emissions</li> <li>- the wetted materials are sealed in leaktight containers while wet and labeled with the phrase CAUTION, CONTAINS ASBESTOS - AVOID OPENING OR BREAKING CONTAINER, BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH or a label approved by OSHA</li> <li>- materials that don't fit in containers are put into leaktight wrapping.</li> </ul> <p>Verify that the waste generator deposits all ACM as soon as practical at one of the following:</p> <ul style="list-style-type: none"> <li>- a properly operated waste disposal site</li> <li>- a USEPA approved site that converts RACM and asbestos-containing waste material into asbestos-free material.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.70.2.</b> Asbestos-containing waste must be transported according to specific parameters (40 CFR 61.150(c) through 61.150(e)).</p> <p><b>SP.70.3.</b> Active waste disposal sites where ACM is being disposed of are required to meet specific standards (40 CFR 61.154(a) through 61.154(e) and 61.154(i) through 61.154(j)).</p>	<p>Verify that vehicles used to transport asbestos-containing waste material are marked indicating an asbestos dust hazard.</p> <p>Verify that, for all ACM transported off the facility, waste shipment records are maintained for at least 2 yr and a copy is provided to the waste disposal site.</p> <p>Verify that a procedure is in place to notify the local, state, or USEPA regional office if a copy of the waste shipment record is not returned to the waste generator within 35 days after the waste was accepted by the initial transporter.</p> <p>Determine if the facility is operating a landfill where asbestos is being disposed.</p> <p>Verify that there are no visible emissions from active asbestos-containing waste disposal sites, or that:</p> <ul style="list-style-type: none"> <li>- at the end of each operating day, or once in a 24 h period, the waste material is covered with either at least 15 cm (6 in.) of compacted non ACM</li> <li>- a resinous or petroleum based dust suppression agent is applied, waste crankcase oil is not suitable for this purpose</li> <li>- an alternative method of control approved by the USEPA is used.</li> </ul> <p>Verify that, unless a natural barrier exists deterring access by the general public, either the waste is properly covered by non-ACM daily or proper warning signs and fences are installed and maintained as follows:</p> <ul style="list-style-type: none"> <li>- warning signs are displayed at all entrances at intervals of 100 m (330 ft) or less along property line of the site or the perimeter of the section of the site where ACM is disposed and state that the site contains asbestos and warns against creating dust</li> <li>- the area is adequately fenced.</li> </ul> <p>Verify that a copy of waste shipment records are maintained for 2 yr.</p> <p>Verify that until closure, a record is kept of the location, depth, and area of asbestos-containing waste on a map or diagram of the disposal area.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.70.4.</b> Inactive waste disposal sites are required to meet specific standards (40 CFR 61.154(f) through 61.154(h) and 61.151).</p>	<p>Verify that upon closure, the administration receives a copy of all records.</p> <p>Verify that a procedure is in place to notify the administration in at least 45 days prior to excavating or disturbing deposited asbestos-containing waste material.</p> <p>Verify that inactive waste disposal sites meet one of the following:</p> <ul style="list-style-type: none"> <li>- no visible emissions are discharged</li> <li>- asbestos-containing waste material is covered with at least 15 cm (6 in.) of compacted non-ACM, and a vegetation cover is grown and maintained. (NOTE: In desert areas where vegetation is difficult to maintain at least 8 cm (3 in.) additional of well-graded nonasbestos-containing crushed rock may be used instead.)</li> <li>- cover the asbestos-containing waste material with at least 60 cm (2 ft) of non-ACM and maintain the cover to prevent exposure.</li> </ul> <p>Verify that, unless a natural barrier exists, warning signs and a fence are installed to deter public access.</p> <p>Verify that warning signs are displayed at all entrances and at intervals of 100 m (328 ft) or less and are easily read indicating the area is an asbestos waste disposal site.</p> <p>Verify that a procedure is in place to notify the administrator in writing at least 45 days prior to excavating or disturbing any asbestos-contaminated waste material at an inactive waste disposal site.</p>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>SP.80</b></p> <p><b>RADON GAS</b></p> <p><b>SP.80.1.</b> FWS facilities are required to test for radon according to specific procedures (RP. 561 FW 12.4A through 12.4C) [Citation Revised June 1998].</p>	<p>Verify that all occupied Service-owned or leased building have been tested for radon.</p> <p>(NOTE: Buildings tested prior to the issuance of this policy (28 March 1996) that were found to have radon levels less than 4 pCi/L are considered to have met the requirements of this policy.)</p> <p>Verify that testing and analysis is performed by USEPA approved contractors, or by qualified local, State, or Federal health services personnel.</p> <p>(NOTE: Testing priority is as follows:</p> <ul style="list-style-type: none"> <li>- residences and dormitories</li> <li>- hatcheries supplied by subsurface water sources with fully enclosed structures</li> <li>- buildings occupied on a 24 h basis</li> <li>- buildings occupied, but less than 24 h a day</li> <li>- buildings occupied intermittently.)</li> </ul> <p>Verify that all Service owned, nonpublic, subsurface water sources are tested at the point of entry into the structure and mitigation implemented when the concentration of the radon in water is equal to or greater than 300 pCi/L</p> <p>(NOTE: For initial monitoring a track-etch type (alpha Track) monitor or its equivalent is recommended. Other types may be used if they are on the USEPA or State list of acceptable devices.)</p> <p>Verify that short term measurements lasting 90 days or less are made under closed building conditions.</p> <p>Verify that screening tests are conducted on the lowest occupiable level and on the first above ground floor level.</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>SP.80.2.</b> Depending on the results of the radon tests, specific mitigation measures must be taken (RP, 561 FW 12.4C) [Citation Revised June 1998],</p>	<p>Verify that when levels are above 20 pCi/L, the area is retested immediately.</p> <p>Verify that when levels are between 4 pi/L and 20 pCi/L, retesting is done within 6 mo.</p> <p>Verify that when levels are above 200 pCi/L, mitigation activities start within 1 mo.</p> <p>(NOTE: For levels above 200 pCi/L, temporary removal of employees from the work space and occupants from residences is recommended.)</p> <p>(NOTE: If additional time is required for mitigation in areas where the result was greater than 200 pCi, the premises must be vacated until the mitigation achieves a reduction to lower radon levels.)</p> <p>Verify that for levels between 20 pCi/L and 200 pCi/L mitigation activities are begun within 6 mo and the temporary removal of employees is considered for levels at the higher end of the range.</p> <p>Verify that when levels are between 4 pCi/L and 20 pCi/L, mitigation begins within 1 yr based on the testing and analysis.</p> <p>(NOTE: For levels less than 4 pCi/L no mitigation is required.)</p>
<p><b>SP.80.3.</b> Structures which have undergone mitigation are required to undergo additional monitoring (RP, 561 FW 12.5E) [Citation Revised June 1998].</p>	<p>Verify that after the installation of a radon reduction system, measurements of radon gas are made over a minimum period of 3 mo.</p> <p>(NOTE: Secondary longer term measurements, usually 12 mo, will provide a more definitive picture of radon exposure reduction.)</p>

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**REGULATORY  
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**SP.85**

**ENVIRONMENTAL NOISE**

**SP.85.1.** A single facility point-of-contact (POC) should be identified for noise complaints (MP).

Verify that a POC has been identified if the facility has activities that produce noise that would potential disturb people outside the property lines.

Verify that the POC keeps a log of complaints.





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**LEAD BASED PAINT**

**SP.95  
General**

**SP.95.1.** A lead based paint survey should be done in all Service housing where employees and their families are living and appropriate remediation to protect the inhabitants (MP).

Verify that a lead based paint survey has been done in all Service housing where employees and their families are living.

Verify that, if needed, remediation is done to protect inhabitants.



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>LEAD-BASED PAINT (LBP) MANAGEMENT</b></p> <p><b>SP.100</b> <b>Notification Requirements</b></p> <p><b>SP.100.1.</b> The FWS is responsible for informing lessees of target housing of the presence of any known LBP and/or LBP hazards according to specific parameters (40 CFR 745.100, 745.107, 745.113(b), and 745.113(c)).</p>	<p>(NOTE: The following are exempted from these notification requirements (40 CFR 745.101):</p> <ul style="list-style-type: none"> <li>- sales of target housing at foreclosure</li> <li>- leases of target housing that have been found to be LBP free by an inspector certified under the Federal certification program or under a Federally accredited state or tribal certification program</li> <li>- short-term leases of 100 days or less where no lease renewal or extension can occur</li> <li>- renewal of existing leases in target housing where all required LBP disclosures have previously occurred (renewal includes both renegotiation of existing lease terms and/or ratification of a new lease).</li> </ul> <p>(NOTE: These requirements take effect as follows:</p> <ul style="list-style-type: none"> <li>- for owners of more than four residential dwellings, 6 September 1996</li> <li>- for owners of one to four residential dwellings, 6 December 1996.)</li> </ul> <p>(NOTE: The disclosure requirements do not imply a positive obligation on the lessor to conduct any evaluation or reduction activities.)</p> <p>Verify that, in the disclosure process, the lessor provides the following prior to signature on a lease:</p> <ul style="list-style-type: none"> <li>- a copy of a USEPA approved lead hazard information pamphlet</li> <li>- the presence of any known LBP and/or LBP hazards in the target housing being leased</li> <li>- any additional information available concerning the known LBP and/or LBP hazards such as the basis for determination that LBP or LBP hazards exist, the location of the LBP or LBP hazards, and the condition of the painted surfaces</li> <li>- copies of records or reports available pertaining to LBP or LBP hazards in the target housing, including reports regarding common areas</li> <li>- records or reports regarding other residential dwelling in multifamily target housing if the information is a part of an evaluation or reduction of LBP and/or LBP hazard in the target housing as a whole.</li> </ul>

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**SP.100.2.** The FWS is responsible for informing purchasers of target housing of the presence of any known LBP and/or LBP hazards according to specific parameters (40 CFR 745.100, 745.107, 745.110, 745.113(a), and 745.113(c)).

Verify that the contracts to lease target housing include an attachment containing the following elements in the language of the contract:

- a lead warning statement (appropriate language can be found in 40 CFR 745.113)
- a statement by the lessor disclosing the presence of known LBP or LBP hazards in the target housing, or a statement indicating no knowledge of the presence of LBP and/or LBP hazards
- any additional information available concerning the known LBP and/or LBP hazards such as the basis for determination that LBP or LBP hazards exist, the location of the LBP or LBP hazards and the condition of the painted surfaces
- a list of records/reports available to the lessor pertaining to the LBP and/ LBP hazards that have been provided to the purchaser
- a statement by the lessee indicating the above items have been received
- signatures of lessees, agents, lessors certifying the accuracy of the statements.

Verify that the lessor retains a copy of the contract attachments for no less than 3 yr from the start of the leasing period.

(NOTE: These requirements take effect as follows:

- for owners of more than four residential dwellings, 6 September 1996
- for owners of one to four residential dwellings, 6 December 1996.)

(NOTE: The disclosure requirements do not imply a positive obligation on the seller to conduct any evaluation or reduction activities.)

Determine if the facility is in the process of selling any target housing.

Verify that in the disclosure process the seller provides the following to the purchaser prior to the purchaser being obligated under any contract:

- a copy of a USEPA approved lead hazard information pamphlet
- the presence of any known LBP and/or LBP hazards in the target housing being sold
- any additional information available concerning the known LBP and/or LBP hazards such as the basis for determination that LBP or LBP hazards exist, the location of the LBP or LBP hazards, and the condition of the painted surfaces

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- copies of records or reports available pertaining to LBP or LBP hazards in the target housing, including reports regarding common areas</li> <li>- records or reports regarding other residential dwelling in multifamily target housing if the information is a part of an evaluation or reduction of LBP and/or LBP hazard in the target housing as a whole.</li> </ul> <p>(NOTE: Before a purchaser is obligated under any contract to purchase target housing, the seller has to permit the purchaser a 10-day period to conduct a risk assessment or inspection for the presence of LBP and/or LBP hazards. A different period of time may be used if both parties mutually agree in writing. A purchaser may waive this opportunity, but must do so in writing.)</p> <p>Verify that the contracts to sell target housing include an attachment containing the following elements in the language of the contract:</p> <ul style="list-style-type: none"> <li>- a lead warning statement (appropriate language can be found in 40 CFR 745.113)</li> <li>- a statement by the seller disclosing the presence of known LBP or LBP hazards in the target housing, or a statement indicating no knowledge of the presence of LBP and/or LBP hazards</li> <li>- any additional information available concerning the known LBP and/or LBP hazards such as the basis for determination that LBP or LBP hazards exist, the location of the LBP or LBP hazards, and the condition of the painted surfaces</li> <li>- a list of records/reports available to the seller pertaining to the LBP and/LBP hazards that have been provided to the purchaser</li> <li>- a statement by the purchaser indicating the above items have been received</li> <li>- a statement by the purchaser that they have either: <ul style="list-style-type: none"> <li>- received the opportunity to conduct a risk assessment or inspection</li> <li>- waived the opportunity</li> </ul> </li> <li>- signatures of sellers, agents, purchasers certifying the accuracy of the statements.</li> </ul> <p>Verify that the seller retains a copy of the contract attachments for no less than 3 yr from the start of the leasing period.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>SP.100.3.</b> Specific notifications must be issued prior to the renovation of any residential unit of target housing (40 CFR 745.81, 745.82 and 745.85) [Added June 1998].</p>	<p>(NOTE: This requirement is in effect as of 1 June 1999 and applies to all renovations of target housing performed for compensation.)</p> <p>(NOTE: This requirement does not apply to renovation activities that are limited to the following:</p> <ul style="list-style-type: none"> <li>- minor repair and maintenance activities (including minor electrical work and plumbing), that disrupts 2 ft<sup>2</sup> or less of painted surface per component</li> <li>- emergency renovation operations</li> <li>- renovations in target housing in which a written determination has been made by a certified inspector that the components affected by the renovation are free of paint or other surface coatings that contain lead =/&gt; 1.0 mg/cm<sup>2</sup> or 0.5% by weight, where the renovator has obtained a copy of the determination.)</li> </ul> <p>Verify that no more than 60 days prior to starting renovation activities in any residential dwelling unit of target housing, the renovator:</p> <ul style="list-style-type: none"> <li>- provides the owner of the unit with a pamphlet and obtains either a written acknowledgment from the owner or a certificate of mailing at least 7 days prior to the renovation</li> <li>- provides the adult occupant of the unit if the unit is not owner occupied, and obtains one of the following: <ul style="list-style-type: none"> <li>- from the adult occupant, a written acknowledgment that the occupant has received the pamphlet; or written certification that a pamphlet has been delivered to the dwelling and that the renovator has been unsuccessful in obtaining a written acknowledgment from an adult occupant</li> <li>- a certificate of mailing at least 7 days prior to the renovation.</li> </ul> </li> </ul> <p>(NOTE: A certificate of mailing must include the address of the unit undergoing renovation, the date and method of delivery of the pamphlet, names of the persons delivering the pamphlet, reason for lack of acknowledgment (e.g., occupant refuses to sign, no adult occupant available), the signature of the renovator, and the date of signature.)</p> <p>Verify that no more than 60 days prior to starting renovation activities in common areas of multifamily housing, the renovator:</p> <ul style="list-style-type: none"> <li>- provides the owner with the pamphlet and obtains written acknowledgment from the owner or a certificate of mailing at least 7 days prior to the renovation</li> </ul>

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<p><b>SP.100.4.</b> Certain records are required to be kept in relation to notification of LBP renovations (40 CFR 745.81, 745.82 and 745.86) [Added June 1998].</p>	<ul style="list-style-type: none"> <li>- notifies in writing, or ensures written notification of, each unit of the multifamily housing and make the pamphlet available upon request prior to the start of renovation</li> <li>- prepares, signs, and dates a statement describing the steps performed to notify all occupants of the intended renovation activities and to provide the pamphlet.</li> <li>- provide further written notification if the scope, locations, or expected starting and ending dates of the planned renovation activities change after the initial notification providing revised information on the ongoing or planned activities.</li> </ul> <p>(NOTE: Subsequent notification must be provided before the renovator initiates work beyond that which was described in the original notice.)</p> <p>Verify that the notification for renovation in common areas describes the general nature and locations of the planned renovation activities, the expected starting and ending dates, and a statement of how the occupant can obtain the LBP pamphlet at no charge from the renovator.</p> <p>(NOTE: This requirement is in effect as of 1 June 1999 and applies to all renovations of target housing performed for compensation.)</p> <p>(NOTE: This requirement does not apply to renovation activities that are limited to the following:</p> <ul style="list-style-type: none"> <li>- minor repair and maintenance activities (including minor electrical work and plumbing) that disrupts 2 ft<sup>2</sup> or less of painted surface per component</li> <li>- emergency renovation operations.)</li> </ul> <p>Verify that all records necessary to demonstrate compliance with this requirement are maintained for 3 yr, including:</p> <ul style="list-style-type: none"> <li>- reports by a certified inspector that the components affected by the renovation are free of paint or other surface coatings that contain lead <math>\geq</math> 1.0 mg/cm<sup>2</sup> or 0.5% by weight, where the renovator has obtained a copy of the determination</li> <li>- signed and dated acknowledgments of receipt</li> <li>- certifications of attempted delivery</li> <li>- records of notification activities performed relating to common area renovations.</li> </ul>





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Fish and Wildlife Management**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>LEAD-BASED PAINT (LBP) MANAGEMENT</b></p> <p><b>SP.105</b> <b>Training Requirements</b></p> <p><b>SP.105.1.</b> All LBP activities are required to be performed by certified individuals or firms (40 CFR 745.220(a), 745.226(a)(3), 745.226(a)(5), 745.226(e), 745.226(f)(1), and 745.233) [Revised April 2000].</p> <p><b>SP.105.2.</b> Training programs for LBP activities are required to be accredited (40 CFR 745.225) [Added April 2000].</p>	<p>(NOTE: These requirements apply:</p> <ul style="list-style-type: none"> <li>- to all individuals and firms engaged in LBP activities except persons who perform these activities within residential dwellings that they own, unless one of the following circumstances is present: <ul style="list-style-type: none"> <li>- the residential dwelling is occupied by a person or persons other than the owner or the owners immediate family while these activities are being performed</li> <li>- a child residing in the building has been identified as having an elevated blood lead level (EBL)</li> </ul> </li> <li>- only in those States or Indian Country that do not have an authorized State or Tribal program (40 CFR 744.220(b).)</li> </ul> <p>(NOTE: This requirement is effective as of 30 August 1999.)</p> <p>Verify that all LBP activities are performed by USEPA or State/Tribal authorized program certified individuals or firms.</p> <p>(NOTE: Certification is available for inspectors, risk assessors, supervisors, project designers, or abatement workers.)</p> <p>Verify that recertification is done:</p> <ul style="list-style-type: none"> <li>- every 3 yr if the individual completed a training course with a course test and hands-on assessment</li> <li>- every 5 yr if the individual completed a training course with a proficiency test.</li> </ul> <p>(NOTE: It shall be a violation of TSCA for an individual or firm to conduct any of the LBP activities described in 40 CFR 745.227 (see checklist items SP.110.1 through SP.110.4) after 1 March 2000, if that individual has not been certified by EPA to do so.)</p> <p>(NOTE: This requirement is effective as of 30 August 1999.)</p> <p>Determine if the Federal facility provides training in LBP removal.</p> <p>Verify that the training is USEPA accredited.</p> <p>(NOTE: Training programs in states and Indian Country that do not have authorized state programs in place by 31 August 1998 may first apply to the USEPA for accreditation on or after 31 August 1998.)</p>



**COMPLIANCE CATEGORY:  
SPECIAL POLLUTANTS MANAGEMENT  
Fish and Wildlife Management**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>LEAD-BASED PAINT (LBP) MANAGEMENT</b></p> <p><b>SP.110</b> <b>Work Practice Standards</b></p> <p><b>SP.110.1.</b> Inspections are required to be done according to specific methodologies (40 CFR 745.227(a)(1), 745.227(b), and 745.227(f)) [Revised April 2000].</p>	<p>(NOTE: These requirements apply:</p> <ul style="list-style-type: none"> <li>- to all individuals and firms engaged in LBP activities except persons who perform these activities within residential dwellings that they own, unless one of the following circumstances is present:               <ul style="list-style-type: none"> <li>- the residential dwelling is occupied by a person or persons other than the owner or the owners immediate family while these activities are being performed</li> <li>- a child residing in the building has been identified as having an EBL</li> </ul> </li> <li>- only in those States or Indian Country that do not have an authorized State or Tribal program (40 CFR 744.220(b).)</li> </ul> <p>(NOTE: These requirements are effective as of 1 March 2000.)</p> <p>Verify that inspections are done by USEPA or State/Tribal authorized program certified inspectors.</p> <p>Verify that inspections were performed according to a documented methodology (i.e., HUD Guidelines) and include testing of:</p> <ul style="list-style-type: none"> <li>- in a residential dwelling and child-occupied facility, each component with a distinct painting history and each exterior component with a distinct painting history is tested for LBP, except for components determined to have been replaced after 1978 or to not contain LBP at all</li> <li>- in a multi-family dwelling or child-occupied facility, each component with a distinct painting history in every common area, except those components determined to have been replaced after 1978 or to not contain LBP.</li> </ul> <p>Verify that an inspection report is prepared that includes the following:</p> <ul style="list-style-type: none"> <li>- date of each inspection</li> <li>- address of building</li> <li>- date of construction</li> <li>- apartment numbers (if applicable)</li> <li>- name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility</li> <li>- name, signature, and certification number of each certified inspector and/or risk assessor conducting testing</li> <li>- name, address, and telephone number of the certified firm employing each inspector and/or risk assessor, if applicable</li> </ul>

**COMPLIANCE CATEGORY:  
SPECIAL POLLUTANTS MANAGEMENT  
Fish and Wildlife Management**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>SP.110.2.</b> Lead hazard screens are required to be done according to specific methodologies (40 CFR 745.227(a)(1), 745.227(c), and 745.227(f)) [October 1996].</p>	<ul style="list-style-type: none"> <li>- each testing method and device and/or sampling procedures used for paint analysis, including quality control data and, if used, the serial number of any x-ray fluorescence (XRF) device</li> <li>- specific location of each painted component tested for the presence of LBP</li> <li>- the results of the inspection expressed in terms appropriate to the sampling method used.</li> </ul> <p>(NOTE: These requirements are effective as of 1 March 1999.)</p> <p>Verify that lead hazard screens are only done by a person certified by the USEPA as a risk assessor.</p> <p>Verify that lead hazard screens were conducted according to a documented methodology (such as HUD Guidelines) and included:</p> <ul style="list-style-type: none"> <li>- background information is collected on the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause LBP exposure to one or more children age 6 yr or under</li> <li>- a visual inspection of the residential dwelling or child-occupied facility is conducted to determine if deteriorated paint is present and locate at least two dust sampling locations</li> <li>- each surface with deteriorated paint which is determined, using documented methodologies, to be in poor condition and to have a distinct painting history is tested for the presence of lead</li> <li>- in residential dwellings, two composite dust samples are collected, one from the floors and the other from the windows, in rooms, hallways, or stairwells where one or more children age 6 and under are most likely to come in contact with dust</li> <li>- in multi-family dwellings and child-occupied facilities, in addition to floor and window samples, composite dust samples are collected from common areas where one or more children age 6 and under are most likely to come into contact with dust.</li> </ul> <p>(NOTE: Sampling and testing methodologies are prescribed by the USEPA.)</p> <p>Verify that a lead hazard screen report is produced which contains the following:</p> <ul style="list-style-type: none"> <li>- date of each screening</li> <li>- address of building</li> <li>- date of construction</li> <li>- apartment numbers (if applicable)</li> </ul>

**COMPLIANCE CATEGORY:  
SPECIAL POLLUTANTS MANAGEMENT  
Fish and Wildlife Management**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>SP.110.3.</b> Risk assessments are required to be done according to specific methodologies (40 CFR 745.227(a)(1) and 745.227(d)) [October 1996].</p>	<ul style="list-style-type: none"> <li>- name, address, and telephone number of the owner or owners of each residential dwelling or child-occupied facility</li> <li>- name, signature, and certification number of each risk assessor conducting testing</li> <li>- name, address, and telephone number of the certified firm employing each risk assessor, if applicable</li> <li>- name, address, and telephone number of each recognized laboratory conducting analysis of collected samples</li> <li>- results of the visual inspection</li> <li>- each testing method and device and/or sampling procedures employed for paint analysis</li> <li>- specific location of each painted component tested for the presence of LBP</li> <li>- all data collected from onsite testing, including quality control data and, if used, the serial number of any XRF device</li> <li>- all results of laboratory analysis on collected paint, soil, and dust samples</li> <li>- any other sampling results</li> <li>- any background information</li> <li>- recommendations.</li> </ul> <p>(NOTE: These requirements are effective as of 1 March 1999.)</p> <p>Verify that risk assessments are only done by a person certified by the USEPA as a risk assessor.</p> <p>Verify that the risk assessment is conducted as follows:</p> <ul style="list-style-type: none"> <li>- background information is collected on the physical characteristics of the residential dwelling or child-occupied facility and occupant use patterns that may cause LBP exposure to one or more children age 6 yr or under</li> <li>- a visual inspection of the residential dwelling or child-occupied facility is conducted to determine if deteriorated paint is present, assess the extent and causes of deterioration, and other potential LBP hazards</li> <li>- each surface with deteriorated paint which is determined, using documented methodologies, to be in poor condition and to have a distinct painting history is tested for the presence of lead</li> <li>- surfaces determined, using documented methodologies, to be a potential LBP hazard and having a distinct painting history are tested for lead</li> </ul>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Management**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
	<ul style="list-style-type: none"> <li>-in residential dwelling dust samples (either composite or single surface samples) are collected from the floors, the windows, in all living areas where one or more children age 6 and under are most likely to come in contact with dust</li> <li>-in multi-family dwellings and child-occupied facilities in addition to floor and window samples, dust samples (either composite or single surface) are collected from common areas adjacent to the residential dwelling or child-occupied facility and other common areas where one or more children, age 6 and under, are likely to come into contact with dust</li> <li>-for child-occupied facilities, window and floor dust samples (either composite or single surface samples) are collected in each room, hallway, or stairwell utilized by one or more children age 6 and under, and in other common areas in the child-occupied facility where one or more children, age 6 and under, are likely to come into contact with dust</li> <li>-soil samples are collected and analyzed for lead concentration in exterior play areas where bare soil is present and dripline/foundation areas where bare soil is present.</li> </ul> <p>(NOTE: Sampling and testing methodologies are prescribed by the USEPA.)</p> <p>Verify that a risk assessment report is produced which contains the following:</p> <ul style="list-style-type: none"> <li>-date of assessment</li> <li>-address of building</li> <li>-date of construction</li> <li>-apartment numbers (if applicable)</li> <li>-name, address, and telephone number of the owner or owners of each building</li> <li>-name, signature, and certification number of each risk assessor conducting testing</li> <li>-name, address, and telephone number of the certified firm employing each risk assessor, if applicable</li> <li>-name, address, and telephone number of each recognized laboratory conducting analysis of collected samples</li> <li>-results of the visual inspection</li> <li>-each testing method and device and/or sampling procedures employed for paint analysis</li> <li>-specific location of each painted component tested for the presence of LBP</li> <li>-all data collected from onsite testing, including quality control data and, if used, the serial number of any XRF device</li> </ul>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Management**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>SP.110.4.</b> LBP abatement is required to be done according to specific methodologies (40 CFR 745.227(a)(1) and 745.227(e)) [October 1996].</p>	<ul style="list-style-type: none"> <li>- all results of laboratory analysis on collected paint, soil, and dust samples</li> <li>- any other sampling results</li> <li>- any background information</li> <li>- results of previous inspections of analyses to the extent they are used as a part of the hazard determination</li> <li>- a description of the location, type, and severity of identified LBP hazards and any other potential lead hazards</li> <li>- a description of interim controls and/or abatement options for each identified LBP hazard and a suggested prioritization for addressing each hazard.</li> </ul> <p>Verify that, if the report suggests using encapsulation or enclosure, a maintenance schedule and monitoring schedule is recommended in the report.</p> <p>(NOTE: These requirements are effective as of 1 March 1999.)</p> <p>Verify that each abatement project has a certified supervisor that is onsite during all work site preparation and during the post-abatement cleanup of work areas.</p> <p>Verify that, when abatement activities are being conducted, the supervisor is either onsite or available by telephone, pager, or answering service and able to be present at the work site in not more than 2 h.</p> <p>Verify that the USEPA was notified prior to the start of abatement activities.</p> <p>Verify that a written occupant protection plan was developed for all projects describing the measures and management procedures that will be taken during the abatement to protect the building occupants from LBP exposure and is unique to each dwelling and each child-occupied dwelling.</p> <p>Verify that the occupant protection plan was prepared by a certified supervisor or project designer.</p> <p>Verify that the following constraints are followed during the abatement:</p> <ul style="list-style-type: none"> <li>- there is no open-flame burning or torching of LBP</li> </ul>

**COMPLIANCE CATEGORY:  
SPECIAL POLLUTANTS MANAGEMENT  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>- machine sanding or grinding or abrasive blasting of LBP is not done unless used with HEPA exhaust control which removes particles of 0.3 microns or larger from the area at 99.97 percent or greater efficiency</li> <li>- dry scrapings are done only in conjunction with heat guns or around electrical outlets or when treating defective paint spots totaling no more than 2 ft<sup>2</sup> in any one room, hallway or stairwell or totaling no more than 20 ft<sup>2</sup> on exterior surfaces</li> <li>- operating a heat gun on LBP is done only at temperatures below 1100° F.</li> </ul> <p>Verify that soil abatement is done by either replacing the soil or permanently covering it.</p> <p>Verify that the following post-abatement procedures are performed by a certified inspector or risk assessor:</p> <ul style="list-style-type: none"> <li>- a visual inspection to determine if deteriorated paint and visible dust, debris, or residue are present</li> <li>- elimination of deteriorated paint and visible dust, debris, or residue before clearance continues</li> <li>- clearance sampling for lead contaminated dust are taken a minimum of 1 h after completion of final post-abatement cleanup activities</li> <li>- when there has been containment between abated and unabated areas, one dust sample is taken from one window (if available) and one dust sample from the floor of no less than four rooms (or all such spaces if there are fewer than four rooms), hallways, or stairwells within the containment area</li> <li>- when there has been containment between abated and unabated areas, one dust sample is taken from the floor outside the containment area</li> <li>- when there has been no containment, two dust samples (one dust sample from one window and one from the floor) are taken from no less than four room (or all such spaces if there are fewer than four rooms), hallways, or stairwells in the residential dwelling or child-occupied facility</li> <li>- for an exterior paint abatement, a visible inspection is performed to identify dust and paint chips.</li> </ul> <p>Verify that residual lead levels from each dust sample are compared with applicable clearance levels for lead in dust on floors and windows and if the residual level exceed the clearance levels, all components represented by the failed test are recleaned and retested.</p>



**COMPLIANCE CATEGORY:  
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Fish and Wildlife Management**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

(NOTE: In a multi-family dwelling with similarly constructed and maintained residential dwelling, random sampling for the purposes of clearance may be done if:

- the certified individuals who abate or clean the residential dwelling do not know which residential dwellings will be selected for random sampling
- a sufficient number of residential dwellings are selected to provide a 95 percent level of confidence that no more than 5 percent or 50 of the residential dwellings (whichever is smaller) in the randomly sampled population exceed the appropriate clearance levels.)

Verify that an abatement report is prepared by a certified supervisor or project designer and contains the following information:

- start and completion dates
- the name and address of each certified firm conducting the abatement and the name of each supervisor assigned to the abatement project
- the occupant protection plan
- the name, address, and signature of each certified risk assessor or inspector conducting clearance sampling and the date of clearance testing
- the results of clearance testing and all soil analyses and the name of each recognized laboratory that conducted the analyses
- a detailed written description of the abatement, including abatement methods used, locations of rooms and/or components where abatement occurred, reason for selecting particular abatement methods for each component, and any suggested monitoring or encapsulants or enclosures.



Appendix 8-1

PCB Label Format  
(40 CFR 761.45)

**CAUTION**

Contains

**PCBS**

(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40 CFR 761 -- For disposal information contact the nearest U.S. EPA Office

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In case of accident or spill, call toll free the U.S. Coast Guard National Response Center  
800-424-8802

Also Contact: \_\_\_\_\_

Tel No. \_\_\_\_\_



## Appendix 8-2

### Dielectric Fluid Trade Names and Manufacturers

#### 1. U.S. Manufactured Dielectrics:

<b>Name</b>	<b>Manufacturer</b>
Aroclor	Monsanto
Aroclor B	Mallory
Sbestol	American Corporation
Askarel Hevi-Duty	Hevi-Duty Corporation
Askarel *	Ferranti-Packard, Ltd.
Askarel	Universal Mfg. Co.
Chlorextol	Allis-Chalmers
Chlorinol	Sparagoe Electric
Chlorphen	Jard Company
Diaclor	Sangamo Electric
Dykanol	Cornell Dubilier
Elemex	McGraw Edison
Eucarel	Electric Utilities Co.
Hyvol	Aerovox
Inerteen	Westinghouse Electric
No-Flamol	Wagner Electric
Pyranol	General Electric
Saf-T-Kuhl	Kuhlman Electric

\* Generic name used for insulating liquids in capacitors and transformers.

#### 2. Foreign Manufactured Dielectrics:

<b>Name</b>	<b>Manufacturer</b>
Clophen	Bayer (Germany)
Fenclo	Caffaro (Italy)
Kennechlor	Mitsubishi (Japan)

Phenoclor

Prodelec (France)

DK

Caffaro (Italy)

Pyralene

Prodelec (France)

Solvol

USSR

Santotherm

Mitsubishi (Japan)

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3. Transformers that list other dielectrics or do not bear a manufacturer's identification or service plate on the transformer: if the transformer contains any of the dielectrics (commonly referred to as askarels), it is to be certified as a PCB transformer containing in excess of 500 ppm PCB and no laboratory testing is necessary.

**Appendix 8-3**

**PCB Wastes Disposal Guidance  
(40 CFR 761.50(b))  
[Revised April 2000]**

Waste	Applicable Standard	Checklist Item number
PCB liquids	Disposal - 40 CFR 761.60(a)  Decontamination - 40 CFR 761.79	SP.45.3
PCB Item containing an intact and non-leaking PCB Article	Disposal - 40 CFR 761.60(b)  Decontamination - 40 CFR 761.79	SP.45.6 through SP.45.10
PCB Item containing a PCB Article which is not intact and non-leaking	Disposal - 40 CFR 761.62(a) or 761.62(c)	SP.45.13
Fluorescent light ballasts containing PCBs only in an intact and non-leaking PCB Small Capacitor	Disposal - 40 CFR 761.60(b)(2)(ii)	SP.45.6
Fluorescent light ballasts containing PCBs in the potting material	Disposal - 40 CFR 761.62	SP.45.14
PCB Remediation Waste, including PCB sewage sludge	Cleanup and Disposal - 40 CFR 761.61	
PCB Bulk Product Waste	Disposal - 40 CFR 761.62	SP.45.14
PCB Household Waste	Disposal - 40 CFR 761.63	SP.45.15
PCB R&D Waste	Disposal - 40 CFR 761.64	
PCB/Radioactive Waste	Disposal must be done taking into account both its PCB concentration and radioactive properties	
Porous Surfaces on which PCBs have been spilled and meeting the definition of remediation waste.	Disposal - 40 CFR 761.61(a)(5)(iii)	

Waste	Applicable Standard	Checklist Item number
Porous surfaces which are part of manufactured non-liquid products containing PCBs and meeting the definition of PCB bulk product waste	Disposal - 40 CFR 761.62	SP.45.14
Concrete surfaces on which PCBs have been spilled	Decontamination - 40 CFR 761.79(b)(4) is started within 72 h of the initial spill	
Porous non-liquid PCBs in contact with non-porous surfaces, such as underground metal fuel tanks coated with fire retardent resin or pitch.	Decontaminate - 40 CFR 761.79(b)(3) for purposes of unrestricted use or disposal in a smelter.	



## SECTION 9

### UNDERGROUND STORAGE TANK (UST) MANAGEMENT

U.S. ECAH, September 2000

#### A. Applicability

This section applies to FWS facilities that utilize USTs for storage of hazardous materials or petroleum products. This section presents review action items for the proper management of USTs. The evaluation of UST management ranges from the installation of new systems and the maintenance of existing systems, to the repair, replacement, or permanent removal of USTs.

Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in July 2000, for example **[Added July 2000]**.

#### B. Federal Legislation

- *The Resource Conservation and Recovery Act (RCRA)*, Subtitle I. This law, Public Law (PL) 99-49 (42 U.S. Code (USC) 6991-6991i), established the standards and procedures for USTs. It required the U.S. Environmental Protection Agency (USEPA) to issue standards on leak detection, record maintenance, release reporting, corrective actions, tank upgrading, and replacement (42 USC 6991b(a)(c)).
- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*. This EO of 13 October 1978 requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or for correcting situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.
- Federal regulations used to develop the checklist include:
  - EO 12088, *Federal Compliance with Pollution Control Standards*.
  - 40 CFR 280, *Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks (UST)*.

### C. State/Local Regulations

Many state and local governments have active UST programs. These various governments have developed regulations specific to the physical environment and the regulated communities' needs. It is important to review regulations at the state and local level to ensure that any differences such as reporting or notice requirements, and monitoring requirements are complied with.

### D. FWS/DOI Manuals

- 561 FW 7, Compliance Requirements RCRA - Underground Storage Tanks. This chapter, dated 20 June 1995, provides guidance for management of USTs at Service facilities.

### E. Key Compliance Requirements

- Substandard USTs - Substandard UST systems must be upgraded, closed, or removed from service by 22 December 1998 (40 CFR 280.21(a) through 280.21(c)).
- New or Upgraded USTs - New or upgraded USTs are required to be fitted with spill and overfill prevention equipment. Notice must be given to the appropriate authority within 30 days when a UST system is brought into service after 8 May 1986. If the UST is installed after 22 December 1988, it must be constructed so that it will remain structurally sound for its operating life. Installation of USTs must be done by a certified installer and UST systems must be made of or lined with, materials compatible with the substance stored (40 CFR 280.20, 280.21(d), 280.22, and 280.32).
- Metallic USTs - Buried metallic storage tanks installed after 1973 must be protected from corrosion by coatings, cathodic protection, or other effective methods. They must also undergo regular pressure testing (40 CFR 112.7(e)(2)(iv)).
- Spill and Overfill Prevention - The filling of a UST must include the prevention of overfilling and spilling of the substance. If a spill does occur, facilities with UST systems are required to contain and immediately cleanup a spill or overfill and report it to the implementing agency within 24 h if (40 CFR 280.30 and 280.53):
  1. Spills or overfills of petroleum resulted in a release to the environment of more than 25 gal or caused a sheen on nearby surface water.
  2. Spills or overfills of hazardous substances result in a release to the environment in excess of the reportable quantity.
- Corrosion Protection and Repairs - Corrosion protection on USTs must operate continuously to provide corrosion protection to the metal components that routinely contain regulated substances and are in contact with the ground. UST systems with impressed current cathodic protection are required to be inspected every 60 days by a qualified cathodic protection tester. Repairs to USTs must be performed according to industry code. Tanks and piping that have been replaced or repaired are required to be tested for tightness within 30 days. Records of repairs shall be maintained for the life of the tank (40 CFR 280.31, 280.33, 280.43, and 280.44).
- Release Detection - Facilities with new and existing USTs are required to provide a method, or combination of methods of release detection. Release detection requirements in 40 CFR 280.40 through 280.45 do not apply to USTs which store fuel solely for use by emergency power generators. Release detection records are required to be kept as follows (40 CFR 280.40 through 280.45):

1. All written performance claims pertaining to any release detection system used for 5 yr from the date of installation.
2. The results of any sampling testing or monitoring for 1 yr.
3. The results of tank tightness testing, until the next test is done.
4. Written documentation of calibration, maintenance, repair, of release detection equipment permanently located onsite, at least 1 yr after the servicing is done.
5. Schedules of required calibration and maintenance provided by the release detection equipment manufacturer, 5 yr after the date of installation.

Depending on the age, size, and construction of the tank, acceptable methods of release detection include the following:

1. Inventory control.
2. Manual tank gauging.
3. Tank tightness testing.
4. Automatic tank gauging.
5. Vapor monitoring
6. Groundwater monitoring.
7. Interstitial monitoring.

Existing UST system tanks must implement release detection requirements based on when the system was installed. The table below identifies the deadline for providing release detection:

<b>UST System Installation Date</b>	<b>Leak Detection Required by 22 December of:</b>
All others	1992
1980-December 1988	1993

- Release Detection for Underground Piping Associated with UST Systems - 40 CFR 280, Subpart D, establishes separate release detection requirements for underground piping depending on whether it conveys substances under pressure or suction. These include:
  1. Pressurized piping must be equipped with an automatic line leak detector and have an annual line tightness test conducted; or pressurized piping must be equipped with an automatic line leak detector and a permanent release detection system that allows monthly monitoring. Permanent release detection methods acceptable for piping include: vapor monitoring, interstitial monitoring, and groundwater monitoring. The deadline for implementing release detection requirements on pressurized piping is 22 December 1990.
  2. Suction piping either must have a line tightness test conducted every 3 yr or must use a permanent release detection system that allows monthly monitoring. Deadlines for implementing release detection requirements on suction piping are based on when the UST system was installed. The table above identifies the deadline for providing release detection. For suction piping constructed to certain standards, no release detection monitoring is required. It must meet five criteria:
    - a. Belowgrade piping must operate at less than atmospheric pressure.
    - b. Belowgrade piping must be sloped to drain back into the tank when suction is released.
    - c. Only one check valve can be included in each suction line.
    - d. Check valve shall be located directly below and as close as practical to the suction pump.

e. Criteria in paragraphs b through d must be verifiable.

Leak Detection Requirements for USTs - Federal UST regulations require that owners and operators of all UST systems provide a method, or combination of methods, of release detection that (40 CFR 280.41 through 280.43):

1. Can detect a release from any portion of the UST and the connected piping that routinely contains stored product.
2. Is installed, calibrated, operated, and maintained in accordance with the manufacturer's instructions.
3. Meets the specific performance requirements for each release detection method.

USTs installed after 22 December 1988 must meet leak detection requirements when they are installed. USTs installed on or before 22 December 1988 had a phased-in schedule for compliance as shown in the table below--note that the last deadline occurred in December 1993.

**Schedule for Phase-in of Release Detection  
(40 CFR 280.40(c))**

Year system was installed	Year when release detection is required (by December 22 of the year indicated)				
	1989	1990	1991	1992	1993
Before 1965 or date unknown	RD	P			
1965-69		P/RD			
1970-74		P	RD		
1975-79		P		RD	
1980-88		P			RD

P = must begin release detection for all pressurized piping as defined in 40 CFR 280.41(b)(1).

RD = must begin release detection for tanks and suction piping in accordance to 40 CFR 280.41(a), 40 CFR 280.41(b)(2) and , 40 CFR 280.42.

USTs must be checked at least once a month to see if they are leaking. Owners and operators of UST systems have several options for performing monthly monitoring of the UST using one (or a combination) of the following monthly monitoring leak detection methods:

- Secondary containment often uses a barrier, an outer wall, a vault, or a liner around the UST or piping. Tanks can be equipped with inner bladders that provide secondary containment. Leaked product from the inner tank or piping is directed towards an "interstitial" monitor located between the inner tank or piping and the outer barrier. Interstitial monitoring methods range from a simple dipstick to a continuous, automated vapor or liquid sensor permanently installed in the system.
- Automatic Tank Gauging System - A probe permanently installed in the tank is wired to a monitor to provide information on product level and temperature. These systems automatically calculate the changes in product volume that can indicate a leaking tank..
- Vapor monitoring measures product "fumes" in the soil around the UST to check for a leak. This method requires installation of carefully placed monitoring wells. Vapor monitoring can be performed manually on a periodic basis or continuously using permanently installed equipment.
- Groundwater monitoring senses the presence of liquid product floating on the groundwater. This method requires installation of monitoring wells at strategic locations in the ground near the tank and along the piping runs. To discover if leaked product has reached groundwater, these wells can be checked periodically by hand or continuously

with permanently installed equipment. This method cannot be used at sites where groundwater is more than 20 feet below the surface.

- Any technology can be used if it meets a performance standard of detecting a leak of 0.2 gal/h with a probability of detection of at least 95 percent and a probability of false alarm of no more than 5 percent. Regulatory authorities can approve another method if the UST owner and operator demonstrate that it works as well as one of the methods above and they comply with any condition the authority imposes.

There are a few additional leak detection choices with the restrictions described below:

- Tank Tightness Testing With Inventory Control - This method combines periodic tank tightness testing with monthly inventory control. Inventory control involves taking measurements of tank contents and recording amount pumped each operating day, as well as reconciling all this data at least once a month. This combined method must also include tightness tests, which are sophisticated tests performed by trained professionals. This combined method can be used only temporarily (usually for 10 yr or less).
- Statistical Inventory Reconciliation (SIR), when performed according to the vendor's specifications, meets federal leak detection requirements for USTs as follows. SIR with 0.2 gallon per hour leak detection capability meets the federal requirements for monthly monitoring for the life of the tank and piping. SIR with a 0.1 gal/h leak detection capability meets the federal requirements as an equivalent to tank tightness testing. SIR can, if it has the capability of detecting even smaller leaks, meet the federal requirements for line tightness testing as well.
- Manual tank gauging can be used only for tanks of 2,000 gal or less capacity. This method requires keeping the tank undisturbed for at least 36 h each week, during which the contents of the tank are measured twice at the beginning and twice at the end of the test period. At the end of each week the results are compared to a set of standards to determine if the tank may be leaking (see 40 CFR 280.43(b)(4)). Only tanks of 550 gal or less nominal capacity may use this method as the sole method of release detection. Tanks of 551 to 2,000 gal may use this method in place of manual inventory control. Tanks of greater than 2,000 gal nominal capacity may not use this method to meet the requirements of 40 CFR 280.43 [Revised July 2000].
- Required "Probabilities" For Leak Detection - The regulations require not only that leak detection methods be able to detect certain leak rates, but that they also give the correct answer consistently. In general, methods must detect the specified leak rate with a probability of detection of at least 95 percent and a probability of false alarm of no more than 5 percent. Simply stated, this means that, of 100 tests of USTs leaking at the specified rate, at least 95 of them must be correctly detected. It also means that, of 100 tests of non-leaking USTs, no more than 5 can be incorrectly called leaking (40 CFR 280.40(a)(3)) [Revised July 2000].
- Additional Leak Detection For Piping - Regulatory requirements for pressurized piping include the following (40 CFR 280.41(b) and 280.44):
  - Each pressurized piping run must have one leak detection method from each set below (see 40 CFR 280.41(b)(1)):
    - i) An Automatic Line Leak Detector: Automatic flow restrictor
    - ii) Automatic flow shutoff.
    - iii) Continuous alarm system.
  - And One Other Method:
    - iv) Annual line tightness test.
    - v) Monthly interstitial monitoring.
    - vi) Monthly vapor monitoring.

vii) Monthly groundwater monitoring.

viii) Other monthly monitoring that meets performance standards.

- The automatic line leak detector (LLD) must be designed to detect a leak at least as small as 3 gal/h at a line pressure of 10 lb/in<sup>2</sup> within 1 hour by shutting off the product flow, restricting the product flow, or triggering an audible or visual alarm.
- The line tightness test must be able to detect a leak at least as small as 0.1 gallon per hour when the line pressure is 1.5 times its normal operating pressure. The test must be conducted each year. If the test is performed at pressures lower than 1.5 times operating pressure, the leak rate to be detected must be correspondingly lower.
- Automatic LLDs and line tightness tests must also be able to meet the federal regulatory requirements regarding probabilities of detection and false alarm.
- Interstitial monitoring, vapor monitoring, groundwater monitoring, and other allowable methods have the same regulatory requirements for piping as they do for tanks.

Leak detection requirements for USTs equipped with suction piping vary depending on the type of suction piping installed (see 40 CFR 280.41(b)(2)). One type of suction piping does not require leak detection if it has the following characteristics:

1. Below-grade piping operating at less than atmospheric pressure is sloped so that the piping's contents will drain back into the storage tank if the suction is released.
2. Only one check valve is included in each suction line and is located directly below the suction pump.

Suction piping that does not exactly match the characteristics noted above must have leak detection, either monthly monitoring (using one of the monthly methods noted above for use on pressurized piping) or tightness testing of the piping every 3 yr **[Revised July 2000]**.

- **Hazardous Substance USTs** - Hazardous substance USTs installed after 22 December 1988 must use secondary containment and interstitial monitoring to provide leak detection compliance. Hazardous substance USTs installed on or before 22 December 1988 must have secondary containment and interstitial monitoring by December 22, 1998 (40 CFR 280.42) **[Revised July 2000]**.
- **Spill and Overfill Protection and Control** - Owners and operators must ensure that there is room in the UST for the delivery before the delivery occurs, and the transfer operation must be monitored constantly to prevent overfilling and spilling. If an UST never receives more than 25 gal at a time, the UST does not have to meet the spill protection requirements. When a tank is overfilled, large volumes can be released at the fill pipe and through loose fittings on the top of the tank or a loose vent pipe. The tightness of these fittings normally would not be a problem if the tank were not filled beyond its capacity. Many of these problems can be prevented by using overfill protection devices, such as automatic shutoff devices, overfill alarms, and ball float valves. If in the case of "pumped delivery" where fuel is delivered under pressure, the overfill protection device must work compatibly with pumped deliveries. Also, overfill protection devices are effective only when combined with careful filling practices.

USTs must be equipped to prevent spills from reaching the environment, such as the use of catchment basins, also called "spill containment manholes" or "spill buckets." Basically, a catchment basin is a bucket sealed around the fill pipe that traps spilled product and keeps it from reaching the environment (40 CFR 280.20(c) and 280.30) **[Revised July 2000]**.

- **Corrosion Protection** - Federal rules require corrosion protection for USTs because unprotected steel USTs corrode and release product through corrosion holes. New USTs need to match one of the following performance standards (40 CFR 280.20(a) and (b) and 280.31):

1. Tank and piping completely made of noncorrodible material, such as fiberglass. Corrosion protection is also provided if tank and piping are completely isolated from contact with the surrounding soil by being enclosed in or "jacketed" in noncorrodible material.
2. Tank and piping made of steel having a corrosion-resistant coating AND having cathodic protection. A corrosion-resistant coating electrically isolates the coated metal from the surrounding environment to help protect against corrosion. Asphaltic coating does **not** qualify as a corrosion-resistant coating. Methods of cathodic protection include:
  3. *Sacrificial Anode System*: Sacrificial anodes can be attached to the UST for corrosion protection. Sacrificial anodes are pieces of metal more electrically active than the steel UST. Because these anodes are more active, the corrosive current will exit from them rather than the UST. Thus, the UST is protected while the attached anode is "sacrificed."
  4. *Impressed Current System*: An impressed current system uses a rectifier to convert alternating current to direct current. This current is sent through an insulated wire to the anodes, which are special metal bars buried in the soil near the UST. The current then flows through the soil to the UST system, and returns to the rectifier through an insulated wire attached to the UST. The UST system is protected because the current going to the UST system overcomes the corrosion-causing current normally flowing away from it.
5. Tank made of steel clad with a thick layer of noncorrodible material. This option does not apply to piping. *Galvanized steel is **not** a noncorrodible material [Revised July 2000].*

- UST Requirements for Closure and Change-in-Service - USTs may be closed temporarily or permanently in accordance with the requirements specified below (40 CFR 280.70 through 280.74).

#### Closing Temporarily

USTs may be closed temporarily for up to 12 mo if the following requirements are met:

1. Owners and operators must continue to monitor for leaks by maintaining the UST's leak detection. (Empty USTs do not require leak detection).
2. Owners and operators of USTs must continue to monitor and maintain any corrosion protection systems.
3. In the event of a detected releases from USTs, owners and operators must take immediate action to prevent any further releases of the regulated substance into the environment, notify the regulatory authority, and take appropriate action to clean up the site.
4. If the UST remains temporarily closed for more than 3 months, owners and operators must leave vent lines open, but cap and secure all other lines, pumps, manways, and ancillary equipment.

#### Closing Permanently

USTs may be closed permanently if the following requirements are met:

1. Owners and operators must notify the regulatory authority at least thirty days before closure.
2. Owners and operators must determine if contamination from the UST is present in the surrounding environment. If contamination is discovered, the owner and operator must begin corrective action in accordance to 40 CFR 280.60. Owners and operators must also maintain, for a period of at least three years, a record of the actions taken to determine the presence of contamination. As an option, these records may be mailed to the regulatory authority in lieu of maintaining them on site where the tank was closed.
3. The UST must be either excavated and removed or left in the ground providing that the tank is filled with an inert solid material. In both cases the tank must be emptied and cleaned by removing all liquids, dangerous vapor levels, and accumulated sludge **[Revised July 2000]**.

- Hazardous Waste Storage Tanks - Hazardous waste storage tank requirements are dependent upon the RCRA classification of the facility (e.g., SQG, LQG or TSDF). Refer to the section titled

Hazardous Waste Management for more details on the definitions of these classifications. Tanks at all three types of facilities are required to meet basic requirements including (40 CFR 264.190 through 264.200, 40 CFR 265.190 through 265.200, 40 CFR 264.1085, 40 CFR 265.1085):

1. A hazardous waste may not be placed into a tank if it will cause the tank or its secondary containment system to rupture, leak, corrode, or fail.
2. Special precautions are taken for ignitable, incompatible or reactive wastes.
3. The tank is operated using appropriate controls and practices to prevent spills and overflows.
4. Periodic inspections are conducted to detect spills, corrosion, leaks, and operator error.
5. At closure, all hazardous waste and residues must be removed from the tank, peripheral equipment and foundation structure.

Tank systems at LQG facilities and TSDFs that store hazardous waste with a high volatile organic concentration must meet emission standards specified under Subpart CC and BB of 40 CFR 264 and 265. These regulations also require generators to test the waste to determine the concentration of the waste, to satisfy tank and container emissions standards, and to inspect and monitor regulated units [Revised July 2000].

- Flammable Combustible Liquid Storage Tanks - Storage tanks are to be built of steel except in certain circumstances. Outside aboveground tanks for flammable liquids are to meet requirements for distance between tanks, firefighting access, and containment. When flammable vapor may be present from storage tanks, heat sources will be kept from the tanks. Tanks are required to have been strength-tested before being used (29 CFR 1910.106(b)).
- Hazardous Substance USTs - Existing hazardous substance USTs are required to meet release detection standards for petroleum USTs (40 CFR 280.42).
- Reporting and Recordkeeping Requirements - Facilities are required to submit notifications of new USTs, release reports, planned or completed corrective actions, and notice of closure or change-in-service when applicable. Records are required to be available at the UST site or at a readily available alternative site. Records are to be kept of the following (40 CFR 280.34 280.45, and 280.74):
  1. Corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used.
  2. Documentation of operation of corrosion protection equipment.
  3. Documentation of repairs.
  4. Closure records.
  5. Results of any site investigations.
- Change-in-Service or Closure of USTs - USTs which are put out of service temporarily must have continued maintenance. If the UST has been out-of-service for near or over 1 yr, plans must be made for permanent closure. The facility must notify the implementing agency (USEPA) for any closure or change-in-service 30 days in advance or within a reasonable time frame as determined by the implementing agency. UST closure must be done by either removing the tank from the ground or leaving it in place with the contents removed and the tank filled with an inert solid material and closing it to all future outside access. If a tank is undergoing a change-in-service, it must be emptied and cleaned and a site assessment conducted. Prior to the completion of permanent closure or change-in-service, measurements must be made for the presence of a release where contamination is most likely to be present at the site. Facilities with UST systems closed prior to 22 December 1988 must, when directed by the implementing agency, assess the excavation zone and close the UST according to current standards if releases from the UST may pose a current or potential threat to human health and the environment (40 CFR 280.70 through 280.73).



- Recordkeeping - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### F. Key Compliance Definitions

- *Aboveground Release* - any release to the surface of the land or to surface water. This includes, but is not limited to, releases from the aboveground portion of a UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from a UST system (40 CFR 280.12).
- *Accidental Release* - any sudden or nonsudden release of petroleum from an underground storage tank that results in a need for corrective action and/or compensation for bodily injury or property damage neither expected nor intended by the tank owner or operator (40 CFR 280.92) **[Added July 2000]**.
- *Ancillary Equipment* - any devices including, but not limited to, such devices as pipings, fittings, flanges, valves, and pumps used to distribute, meter, or control the flow of regulated substances to and from the UST (40 CFR 280.12).
- *Belowground Release* - any release to the subsurface of the land and to groundwater. This includes, but is not limited to, releases from the belowground portion of a UST system and belowground releases associated with overfills and transfer operations as the regulated substance moves to or from a UST (40 CFR 280.12) **[Reviewed July 2000]**.
- *Beneath The Surface of The Ground* - beneath the ground surface or otherwise covered with earthen materials (40 CFR 280.12) **[Added July 2000]**.
- *Bodily Injury* - this shall have the meaning given to this term by applicable state law; however, this term shall not include those liabilities which, consistent with standard insurance industry practices, are excluded from coverage in liability insurance policies for bodily injury (40 CFR 280.92) **[Added July 2000]**.
- *Cathodic Protection* - a technique to prevent corrosion of a metal surface by making that surface the cathode of an electrochemical cell. For example, a tank system can be cathodically protected through the application of either galvanic anodes or impressed current (40 CFR 280.12) **[Reviewed July 2000]**.
- *Cathodic Protection Tester* - a person who can demonstrate understanding of the principles and measurements of all common types of cathodic protection systems as applied to buried or submerged metal piping and tank systems. At a minimum, such persons must have education and experience in soil resistivity, stray current, structure-to-soil potential, and component electrical isolation measurements of buried metal piping and tank systems (40 CFR 280.12) **[Reviewed July 2000]**.
- CERCLA - Comprehensive Environmental Response Compensation and Liability Act of 1980 as amended (40 CFR 280.12) **[Reviewed July 2000]**.
- *Compatible* - the ability of two or more substances to maintain their respective physical and chemical properties upon contact with one another for the design life of the tank system under conditions likely to be encountered in the UST (40 CFR 280.12) **[Reviewed July 2000]**.

- **Connected Piping** - all underground piping including valves, elbows, joints, flanges, and flexible connectors attached to a tank system through which regulated substances flow. For the purpose of determining how much piping is connected to any individual UST system, the piping that joins two UST systems should be allocated equally between them (40 CFR 280.12) [Reviewed July 2000].
- **Consumptive Use** - with respect to heating oil means consumed on the premises (40 CFR 280.12) [Reviewed July 2000].
- **Corrosion Expert** - a person who, by reason of thorough knowledge of the physical sciences and the principles of engineering and mathematics acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be accredited or certified as being qualified by the National Association of Corrosion Engineers or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control of buried or submerged metal piping systems and metal tanks (40 CFR 280.12) [Reviewed July 2000].
- **Deferred USTs** - USTs which are exempt from meeting the requirements in 40 CFR 280 except those concerning release response and corrective action for UST systems containing petroleum or hazardous substances in 40 CFR 280.60 through 280.67. These tanks include (40 CFR 280.10(e):
  1. Wastewater treatment tank systems.
  2. Any UST systems containing radioactive material that are regulated under the *Atomic Energy Act of 1954*.
  3. Any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A.
  4. Airport hydrant fuel distribution systems.
  5. UST system with field-constructed tanks.
 See also the definitions for USTs and Excluded USTs.
- **Dielectric Material** - a material that does not conduct direct electrical current. Dielectric coatings are used to electrically isolate UST systems from the surrounding soils. Dielectric bushings are used to electrically isolate portions of the UST system (e.g., tank from piping) (40 CFR 280.12) [Reviewed July 2000].
- **Director of the Implementing Agency** - the USEPA Regional Administrator, or, in the case of a state with a program approved under section 9004, the Director of the designated state or local agency responsible for carrying out an approved UST program (40 CFR 280.92) [Added July 2000].
- **Do-It-Yourself (DIY) Used Oil Collection Center** - any site or facility that accepts, aggregates, and stores used oil collected only from household DIYs (40 CFR 279.1) [Added July 2000].
- **Electrical Equipment** - underground equipment that contains dielectric fluid that is necessary for the operation of equipment such as transformers and buried electric cable (40 CFR 280.12) [Reviewed July 2000].
- **Excavation Zone** - the volume containing the tank system and backfill material bounded by the ground surface, walls, and floor of the pit and trenches into which the UST system is placed at the time of installation (40 CFR 280.12) [Reviewed July 2000].

- **Excluded USTs** - these are USTs which are not required to meet the requirements found in 40 CFR 280 and include (40 CFR 280.10(b)) **[Reviewed July 2000]**:
  1. Any UST system holding hazardous wastes listed under Subtitle C of the *Solid Waste Disposal Act* (SWDA), or a mixture of such hazardous waste and other regulated substances.
  2. Any wastewater treatment tank system that is part of a wastewater treatment facility regulated under Section 402 or 307(b) of the *Clean Water Act* (CWA).
  3. Equipment or machinery that contains regulated substances for operational purposes such as hydraulic lift tanks and electrical equipment.
  4. Any UST system whose capacity is 110 gal or less.
  5. Any UST system that contains a *de minimis* concentration of a regulated substance.
  6. Any emergency spill or overflow containment UST system that is expeditiously emptied after use.

See also the definitions for Deferred USTs and USTs.

- **Existing Tank System** - a tank system used to contain an accumulation of regulated substances or for which installation has commenced on or before 22 December 1988. Installation is considered to have commenced if (40 CFR 280.12) **[Reviewed July 2000]**:
  1. The owner or operator has obtained all Federal, state, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system.
  2.
    - a. Either a continuous onsite physical construction or installation program has begun.
    - b. Or the owner or operator has entered into any contractual obligations:
      - i. Which cannot be canceled or modified without substantial loss.
      - ii. For physical construction at the site or installation of the tank system to be completed within a reasonable time.
- **Farm Tank** - a tank located on a tract of land devoted to the production of crops or raising animals, including fish, and associated residences and improvements. A farm tank must be located on the farm property. Farm includes fish hatcheries, rangeland, and nurseries with growing operations (40 CFR 280.12) **[Reviewed July 2000]**.
- **Flow-Through Process Tank** - a tank that forms an integral part of a production process through which there is a steady, variable, recurring, or intermittent flow of materials during the operation of the process. Flow-through process tanks do not include tanks used for the storage of material prior to their introduction into the production process or for the storage of finished products or by-products from the production (40 CFR 280.12) **[Reviewed July 2000]**.
- **Free-Product** - a regulated substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water) (40 CFR 280.12) **[Reviewed July 2000]**.
- **Gathering Lines** - any pipeline, equipment, facility, or building used in the transportation of oil or gas during oil or gas production (40 CFR 280.12) **[Reviewed July 2000]**.
- **Hazardous Substance UST System** - any UST system that contains a hazardous substance defined in section 101(14) of the CERCLA (but not including any substance regulated as a hazardous waste under subtitle C) or any mixture of such substances and petroleum, and which is not a petroleum UST system (40 CFR 280.12) **[Reviewed July 2000]**.
- **Heating Oil** - petroleum that is No. 1, No. 2, No. 4--light, No. 4--heavy, No. 5--heavy, and No. 6 technical grades of fuel oil; other residual fuel oils (including Navy Special Fuel Oil and Bunker C);

and other fuels when used as substitutes for one of these fuel oils. Heating oil is typically used in the operation of heating equipment, boilers, or furnaces (40 CFR 280.12).

- *Hydraulic Lift Tank* - a tank holding hydraulic fluid for a closed-loop mechanical system that uses compressed air or hydraulic fluid to operate lifts, elevators, and other similar devices (40 CFR 280.12).
- *Implementing Agency* - USEPA, or, in the case of a state with a program approved under section 9004 (or pursuant to a memorandum of agreement with USEPA), the designated state or local agency responsible for carrying out an approved UST program (40 CFR 280.12) [Added July 2000].
- *Liquid Trap* - sumps, well cellars, and other traps used in association with oil and gas production, gathering, and extracting operations (including gas production plants), for the purpose of collecting oil, water, and other liquids. These liquid traps may temporarily collect liquids for subsequent disposition or reinjection into a production or pipeline stream, or may collect and separate liquids from a gas stream (40 CFR 280.12) [Reviewed July 2000].
- *Maintenance* - the normal operational upkeep to prevent a UST system from releasing product (40 CFR 280.12) [Reviewed July 2000].
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *Motor Fuel* - petroleum or a petroleum-based substance that is motor gasoline, aviation gasoline, No. 1 or No. 2 diesel fuel, or any grade of gasohol, and is typically used in the operation of motor engines (40 CFR 280.12) [Reviewed July 2000].
- *New Tank System* - a tank system that will be used to contain an accumulation of regulated substances and for which installation has commenced after 22 December 1988 (40 CFR 280.12) [Reviewed July 2000].
- *Noncommercial Purposes with Respect to Motor Fuel* - not for resale (40 CFR 280.12).
- *Occurrence* - an accident, including continuous or repeated exposure to conditions, which results in a release from an underground storage tank. NOTE: This definition is intended to assist in the understanding of these regulations and is not intended either to limit the meaning of "occurrence" in a way that conflicts with standard insurance usage or to prevent the use of other standard insurance terms in place of "occurrence" (40 CFR 280.92) [Added July 2000].
- *On the Premises Where Stored (heating oil)* - UST systems located on the same property where the stored heating oil is used (40 CFR 280.12) [Reviewed July 2000].
- *Operational Life* - the period beginning when installation of the tank system has commenced until the time the tank system is properly closed under Subpart G of 40 CFR 280 (40 CFR 280.12) [Added July 2000].
- *Operator* - any person in control of or having responsibility for the daily operation of the UST system (40 CFR 280.12).
- *Overfill Release* - a release that occurs when a tank is filled beyond its capacity, resulting in a discharge of the regulated substance to the environment (40 CFR 280.12).

- **Owner [Added July 2000].**
  1. In the case of an UST system in use on November 8, 1984, or brought into use after that date, any person who owns an UST system used for storage, use, or dispensing of regulated substances.
  2. In the case of any UST system in use before November 8, 1984, but no longer in use on that date, any person who owned such UST immediately before the discontinuation of its use (40 CFR 280.12).
- **Owner or Operator** - when the owner or operator are separate parties, refers to the party that is obtaining or has obtained financial assurances (40 CFR 280.92) **[Added July 2000]**.
- **Person** - an individual, trust, firm, joint stock company, Federal agency, corporation, state, municipality, commission, political subdivision of a state, or any interstate body. Person also includes a consortium, a joint venture, a commercial entity, and the U.S. Government (40 CFR 280.12) **[Reviewed July 2000]**.
- **Petroleum UST System** - a UST system that contains petroleum or a mixture of petroleum with *de minimis* quantities of other regulated substances. Such systems include those containing motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils (40 CFR 280.12).
- **Pipe or Piping** - a hollow cylinder or tubular conduit that is constructed of nonearthen materials (40 CFR 280.12) **[Reviewed July 2000]**.
- **Pipeline Facilities** - (including gathering lines) are new and existing pipe rights-of-way and any associated equipment, facilities, or buildings (40 CFR 280.12) **[Reviewed July 2000]**.
- **Regulated Substance** (40 CFR 280.12) **[Reviewed July 2000]** -
  1. Any substance defined in section 101(14) of the CERCLA of 1980 (but not including any substance regulated as a hazardous waste under subtitle C).
  2. Petroleum, including crude oil or any fraction thereof that is liquid at standard conditions of temperature and pressure (60 °F and 14.7 lb/psia).

(NOTE: The term regulated substance includes, but is not limited to, petroleum and petroleum based substances comprised of a complex blend of hydrocarbons derived from crude oil through processes of separation, conversion, upgrading, and finishing, such as motor fuels, jet fuels, distillate fuel oils, residual fuel oils, lubricants, petroleum solvents, and used oils.)

- **Release** - any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from a UST into groundwater, surface water, or subsurface soils (40 CFR 280.12) **[Reviewed July 2000]**.
- **Release Detection** - determining whether a release of a regulated substance has occurred from the UST system into the environment or into the interstitial space between the UST system and its secondary barrier or secondary containment around it (40 CFR 280.12) **[Reviewed July 2000]**.
- **Repair** - to restore a tank or UST system component that has caused a release of product from the UST system (40 CFR 280.12) **[Reviewed July 2000]**.
- **Residential Tank** - a tank located on property used primarily for dwelling purposes (40 CFR 280.12) **[Reviewed July 2000]**.

- SARA - Superfund Amendments and Reauthorization Act (40 CFR 280.12) [Reviewed July 2000].
- *Septic Tank* - a water-tight covered receptacle designed to receive or process, through liquid separation or biological digestion, the sewage discharged from a building sewer. The effluent from such receptacle is distributed through the soil and settled solids and scum from the tank are pumped out periodically and hauled to a treatment facility (40 CFR 280.12) [Reviewed July 2000].
- *Stormwater or Wastewater Collection System* - piping, pumps, conduits, and any other equipment necessary to collect and transport the flow of surface water runoff resulting from precipitation, or domestic, commercial, or industrial wastewater to and from retention areas or any areas where treatment is designated to occur. The collection of stormwater and wastewater does not include treatment except where incidental to conveyance (40 CFR 280.12) [Reviewed July 2000].
- *Surface Impoundment* - a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials (although may be lined with manmade materials) that is not an injection well (40 CFR 280.12) [Reviewed July 2000].
- *Tank* - a stationary device designed to contain an accumulation of regulated substances and constructed of nonearthen materials (e.g., concrete, steel, plastic) that provide structural support (40 CFR 280.12) [Reviewed July 2000].
- *Underground Area* - an underground room such as a basement, cellar, shaft, or vault, providing enough space for physical inspection of the exterior of the tank situated on or above the surface of the floor (40 CFR 280.12) [Reviewed July 2000].
- *Underground Release* - any belowground release (40 CFR 280.12) [Reviewed July 2000].
- *Underground Storage Tank (UST)* - any one or a combination of tanks (including underground pipes connected thereto) that is used to contain an accumulation of regulated substances, and the volume of which (including the volume of underground pipes connected thereto) is 10 percent or more beneath the surface of the ground. This term does not include any (40 CFR 280.12) [Reviewed July 2000]:
  1. Farm or residential tank of 1100 gal or less capacity used for storing motor fuel for noncommercial purposes.
  2. Tank used for storing heating oil for consumptive use on the premises where stored.
  3. Septic tanks.
  4. Pipeline facility (including gathering lines) which are regulated by other Acts.
  5. Surface impoundment, pit, pond, or lagoon.
  6. Stormwater or waste water collection system.
  7. Flow-through process tank.
  8. Liquid trap or associated gathering lines directly related to oil or gas production and gathering operations.
  9. Storage tank situated in an underground area if the storage tank is situated upon or above the surface of the floor such as basements or tunnels.
  10. Tanks holding 110 gal or less.
  11. Emergency spill and overfill tanks.

(NOTE: The definition of UST does not include any pipes connected to any tank which is described in para (1) through (9) of this definition. Also refer to the definition for Deferred UST and Excluded UST.)

- *Upgrade* - the addition or retrofit of some systems such as cathodic protection, lining, or spill and overfill controls to improve the ability of a UST system to prevent the release of product (40 CFR 280.12) [Reviewed July 2000].
- *UST System or Tank System* - UST, connected underground piping, underground ancillary equipment, and containment system, if any (40 CFR 280.12) [Reviewed July 2000].
- *Wastewater Treatment Tank* - a tank that is designed to receive and treat influent waste water through physical, chemical, or biological methods (40 CFR 280.12) [Reviewed July 2000].





## UNDERGROUND STORAGE TANK (UST) MANAGEMENT

### GUIDANCE FOR CHECKLIST USERS

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	REFER TO CHECKLIST ITEMS:
All Facilities	UT.1.1 through UT.1.4
Substandard USTs	UT.10.1
New or Upgraded USTs	UT.15.1 through UT.15.5
Metallic USTs	UT.20.1
UST Filling	UT.25.1 and UT.25.2
UST Corrosion Protection	UT.30.1
UST Repairs	UT.35.1
Release Detection For USTs	
General	UT.40.1
Petroleum USTs	UT.45.1
Hazardous Substance USTs	UT.50.1 and UT.50.2
Exempted USTs	UT.55.1
UST Releases	UT.60.1 through UT.60.7
Deferred USTs	UT.65.1
UST Documentation	UT.70.1 and UT.70.2
Changes-in-Service or Closure of USTs	UT.75.1 through UT.75.8

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Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in July 2000, for example [Added July 2000].

## UNDERGROUND STORAGE TANK (UST) MANAGEMENT

### Records To Review [Revised July 2000]

- Official correspondence with state implementing agency
- Results of all UST testing, sampling, monitoring, inspection, maintenance, and repair work (for 1 yr)
- Registration records for all in-service, temporarily out-of-service, and permanently closed tanks
- Records for UST disposal, closure, and removal from activity and results of excavation area assessment (for 3 yr)
- UST records regarding leak detection performance and maintenance including:
  - monitoring results over the last 12 mo
  - most recent tank tightness test(s)
  - manual tank gauging records
  - copies of performance claims provided by leak detection equipment manufacturers
  - records of recent maintenance, repair and calibration of on-site leak detection equipment
- Records of required inspections and test of corrosion protection systems
- Records of repairs or upgrades to UST systems
- Site assessment results of closed USTs
- Spill Prevention Control and Countermeasure (SPCC) Plans
- Spill Response Plans

### Physical Features To Inspect

- Refueling facilities, including:
  - Belowground storage tanks and dikes
  - Venting
  - Fill pipe
  - Gauges
  - Vehicle Maintenance areas
- Oil and Hazardous Substance Site
- Any site with a UST

**COMPLIANCE CATEGORY:  
UNDERGROUND STORAGE TANK (UST) MANAGEMENT  
Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>UT.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>UT.1.2.</b> FWS facilities are required to comply with state and local regulations (EO 12088, Section 1-1).</p> <p><b>UT.1.3.</b> Facilities will meet regulatory requirements issued since the finalization of this handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>(NOTE: Some FWS USTs fall under the definition of a farm tank and are exempted from the requirements of 40 CFR 280.)</p> <p>Verify that the facility is complying with state and local requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> <li>- operational standards</li> <li>- permitting requirements</li> <li>- replacement and removal schedules</li> <li>- cathodic protection requirements</li> <li>- alarm system requirements.)</li> </ul> <p>Determine if any new regulations concerning UST have been issued since the finalization of this handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<b>UT.1.4.</b> FWS facilities should report all NOV's to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].	Determine if the facility has received an NOV relating to UST management.  Verify that the NOV was reported to the Region and the EFC.

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Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.10</b></p> <p><b>SUBSTANDARD USTs</b></p> <p><b>UT.10.1.</b> Existing UST systems were required meet the standards for new USTs, be upgraded, or closed by 22 December 1998 (40 CFR 280.10(c) and 280.21(a) through 280.21(d)) <b>[Revised July 2000]</b>.</p>	<p>(NOTE: See Appendix 9-1 for guidance on applicability of checklist items.)</p> <p>(NOTE: An existing UST system is; one used to contain an accumulation of regulated substances on or before 22 December 1988 or one for which installation commenced on or before 22 December 1998.)</p> <p>Verify that existing USTs meet one of the following standards:</p> <ul style="list-style-type: none"> <li>- the performance standards for new USTs in 40 CFR 280.20 (see checklist items UT.15.1, UT.15.3, and UT.15.4)</li> <li>- upgrading requirements outlined in 40 CFR 280.21(b) through 40 CFR 280.21(d) (see checklist items UT.10.1)</li> <li>- closed according to 40 CFR 280.70 through 280.74 (see checklist items UT.70.2 and UT.75.1 through UT.75.7).</li> </ul> <p>Verify that, if upgrading is the chosen option, the upgrading of steel USTs includes one of the following methods in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory:</p> <ul style="list-style-type: none"> <li>- internal lining according to the following requirements: <ul style="list-style-type: none"> <li>- lining is installed according to 40 CFR 280.33 (see checklist item UT.30.2)</li> <li>- within 10 yr after lining, and every 5 yr thereafter, the lined tank is inspected internally and found to be structurally sound, with the lining still performing in accordance with original design specifications</li> </ul> </li> <li>- cathodic protection with field-installed systems designed by a corrosion expert, impressed current systems designed to allow determination of the current operating status, or an approved equivalent system and the integrity is assured by one of the following: <ul style="list-style-type: none"> <li>- tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion holes prior to installing the cathodic protection system</li> <li>- the tank has been installed for less than 10 yr and is monitored monthly for releases (see Appendix 9-3) in accordance with 40 CFR 280.43(d) through 280.43(h)</li> </ul> </li> </ul>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
	<ul style="list-style-type: none"> <li>- the tank has been installed for less than 10 yr and is assessed for corrosion holes by conducting two tightness tests, one before and one 3 to 6 mo after first operation of the cathodic protection system</li> <li>- tank is assessed for corrosion holes by a method that is determined to be equally protective by the implementing agency</li> <li>- internal lining combined with cathodic protection:               <ul style="list-style-type: none"> <li>- if lining is installed according to requirements in 40 CFR 280.33</li> <li>- if the cathodic protection system meets the following:                   <ul style="list-style-type: none"> <li>- field-installed systems are designed by a corrosion expert</li> <li>- impressed current systems are designed to allow determination of the current operating status</li> <li>- cathodic protection systems are maintained and operated in accordance with 40 CFR 280.31 (see checklist item UT.30.1).</li> </ul> </li> </ul> </li> </ul> <p>Verify that metal piping that routinely contains regulated substances and is in contact with the ground is cathodically protected in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory meets the following:</p> <ul style="list-style-type: none"> <li>- field-installed systems are designed by a corrosion expert</li> <li>- impressed current systems are designed to allow determination of the current operating status</li> <li>- cathodic protection systems are maintained and operated in accordance with 40 CFR 280.31 (see checklist item UT.30.1).</li> </ul> <p>Verify that when spill and overfill equipment is added, it meets the standards in 40 CFR 280.20(c) (see checklist item UT.15.1) for new USTs.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>

**COMPLIANCE CATEGORY:**  
**UNDERGROUND STORAGE TANK (UST) MANAGEMENT**  
Fish and Wildlife Service

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:**  
SEPTEMBER 2000

(NOTE: A new UST system is one that will be used to contain an accumulation of regulated substances and for which installation has commenced after 22 December 1988.)





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UNDERGROUND STORAGE TANK (UST) MANAGEMENT  
Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.15</b></p> <p><b>NEW OR UPGRADED USTs</b></p> <p><b>UT.15.1.</b> New UST systems are required to be fitted with spill and overfill prevention equipment (40 CFR 280.10(c) and 280.20(c)) [Revised July 2000].</p>	<p>Verify that spill prevention equipment will prevent a release of product to the environment when the transfer hose is detached from the fill pipe.</p> <p>Verify that overfill prevention equipment does one of the following:</p> <ul style="list-style-type: none"> <li>- automatically shuts off flow into the tank when the tank is no more than 95 percent full</li> <li>- alerts the transfer operator when the tank is no more than 90 percent full by restricting the flow into the tank or triggering a high-level alarm</li> <li>- restrict flow 30 min prior to overfilling, alert the operator with a high-level alarm 1 min before overfilling, or automatically shut off flow into the tank so that none of the fittings are exposed to product due to overfilling.</li> </ul> <p>(NOTE: This spill and overfill equipment is not required if approved equivalent equipment is used or the UST system is filled by transfers of no more than 25 gal at one time.)</p> <p>(NOTE: All existing tanks were to be upgraded by 1998. The state may have had an earlier deadline.)</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>

**COMPLIANCE CATEGORY:  
UNDERGROUND STORAGE TANK (UST) MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>UT.15.2.</b> Notice must be given within 30 days when a UST system is brought into service after 8 May 1986 (40 CFR 280.10(c) and 280.22(a) through 280.22(f)) [Revised July 2000].</p>	<p>Determine if any UST was brought into service after 8 May 1986.</p> <p>Verify that the appropriate notification was issued to the state or local agency or department designated to receive the notice.</p> <p>(NOTE: If a state requires use of a state form that differs from a USEPA form 7530, a state form may be used for notification in lieu of a USEPA form 7530 if the form meets the requirements of RCRA Section 9002. These notices must be sent to the appropriate agency. See Appendices I and II of 40 CFR 280 for details on the contents of the USEPA forms.)</p> <p>Verify that owners and operators of new UST systems certify in the notification form compliance with the following:</p> <ul style="list-style-type: none"> <li>- installation of tanks and piping under 40 CFR 280.20(a) (see checklist item UT.35.3)</li> <li>- cathodic protection or steel tanks and piping under 40 CFR 280.20(a) and 280.20 (b) (see checklist item UT.35.3)</li> <li>- financial responsibility under 40 CFR 280, Subpart H (when applicable)</li> <li>- release detection under 40 CFR 280.41 and 280.42.</li> </ul> <p>Verify that all owners of new USTs ensure that the installer certifies in the notification form that appropriate methods were used to install the tank and piping in compliance with the requirements of 40 CFR 280.20(d) (see checklist item UT.35.4).</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p>UT.15.3. UST systems installed after 22 December 1988 must be constructed in such a manner that they will remain structurally sound for their operating life (40 CFR 280.10(c), 280.20(a), and 280.20(b)) [Revised July 2000].</p>	<p>Verify that each UST is properly designed and constructed, and any portion underground that routinely contains product is protected from corrosion in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and the tank is constructed of one of the following materials:</p> <ul style="list-style-type: none"> <li>- fiberglass-reinforced plastic</li> <li>- steel which has cathodic protection in the following manner:               <ul style="list-style-type: none"> <li>- coated with a suitable dielectric material</li> <li>- field installed cathodic protection designed by a corrosion expert</li> <li>- impressed current systems which allow determination of current operating status as required in 40 CFR 280.31(c) (see checklist item UT.30.1)</li> <li>- cathodic protection systems are operated and maintained in accordance with 40 CFR 280.31 or according to a guideline established by the implementing agency (see checklist item UT.30.1)</li> </ul> </li> <li>- steel-fiberglass-reinforced-plastic composite</li> <li>- metal without additional corrosion protection provided that:               <ul style="list-style-type: none"> <li>- the tank is installed at a site that has been determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during the operating life of the tank</li> <li>- records are maintained for the operating life of the tank that it is in a corrosion free environment</li> <li>- tank construction and corrosion protection are determined by the implementing agency to be designed to prevent the release or threatened release of any stored regulated substance in a manner that is as protective of human health and the environment as the above criteria.</li> </ul> </li> </ul> <p>(NOTE: Piping must also meet the same criteria above. However, piping cannot be constructed of steel-fiberglass-reinforced-plastic composite.)</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>

**COMPLIANCE CATEGORY:  
UNDERGROUND STORAGE TANK (UST) MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>UT.15.4.</b> Installation of new UST systems must be certified and done according to standard practices (40 CFR 280.10(c), 280.20(d), and 280.20(e)) [Revised July 2000].</p>	<p>Determine if new UST systems have been properly installed by reviewing records for certification.</p> <p>Verify that installation of tanks and piping is done in accordance with a code of practice developed by a nationally recognized association or independent testing laboratory and in accordance with the manufacturer's instructions.</p> <p>Verify that one or more of the following methods of certification, testing, or inspection is used to demonstrate compliance:</p> <ul style="list-style-type: none"> <li>- the installer has been certified by the tank and piping manufacturer</li> <li>- the installer has been certified or licensed by the implementing agency</li> <li>- the installation has been inspected and certified by a registered professional engineer with education and experience in UST system installation</li> <li>- the installation has been inspected and approved by the implementing agency</li> <li>- all work listed in the manufacturer's installation checklists has been completed</li> <li>- the owner and operator have complied with another method for ensuring compliance that is determined by the implementing agency to be no less protective of human health and the environment..</li> </ul> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>
<p><b>UT.15.5.</b> UST systems must be made of or lined with materials compatible with the substance stored (40 CFR 280.10(c) and 280.32) [Reviewed July 2000].</p>	<p>Verify that the substances stored in UST systems are compatible with the system.</p> <p>Determine which USTs are being used to store a substance other than that for which it was originally intended.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"><li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li><li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li><li>- airport hydrant fuel distribution systems</li><li>- UST system with field-constructed tanks.)</li></ul>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.20</b></p> <p><b>METALLIC USTs</b></p> <p><b>UT.20.1.</b> Buried metallic storage tanks installed after 1973 must be protected from corrosion by coatings, cathodic protection, or other effective methods (40 CFR 112.7(e)(2)(iv)).</p>	<p>Verify that new USTs are appropriately protected from corrosion by inspecting records and interviewing personnel.</p> <p>Verify that the tanks are pressure tested regularly.</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> <li>- the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> <li>- onshore and offshore sites which, due to their location, could not be reasonably expected to discharge oil into or upon the navigable waters of the United States or adjoining shorelines</li> <li>- equipment or operations of vessels or transportation related onshore and offshore sites which are subject to the authority of the DOT.</li> </ul> </li> <li>- the facility, which although otherwise subject to USEPA jurisdiction meets both of the following criteria: <ul style="list-style-type: none"> <li>- the underground buried storage capacity of the facility is 42,000 gal or less of oil</li> <li>- the storage capacity which is not buried at the facility is 1320 gal of oil or less and no single container exceeds a capacity of 660 gal (40 CFR 112.1(d)(2)).)</li> </ul> </li> </ul>





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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.25</b></p> <p><b>UST FILLING</b></p> <p><b>UT.25.1.</b> The filling of a UST must include the prevention of overfilling and spilling of the substance (40 CFR 280.10(c) and 280.30(a)) [Revised July 2000].</p> <p><b>UT.25.2.</b> Facilities with UST systems are required to contain and immediately clean up a spill or overflow and report it to the implementing agency within 24 h in specific situations (40 CFR 280.10(c), 280.30(b), and 280.53) [Reviewed July 2000].</p>	<p>Determine if there is a problem with overfilling of USTs or spills by observing the filling operations, reviewing records, and checking the ground around the fill-lines for visible or odorous indications of contamination.</p> <p>Verify that the level of the UST is checked before a transfer is made and that the volume available in the tank is greater than the volume of the product to be transferred to the tank.</p> <p>Verify that the transfer operation is monitored constantly.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul> <p>Determine if the facility has reported, contained, and cleaned up any and all spills or overfills which met the following criteria:</p> <ul style="list-style-type: none"> <li>- spills or overfills of petroleum that resulted in a release to the environment of more than 25 gal or that caused a sheen on nearby surface water</li> <li>- spills or overfills of hazardous substances that result in a release to the environment in excess of the reportable quantity (see the Hazardous Materials Management Appendices).</li> </ul> <p>(NOTE: Spills or overfills of hazardous substances to the environment equal to or greater than the reportable quantity must be immediately reported to the National Response Center (NRC).)</p> <p>Verify that the facility has contained and immediately cleaned-up a spill or overflow of petroleum that is less than 25 gal and a spill or overflow of a hazardous substance that is less than the reportable quantity.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS:</b> SEPTEMBER 2000
	<p>Verify that, if cleanup of these lesser quantities cannot be accomplished within 24 h, or another reasonable time period established by the implementing agency, the implementing agency is notified.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"><li>- wastewater treatment tank systems</li><li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li><li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li><li>- airport hydrant fuel distribution systems</li><li>- UST system with field-constructed tanks.)</li></ul>

**COMPLIANCE CATEGORY:  
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.30</b></p> <p><b>UST CORROSION PROTECTION</b></p> <p><b>UT.30.1.</b> Steel UST systems with corrosion protection must meet specific requirements (40 CFR 280.10(c) and 280.31) [Revised July 2000].</p>	<p>Determine which steel UST systems have corrosion protection.</p> <p>Verify that the corrosion protection systems are operated and maintained to continuously provide corrosion protection to the metal components of that portion of the tank and piping that routinely contain regulated substances and are in contact with the ground.</p> <p>Verify that all UST systems equipped with cathodic protection systems are inspected for proper operation by a qualified cathodic protection tester in accordance with the following:</p> <ul style="list-style-type: none"> <li>- all cathodic protection systems are tested within 6 mo of installation and at least every 3 yr thereafter or according to another reasonable time frame established by the implementing agency</li> <li>- criteria used to determine cathodic protection is adequate is in accordance with a code of practice developed by a nationally recognized association.</li> </ul> <p>Verify that UST systems with impressed current cathodic protection are inspected every 60 days to ensure the equipment is running properly</p> <p>Verify that inspection records are maintained of the last three inspections for systems with impressed current cathodic protection and of the last two inspections for all other cathodic protection systems.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.35</b></p> <p><b>UST REPAIRS</b></p> <p><b>UT.35.1.</b> Repairs to USTs must be performed according to industry code (40 CFR 280.10(c) and 280.33) [Revised July 2000].</p>	<p>Determine if there have been any repairs by reviewing the records and interviewing personnel.</p> <p>Verify that repairs to UST systems are properly conducted in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory.</p> <p>Determine who does repairs to USTs and that the following procedures are used to repair USTs:</p> <ul style="list-style-type: none"> <li>- fiberglass reinforced plastic tanks may be repaired by the manufacturer's authorized representative or in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory</li> <li>- metal pipe fittings and sections that have leaked due to corrosion must be replaced, whereas fiberglass pipes and fittings may be repaired according to manufacturer's specifications.</li> </ul> <p>Verify that tanks and piping that have been replaced or repaired undergo tightness testing within 30 days following the date of completion of the repair.</p> <p>(NOTE: Tanks and piping need not be tested if one of the following is met:</p> <ul style="list-style-type: none"> <li>- repairs are internally inspected in accordance with a code of practice developed by a nationally recognized association or an independent testing laboratory</li> <li>- the repaired portion is already monitored monthly for releases</li> <li>- an equally protective test as determined by the implementing agency is used.)</li> </ul> <p>Verify that within 6 mo of repair, tanks with cathodic protection systems are tested as follows:</p> <ul style="list-style-type: none"> <li>- every 3 yr thereafter for all cathodic protection systems</li> <li>- every 60 days for impressed current cathodic protection systems.</li> </ul> <p>Verify that records of repairs that demonstrate compliance with these requirements are maintained for the operating life of the tank.</p>

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	<p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"><li>- wastewater treatment tank systems</li><li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li><li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li><li>- airport hydrant fuel distribution systems</li><li>- UST system with field-constructed tanks.)</li></ul>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>RELEASE DETECTION FOR USTs</b></p> <p><b>UT.40</b> General</p> <p><b>UT.40.1.</b> New and existing USTs are required to provide a method, or combination of methods of release detection (40 CFR 280.10(c), 280.10(d), 280.40(a), and 280.40(d)) [Revised January 1999, Revised July 2000].</p>	<p>Verify that owners and operators of new and existing UST systems provide a method, or combination of methods, of release detection that:</p> <ul style="list-style-type: none"> <li>- can detect a release from any portion of the tank and the connected underground piping that routinely contains product</li> <li>- is installed, calibrated, operated, and maintained in accordance with the manufacturer's instructions, including routine maintenance and service checks for operability or running condition, and</li> <li>- meets the performance requirements in 40 CFR 280.43 or 280.44, with any performance claims and their manner of determination described in writing by the equipment manufacturer or installer (see Appendix C of this document).</li> </ul> <p>Verify that methods used are capable of detecting the leak rate or quantity specified for that method with a probability of detection (Pd) of 0.95 and a probability of false alarm (PFA) of 0.05.</p> <p>Verify that existing UST systems that cannot apply a compliant method of release detection are closed in accordance with 40 CFR 280.70 through 280.74 (see checklist items UT.70.2 and UT.75.1 through UT.75.7).</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks</li> <li>- UST system that stores fuel solely for use by emergency power generators.)</li> </ul>





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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>RELEASE DETECTION FOR USTs</b></p> <p><b>UT.45 Petroleum USTs</b></p> <p><b>UT.45.1.</b> UST systems containing petroleum must meet specific release detection system requirements (40 CFR 280.10(c), 280.10(d), 280.40, 280.41, 280.43, and 280.44) [Revised July 2000].</p>	<p>Verify that tanks are monitored every 30 days using one of the following methods (details of methods are provided in Appendix 9-3):</p> <ul style="list-style-type: none"> <li>- automatic tank gauging</li> <li>- vapor monitoring</li> <li>- groundwater monitoring</li> <li>- interstitial monitoring</li> <li>- other acceptable methods.</li> </ul> <p>(NOTE: The following are exceptions:</p> <ul style="list-style-type: none"> <li>- UST systems that meet performance standards for new or upgraded systems (40 CFR 280.20 and 280.21, see checklist items UT.10.1, UT.15.1, UT.15.3, and UT.15.4) and monthly inventory requirements may use tank tightness testing at least every 5 yr until 22 December 1998 or until 10 yr after the tank is upgraded or installed, whichever is later</li> <li>- UST systems that do not meet performance standards for new or upgraded systems (40 CFR 280.20 and 280.21, see checklist items UT.10.1, UT.15.1, UT.15.3, and UT.15.4), may use monthly inventory controls and annual tank tightness testing until 22 December 1998, at which time the tank must be upgraded or permanently closed</li> <li>- tanks that hold less than 550 gal or less may use weekly tank gauging.)</li> </ul> <p>(NOTE: See Appendix 9-3 for a description of monthly monitoring requirements and tank tightness testing requirements.)</p> <p>Verify that underground piping which routinely contains a regulated substance is monitored for releases in a manner that meets one of the following requirements:</p> <ul style="list-style-type: none"> <li>- pressurized piping: <ul style="list-style-type: none"> <li>- equipped with automatic line leak detector</li> <li>- annual tightness testing or monthly monitoring.</li> </ul> </li> <li>- suction piping: <ul style="list-style-type: none"> <li>- line tightness testing every 3 yr or acceptable monthly monitoring</li> </ul> </li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<ul style="list-style-type: none"> <li>-no release detection system is needed for suction piping which is below grade and meets all of the following standards:</li> <li>-operates at less than atmospheric pressure</li> <li>-is sloped so that contents of pipe will roll back to tank when suction is released</li> <li>-only one check valve is included in each suction line</li> <li>-the check valve is located directly below and as close as practical to the suction pump.</li> </ul> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>-wastewater treatment tank systems</li> <li>-any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>-any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>-airport hydrant fuel distribution systems</li> <li>-UST system with field-constructed tanks</li> <li>-UST system that stores fuel solely for use by emergency power generators.)</li> </ul>

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<p><b>RELEASE DETECTION FOR USTs</b></p> <p><b>UT.50 Hazardous Substance USTs</b></p> <p><b>UT.50.1.</b> Hazardous substance USTs must meet specific release detection standards (40 CFR 280.10(c), 280.10(d), 280.42(b)) [Revised July 2000].</p>	<p>Verify that release detection at new hazardous substance UST systems meets all of the following requirements:</p> <ul style="list-style-type: none"> <li>- secondary containment systems are designed, constructed and installed to:</li> <li>- contain regulated substances released from the tank system until they are detected and removed</li> <li>- prevent the release of regulated substances to the environment at any time during the operational life of the UST system</li> <li>- be checked for evidence of a release at least every 30 days</li> <li>- double-walled tanks are designed, constructed, and installed to:</li> <li>- contain a release from any portion of the inner tank within the outer wall</li> <li>- detect the failure of the inner wall</li> <li>- external liners (including vaults) are designed, constructed, and installed to:</li> <li>- contain 100 percent of the capacity of the largest tank within its boundary</li> <li>- prevent the interference of precipitation or ground-water intrusion with the ability to contain or detect a release of regulated substances</li> <li>- surround the tank completely (i.e., it is capable of preventing lateral as well as vertical migration of regulated substances)</li> <li>- underground piping is equipped with secondary containment systems that are designed, constructed and installed to:</li> <li>- contain regulated substances released from the tank system until they are detected and removed</li> <li>- prevent the release of regulated substances to the environment at any time during the operational life of the UST system</li> <li>- be checked for evidence of a release at least every 30 days.</li> <li>- underground piping that conveys regulated substances under pressure is equipped with an automatic line leak detector.</li> </ul> <p>(NOTE: The provisions of 40 CFR 265.193 Containment and Detection of Releases may be used to comply with these requirements (see Hazardous Waste Management).)</p>

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<p><b>UT.50.2.</b> Existing hazardous substance USTs must have met specific release detection standards by 22 December 1998 (40 CFR 280.10(c), 280.10(d), 280.42(a)) [Revised July 2000].</p>	<p>(NOTE: Other methods of release detection may be used if owners and operators perform all of the following:</p> <ul style="list-style-type: none"> <li>- demonstrate to the implementing agency that an alternate method can detect a release of the stored substance as effectively as any of the methods allowed in 40 CFR 280.43(b) through 280.43(h) can detect a release of petroleum (see Appendix 9-3)</li> <li>- provide information to the implementing agency on effective corrective action technologies, health risks, and chemical and physical properties of the stored substance, and the characteristics of the UST site</li> <li>- obtain approval from the implementing agency to use the alternate release detection method before the installation and operation of the new UST system.)</li> </ul> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks</li> <li>- UST system that stores fuel solely for use by emergency power generators.)</li> </ul> <p>Verify that existing hazardous substance USTs met the release detection requirements for new hazardous substance USTs by 22 December 1998 (see checklist item UT.50.1).</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks</li> <li>- UST system that stores fuel solely for use by emergency power generators.)</li> </ul>

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<p><b>RELEASE DETECTION FOR USTs</b></p> <p><b>UT.55 Exempted USTs</b></p> <p><b>UT.55.1.</b> UST systems containing fuel used solely for emergency generators should meet specific release detection system requirements (MP).</p>	<p>(NOTE: The checklist items in this portion apply to the following USTs:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks</li> <li>- UST system that stores fuel solely for use by emergency power generator.)</li> </ul> <p>Verify that tanks are monitored every 30 days using the method in Appendix 9-3 except for:</p> <ul style="list-style-type: none"> <li>- UST systems which meet performance standards for new or upgraded systems and monthly inventory requirements may use tank tightness testing at least every 5 yr until 22 December 1998 or until 10 yr after the tank is upgraded or installed</li> <li>- UST systems which do not meet performance standards for new or upgraded systems may use monthly inventory controls and annual tank tightness testing until 22 December 1998, at which time the tank must be upgraded or permanently closed</li> <li>- tanks which hold less than 550 gal may use weekly tank gauging.</li> </ul> <p>Verify that underground piping, which routinely contains a regulated substance, has the following release detection done according to the methods in Appendix 9-3:</p> <ul style="list-style-type: none"> <li>- pressurized piping: <ul style="list-style-type: none"> <li>- equipped with automatic line leak detector</li> <li>- annual tightness testing or monthly monitoring.</li> </ul> </li> <li>- suction piping: <ul style="list-style-type: none"> <li>- line tightness testing every 3 yr or monthly monitoring</li> <li>- no release detection system is needed for suction piping which is below grade and: <ul style="list-style-type: none"> <li>- operates at less than atmospheric pressure</li> <li>- is sloped so that contents of pipe will roll back to tank when suction is released</li> <li>- only one check valve is included in each suction line</li> <li>- the check valve is located directly below and as close as practical to the suction pump.</li> </ul> </li> </ul> </li> </ul>



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<p><b>UT.60</b></p> <p><b>UST RELEASES</b></p> <p><b>UT.60.1.</b> Releases from UST systems are required to be reported under specific conditions (40 CFR 280.10(c), 280.40(b), and 280.50) [Revised July 2000].</p>	<p>Verify that, when a release detection method operated in accordance with the performance standards in 40 CFR 280.43 and 280.44 (see Appendix 9-3) indicates a release may have occurred, the implementing agency is notified in accordance with 40 CFR 280.50 through 280.53 (see checklist items UT.25.2, UT.60.1, UT.60.2).</p> <p>Determine if any and all releases that meet any of the following conditions were reported:</p> <ul style="list-style-type: none"> <li>- released regulated substances found at the UST site or in the surrounding area (such as the presence of free product or vapors in soils, basements, sewer and utility lines, and nearby surface waters)</li> <li>- unusual operating conditions observed such as the erratic behavior of dispensing equipment or a sudden loss of product unless it is determined the problem lies in the equipment but it is not leaking and is immediately repaired or replaced</li> <li>- monitoring results from a release detection method operated in accordance with the performance standards in 40 CFR 280.41 and 280.42 (see Appendix 9-3) indicates a possible release, unless one of the following occurs: <ul style="list-style-type: none"> <li>- the monitoring device is found to be defective, and is immediately repaired, recalibrated, or replaced, and additional monitoring does not confirm the initial result</li> <li>- in the case of inventory control, a second month of data does not confirm the initial result.</li> </ul> </li> </ul> <p>Verify that the implementing agency was notified within 24 h (or another reasonable time period specified by the implementing agency) of the release.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>UT.60.2.</b> All suspected releases of a regulated substances requiring reporting within 7 days must be investigated and confirmed unless a corrective action is started immediately as detailed in 40 CFR 280.60 through 280.67 (40 CFR 280.10(c) and 280.52) [Reviewed July 2000].</p>	<p align="center">- UST system with field-constructed tanks.)</p> <p>Verify that all suspected releases of a regulated substances requiring reporting within 7 days, or another reasonable time period specified by the implementing agency, are investigated and confirmed unless a corrective action is started immediately as detailed in 40 CFR 280.60 through 280.67 (see checklist items UT.60.3 through UT.60.7 and UT.75.8).</p> <p>Verify that confirmation is done using tightness testing to determine whether a leak is in the tank, the delivery piping, or both.</p> <p>(NOTE: If the test results for the system, tank or delivery piping indicate that a leak has occurred, repair, replacement, or upgrade actions, and corrective actions must be started.)</p> <p>(NOTE: If the test results, for the system, tank or delivery piping do not indicate a leak and environmental contamination is not the basis for suspecting a release, no further investigation is needed.)</p> <p>Verify that, if environmental contamination is the basis for suspecting a leak, and the tightness test does not indicate a leak exists, a site check is done which measures for the presence of a release in the areas where contamination is most likely to be present.</p> <p>Verify that, when selecting sample types, sample locations, and measurement methods for a site check, owners and operators consider the nature of the stored substance, the type of initial alarm or cause for suspicion, the type of backfill, the depth of groundwater, and other factors appropriate for identifying the presence and source of the release.</p> <p>(NOTE: If the test results or excavation zone or UST site indicate that a release has occurred, owners and operators must begin corrective action in accordance with 40 CFR 280.60 through 280.67 (see checklist items UT.60.3 through UT.60.7 and UT.75.8).)</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> </ul>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>UT.60.3.</b> Specific initial response actions must be performed within 24 h of a confirmed release from petroleum or hazardous substance USTs (40 CFR 280.60 and 280.61) [Reviewed July 2000].</p> <p><b>UT.60.4.</b> Specific initial abatement measures and site checks must be performed when there is a confirmed release from petroleum or hazardous substance USTs unless directed to do otherwise by the implementing agency (40 CFR 280.60 and 280.62) [Revised July 2000].</p>	<ul style="list-style-type: none"> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul> <p>Verify that all of the following initial response actions are performed within 24 h of a release from petroleum or hazardous substance USTs, or within another reasonable period of time determined by the implementing agency:</p> <ul style="list-style-type: none"> <li>- report the release to the implementing agency</li> <li>- take immediate action to prevent any further release of the regulated substance into the environment</li> <li>- identify and mitigate fire, explosion, and vapor hazards.</li> </ul> <p>(NOTE: These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements.)</p> <p>(NOTE: A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility. A release from such a UST would be handled as required under the RCRA permit's corrective action plan.)</p> <p>Verify that all of the following abatement actions are performed, unless the facility is directed to do otherwise by the implementing agency:</p> <ul style="list-style-type: none"> <li>- removal of as much of the substance as is necessary to prevent further release from the UST system</li> <li>- visual inspection of aboveground releases or exposed belowground releases is done and further migration of the released substance into surrounding soils and groundwaters is prevented</li> <li>- continued monitoring and mitigation of any fire and safety hazards caused by vapors or free product that may have migrated from the UST excavation zone and entered into subsurface structures (such as sewers or basements)</li> <li>- remedy hazards from contaminated soils that are excavated or exposed as a result of release confirmation, site investigation, abatement, or corrective action</li> <li>- measurements are done for the presence of a release where the contamination is most likely to be present unless the presence and source of the release has previously been confirmed</li> <li>- an investigation is done for the presence of free product and the removal of free product is done as soon as possible.</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>UT.60.5.</b> When there is a confirmed release from petroleum or hazardous substance UST, information about the site and nature of the release unless must be assembled unless exempted by the implementing agency (40 CFR 280.60 and 280.63) [Revised July 2000].</p>	<p>Verify that within 20 days after release confirmation, or within another reasonable period of time determined by the implementing agency, a report is submitted to the implementing agency summarizing the initial abatement steps and any resulting information or data.</p> <p>(NOTE: These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements.)</p> <p>(NOTE: A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility. A release from such a UST would be handled as required under the RCRA permit's corrective action plan.)</p> <p>Verify that, unless otherwise directed to do so by the implementing agency, owners and operators assemble information about the site and the nature of the release, including information gained while confirming the release or completing initial abatement measures.</p> <p>Verify that, specifically, this information includes but is not limited to:</p> <ul style="list-style-type: none"> <li>- data on the nature and estimated quantities of the release</li> <li>- data from available sources and/or site investigations concerning surrounding populations, water quality, use and approximate locations of wells potentially affected, subsurface soil conditions, locations of subsurface sewers, climatological conditions, and land use</li> <li>- results of site check</li> <li>- results of free product investigation.</li> </ul> <p>Verify that within 45 days of the release confirmation, or another reasonable period of time determined by the implementing agency, this information is submitted to the implementing agency in a manner which demonstrates its applicability and technical adequacy, or in a format required by the implementing agency.</p> <p>(NOTE: These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements.)</p> <p>(NOTE: A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility. A release from such a UST would be handled as required under the RCRA permit's corrective action plan.)</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>UT.60.6.</b> When there is a confirmed release from petroleum or hazardous substance UST and site investigations have indicated free product, the free product must be removed to the maximum extent possible as required by the implementing agency (40 CFR 280.60 and 280.64) <b>[Revised July 2000].</b></p>	<p>Determine if there are any release sites where free product has been confirmed.</p> <p>Verify that the free product is removed to the maximum extent practicable as determined by the implementing agency while continuing initial response measures, initial abatement measures and site checks, site investigations, and preparing for investigations for soil and groundwater cleanup and the development of the corrective action plan.</p> <p>Verify that free product removal is done so that the spread of contamination into previously uncontaminated zones is minimized by using recovery and disposal techniques appropriate to the hydrogeologic conditions at the site, and that properly treats, discharges, or disposes of recovery byproducts in compliance with applicable regulations.</p> <p>Verify that the abatement of free product migrations is used as a minimum objective for the design of the free product removal system and any flammable products are handled in a safe and competent manner to prevent fires or explosions.</p> <p>Verify that, unless directed otherwise by the implementing agency, within 45 days after confirming a release, a free product removal report is submitted to the implementing agency that includes at least the following:</p> <ul style="list-style-type: none"> <li>-the name of the person responsible for implementing the free product removal measures</li> <li>-the estimated quantity, type, and thickness of free product observed or measured in wells, boreholes, and excavations</li> <li>-the type of free product recovery system used</li> <li>-whether there will be any on-site or off-site discharges during the recovery operation and where this discharge will be located</li> <li>-the type of treatment applied to, and the effluent quality exempted from, any discharge</li> <li>-the steps that have been or are being taken to obtain any required permits for any discharge</li> <li>-the disposition of the recovered free product.</li> </ul> <p>(NOTE: These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements.)</p>

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<p><b>UT.60.7.</b> When there is a confirmed release from petroleum or hazardous substance USTs, an investigation for soil and groundwater contamination is required to be performed (40 CFR 280.60 and 280.65) [Revised July 2000].</p>	<p>(NOTE: A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility. A release from such a UST would be handled as required under the RCRA permit's corrective action plan.)</p> <p>Verify that an investigation of the release, the release site, and possibly affected surrounding areas has been done and identified if any of the following conditions exists:</p> <ul style="list-style-type: none"> <li>-evidence that groundwater wells have been affected by the release</li> <li>-free product is found to need recovery</li> <li>-evidence that contaminated soil is in contact with groundwater</li> <li>-the implementing agency requests an investigation based on the potential effects of contaminated soil or groundwater on nearby surface water and groundwater resources.</li> </ul> <p>Verify that the results of the investigation are submitted to the implementing agency as soon as practicable, or according to a time schedule defined by the implementing agency.</p> <p>(NOTE: These requirements do not apply to excluded USTs (see the definitions) or USTs exempted under the RCRA Subtitle C Section 3004(u) corrective action requirements.)</p> <p>(NOTE: A RCRA Subtitle C, Section 3004(u) UST is a UST holding a hazardous material at a RCRA Subtitle C permitted facility. A release from such a UST would be handled as required under the RCRA permit's corrective action plan.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p>UT.65</p> <p><b>DEFERRED USTs</b></p> <p><b>UT.65.1.</b> Deferred UST systems (see definition) are required to meet specific standards (40 CFR 280.10(c) and 280.11) [Revised January 1999].</p>	<p>Verify that deferred UST systems (whether single or double-walled) are not installed to store regulated substances unless:</p> <ul style="list-style-type: none"> <li>- releases due to corrosion or structural failure will be prevented for the operational life of the system</li> <li>- they are cathodically protected against corrosion, constructed of non-corrodible materials, steel clad with a noncorroding material, or designed to prevent release</li> <li>- they are constructed or lined with material that is compatible with the stored substance.</li> </ul> <p>(NOTE: UST sites without corrosion protection may be installed at a site that is determined by a corrosion expert not to be corrosive enough to cause it to have a release due to corrosion during its operating life. Records pertaining to this deferral must be kept for the life of the tank.)</p> <p>Verify that deferred systems meet the standards concerning release response and action for USTs containing petroleum or a hazardous substance found in 40 CFR 280.60 through 280.67 (see checklist items UT.60.2 through UT.60.7).</p> <p>(NOTE: The following types of USTs are deferred USTs:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>



**COMPLIANCE CATEGORY:  
UNDERGROUND STORAGE TANK (UST) MANAGEMENT  
Fish and Wildlife Service**

**REGULATORY REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**UT.70**

**UST DOCUMENTATION**

**UT.70.1.** Specific reporting requirements are required to be met in relation to USTs (40 CFR 280.10(c) and 280.34(a)) **[March 1995, Reviewed July 2000].**

Verify that the following has been submitted to the implementing agency when applicable:

- notifications of new USTs, including certification of installation
- release reports, including suspected releases, spills and overfills
- planned or complete corrective actions, including: initial abatement measures, initial site characterization, free product removal, investigation of soil and groundwater cleanup, and the corrective action plan
- notice of permanent closure or change in service.

(NOTE: The following types of USTs are not subject to these requirements:

- wastewater treatment tank systems
- any UST systems containing radioactive material that are regulated under the *Atomic Energy Act* of 1954
- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A
- airport hydrant fuel distribution systems
- UST system with field-constructed tanks.)

**UT.70.2.** Specific recordkeeping requirements must be met in relation to USTs (40 CFR 280.10(c), 280.34(b), 280.34(c), 280.45, and 280.74) **[March 1995, Revised July 2000].**

Verify that records are kept of the following:

- a corrosion expert's analysis of site corrosion potential if corrosion protection equipment is not used
- documentation of operation of corrosion protection equipment
- documentation of UST system repairs
- recent compliance with release detection requirements
- results of any site investigations at permanent closure
- demonstration of compliance with closure requirements.

Verify that records are available at one of the following:

- at the UST site and immediately available for inspection
- at a readily available alternative site and provided for inspection upon request.

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>(NOTE: In relation to permanent closure records, owners and operators have the additional alternative of mailing closure records to the implementing agency if they cannot be kept at the site or an alternative site.)</p> <p>Verify that records relating to release detection are kept as follows:</p> <ul style="list-style-type: none"> <li>- all written performance claims pertaining to any release detection system used, and the manner in which these claims have been justified or tested by the equipment manufacturer or installer, for 5 yr, or another reasonable period of time determined by the implementing agency, from the date of installation</li> <li>- the results of any sampling, testing, or monitoring for 1 yr, or another reasonable period of time determined by the implementing agency, except the tank tightness results conducted in accordance with 40 CFR 280.43(c) are kept until the next tank tightness test</li> <li>- written documentation of all calibration, maintenance, repair of release detection equipment permanently located on-site at least 1 yr after the servicing work is done, or another reasonable period of time determined by the implementing agency,</li> <li>- schedules of required calibration and maintenance provided by the release detection equipment manufacturer, for 5 yr after the date of installation.</li> </ul> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.75</b></p> <p><b>CHANGES-IN-SERVICE OR CLOSURE OF USTs</b></p> <p><b>UT.75.1.</b> USTs which are put out of service temporarily must have continued maintenance (40 CFR 280.10 (c) and 280.70) [Revised July 2000].</p>	<p>Determine if there are any temporarily closed USTs.</p> <p>Verify that proper operation and maintenance is being performed for the following:</p> <ul style="list-style-type: none"> <li>- corrosion protection in accordance with 40 CFR 280.31 (see checklist item UT.30.1)</li> <li>- release detection in accordance with 40 CFR 280.40 through 280.45 (see checklist items UT.40.1, UT.45.1, UT.50.1, UT.50.2, UT.60.1, and UT.70.2).</li> </ul> <p>(NOTE: 40 CFR 280.50 through 280.53 (see checklist items UT.25.2, UT.60.1, UT.60.2) and 40 CFR 280.60 through 280.67 (see checklist items UT.60.3 through UT.60.7 and UT.75.8) must be complied with if a release is suspected or confirmed.)</p> <p>(NOTE: If the UST is empty, release detection is not required.)</p> <p>(NOTE: An empty UST is one which has no more than 2.5 cm (1 in.) of residue or less than 0.3 percent by weight of total capacity of the UST system.)</p> <p>Verify that, if a UST system is temporarily closed for 3 mo or more, the vent lines are open and functioning and all other lines, pumps, manways, and ancillary equipment are capped and secured.</p> <p>Verify that, if the UST has been temporarily closed for more than 12 mo, the UST must be permanently closed if the UST does not meet the standards for a new UST in 40 CFR 280.20, or an upgraded UST in 40 CFR 280.21 (see checklist items UT.10.1, UT.15.1, UT.15.3, and UT.15.4) except that spill and overfill requirements do not have to be met.</p> <p>Verify that, if the UST has been temporarily closed for more than 12 mo and does not meet the standards for new or upgraded USTs, it is permanently closed at the end of this 12 mo period in accordance with 40 CFR 280.71 through 280.74 (see checklist items UT.70.2 and UT.75.1 through UT.75.7 ) unless the implementing agency has provided an extension of the 12 mo temporary closure period.</p>

**COMPLIANCE CATEGORY:  
UNDERGROUND STORAGE TANK (UST) MANAGEMENT  
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.75.2.</b> Notification must be given to the implementing agency for any closure or change in service 30 days in advance or within a reasonable time frame as determined by the implementing agency (40 CFR 280.10(c) and 280.71(a)) [Revised July 2000].</p>	<p>(NOTE: A site assessment has to be done before applying for an extension.)</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul> <p>Determine if there are plans to permanently close or make a change in service to any USTs.</p> <p>Verify that the implementing agency was notified of intent to permanently closure or make the change-in-service at least 30 days, or within a reasonable time frame as determined by the implementing agency, before start of the activity unless the activity is in response to corrective action.</p> <p>Verify that the required assessment of the excavation zone is done after notifying the implementing agency but before completion of the permanent closure or change-in-service.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p>UT.75.3. UST closure must be done according to specific requirements (40 CFR 280.10(c) and 280.71 (b)) [Revised July 2000].</p>	<p>Verify that tanks being permanently closed are emptied and cleaned by removing all liquids and accumulated sludges.</p> <p>Verify that, if USTs have been, or are being, permanently closed, one of the following methods is used:</p> <ul style="list-style-type: none"> <li>-it is removed from the ground</li> <li>-it is left in place with the contents removed, and filled with an inert solid material.</li> </ul> <p>Determine if there are any possible abandoned USTs, and if there are plans to close the UST in an appropriate manner.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>-wastewater treatment tank systems</li> <li>-any UST systems containing radioactive material that are regulated under the Atomic Energy Act of 1954</li> <li>-any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>-airport hydrant fuel distribution systems</li> <li>-UST system with field-constructed tanks.)</li> </ul>
<p>UT.75.4. Prior to a change-in-service, tanks must be emptied and cleaned and a site assessment conducted (40 CFR 280.10(c) and 280.71(c)) [Revised July 2000].</p>	<p>(NOTE: Continued use of an UST system to store a non-regulated substances is considered a change-in-service.)</p> <p>Verify that, prior to the change, the tank was emptied and cleaned by removing all liquid and accumulated sludge.</p> <p>Verify that, prior to the change, a site assessment in accordance with 40 CFR 280.72 (see checklist item UT.75.5) was done.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>-wastewater treatment tank systems</li> <li>-any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>-any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>-airport hydrant fuel distribution systems</li> <li>-UST system with field-constructed tanks.)</li> </ul>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>UT.75.5.</b> Prior to permanent closure or change-in-service, measurements must be made for the presence of a release where contamination is most likely to be present at the site (40 CFR 280.10(c) and 280.72) [Revised July 2000].</p>	<p>Verify that prior to permanent closure or change in service, measurements for the presence of a release are done where contamination is most likely to be present at the UST site.</p> <p>Verify that in selecting sample types, sample locations, and measurement methods, owners and operators have considered the method of closure, the nature of the stored substances, the type of backfill, the depth to groundwater, and other appropriate factors for identifying the presence of a release.</p> <p>(NOTE: These requirements are met if one of the leak detection methods outlined in 40 CFR 280.43(e) (vapor monitoring) and 280.43(f) (groundwater monitoring) (see Appendix 9-3) are in operation at the time of closure and there is no indication of release.)</p> <p>Verify that in the event contaminated soils, contaminated groundwater or free product is discovered, corrective action is undertaken in accordance with 40 CFR 280.60 through 280.67 (see checklist items UT.60.3 through UT.60.7 and UT.75.8).</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>
<p><b>UT.75.6.</b> The excavation zone of UST systems closed prior to 22 December 1988 must be assessed and the UST closed according to current standards (40 CFR 280.10(c) and 280.73) [Revised July 2000].</p>	<p>Determine if there are any USTs which were closed prior to 22 December 1988.</p> <p>Verify that the excavation zone of these USTs has been assessed and cleanup done as needed when directed to do so by the implementing agency.</p> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>UT.75.7.</b> Excavation zone assessment records shall be maintained for 3 yr (40 CFR 280.10(c) and 280.74) [Revised July 2000].</p>	<ul style="list-style-type: none"> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul> <p>Verify that records demonstrating compliance with closure requirements are maintained</p> <p>Verify that results of excavation zone assessments are maintained for at least 3 yr after completion of permanent closure or change-in-service in one of the following ways:</p> <ul style="list-style-type: none"> <li>- by the owners and operators who took the UST out of service</li> <li>- by the current owners and operators of the UST system site</li> <li>- by mailing the records to the implementing agency if they cannot be maintained at the closed facility.</li> </ul> <p>(NOTE: The following types of USTs are not subject to these requirements:</p> <ul style="list-style-type: none"> <li>- wastewater treatment tank systems</li> <li>- any UST systems containing radioactive material that are regulated under the <i>Atomic Energy Act</i> of 1954</li> <li>- any UST system that is a part of an emergency generator system at nuclear power generation facilities regulated by the Nuclear Regulatory Commission under 10 CFR 50, Appendix A</li> <li>- airport hydrant fuel distribution systems</li> <li>- UST system with field-constructed tanks.)</li> </ul>
<p><b>UT.75.8.</b> In specific situations, a corrective action plan is required (40 CFR 280.66 and 280.67) [Added July 2000].</p>	<p>Determine if, after reviewing the information submitted for site characterization, free product removal, and soil/groundwater cleanup, the implementing agency has required the owner and operators to submit additional information or to develop and submit a corrective action plan for responding to contaminated soils and ground water.</p> <p>Verify that, if a plan is required, it is submitted according to a schedule and format established by the implementing agency.</p> <p>(NOTE: Alternatively, owners and operators may, after fulfilling the requirements for site characterization, free product removal, and soil/groundwater cleanup, choose to submit a corrective action plan for responding to contaminated soil and ground water.)</p> <p>Verify that the plan provides for adequate protection of human health and the environment as determined by the implementing agency.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
	<p>(NOTE: The implementing agency will approve the corrective action plan only after ensuring that implementation of the plan will adequately protect human health, safety, and the environment.)</p> <p>Verify that the approved plan is implemented, and the owners and operators monitor, evaluate, and report the results of implementing the plan in accordance with a schedule and in a format established by the implementing agency.</p> <p>(NOTE: Owners and operators may, in the interest of minimizing environmental contamination and promoting more effective cleanup, begin cleanup of soil and ground water before the corrective action plan is approved provided that they do all of the following:</p> <ul style="list-style-type: none"> <li>- notify the implementing agency of their intention to begin cleanup</li> <li>- comply with any conditions imposed by the implementing agency, including halting cleanup or mitigating adverse consequences from cleanup activities</li> <li>- incorporate these self-initiated cleanup measures in the corrective action plan that is submitted to the implementing agency for approval.)</li> </ul> <p>(NOTE: For each confirmed release that requires a corrective action plan, the implementing agency must provide notice to the public by means designed to reach those members of the public directly affected by the release and the planned corrective action. This notice may include, but is not limited to, public notice in local newspapers, block advertisements, public service announcements, publication in a state register, letters to individual households, or personal contacts by field staff. The implementing agency must ensure that site release information and decisions concerning the corrective action plan are made available to the public for inspection upon request.)</p>

## Appendix 9-1

### UST Applicability Guide

Type of UST	Applicable CFR Citation	Checklist #'s
Underground Storage Tanks as defined in 40 CFR 280.12 (see definitions)	40 CFR 280	all
Excluded USTs (see definitions)	none	UT.55.1
Deferred USTs (see definitions)	40 CFR 280.11	UT.65.1
USTs storing fuel for emergency generators	40 CFR 280.20 through 280.22	UT.10, UT.15.1 through UT.15.4
	280.30 through 280.34	UT.15.5, UT.25.1, UT.25.2, UT.30.1, UT.35.1, UT.70.1, UT.70.2
	280.50 through 280.53	UT.25.2, UT.60.1, UT.60.2
	280.60 through 280.67	UT.60.3 through UT.60.7
	280.70 through 270.74	UT.70.2, UT.75.1 through UT.75.7





**Appendix 9-2**

**Schedule for Phase-In of Release Detection  
[Deleted January 1999]**



### Appendix 9-3

#### Release Detection Requirements for USTs and Underground Piping (40 CFR 280.41 through 280.43)

##### A. UST Options (see NOTE for additional guidance)

1. **Inventory control:** Product inventory control must be conducted monthly to detect a release of at least 1.0 percent of flow-through plus 130 gal on a monthly basis in the following manner:
  - i. inventory volume measurements for regulated substance inputs, withdrawals, and the amount still remaining in the tank are recorded each operating day
  - ii. the equipment used is capable of measuring the level of product over the full range of the tanks height to the nearest one-eighth of an inch
  - iii. the regulated substance inputs are reconciled with delivery receipts by measurements of the tank inventory volume before and after delivery
  - iv. deliveries made through a drop tube that extends to within one foot of the tank bottom
  - v. product dispensing is metered and recorded within the local standards of product withdrawn
  - vi. the measurement of any water level in the bottom of the tank is made to the nearest one-eighth of an inch at least once a month.
2. **Manual gauging:** Manual tank gauging must meet the following requirements:
  - i. tank liquid level measurements are taken at the beginning and end of a period of at least 36 h during which no liquid is added to or removed from the tank
  - ii. level measurements are based on an average of two consecutive stick readings at both the beginning and end of the period
  - iii. the equipment used is capable of measuring the level of product over the full range of the tank's height to the nearest one-eighth of an inch
  - iv. a leak is suspected and subject to the requirements of subpart E which include release reporting and investigation if the variation between beginning and ending measurements exceeds the weekly or monthly standards of Table A below
  - v. only tanks of 550 gal or less nominal capacity may use this as a sole method of release detection. Tanks of 551 to 2000 gal may also use inventory control (see paragraph 1 in this appendix). Tanks of greater than 2000 gal nominal capacity may not use this method to meet release detection requirements.

Table A

Nominal Tank Capacity	Weekly Standard (one test)	Monthly Standard (average of four)
550 gal or less	10 gal	5 gal
551-1000 gal	13 gal	7 gal
1001-2000 gal	26 gal	13 gal

- 3. Tank tightness testing:** Tank tightness testing must be capable of detecting a 0.1 gal/h leak rate from any portion of the tank that routinely contains product while accounting for the effects of thermal expansion or contraction of the product, vapor pockets, tank deformation, evaporation or condensation, and the location of the water table.
- 4. Tank automatic gauging:** Equipment for automatic tank gauging that tests for the loss of product and conducts inventory control; must meet the following requirements:
  - i. the automatic product level monitor test can detect a 0.2 gal/h leak rate from any portion of the tank that routinely contains product
  - ii. inventory control is conducted according to requirements (see para 1 above).
- 5. Vapor monitoring:** Testing or monitoring for vapors within the soil gas of the excavation zone must meet the following requirements:
  - i. the materials used as backfill are sufficiently porous (e.g., gravel, sand, crushed rock) to easily allow diffusion of vapors from releases into the excavation area
  - ii. the stored regulated substance, or a tracer compound placed in the tank system, is sufficiently volatile (e.g., gasoline) to result in a vapor level that is detectable by the monitoring devices located in the excavation zone in the event of a release from the tank
  - iii. the measurement of vapors by the monitoring device is not rendered inoperative by the groundwater, rainfall, or soil moisture or other unknown interferences so that a release could go undetected for more than 30 days
  - iv. the level of background contamination in the excavation zone will not interfere with the method used to detect releases from the tank
  - v. the vapor monitors are designed and operated to detect any significant increase in concentration above background of the regulated substance stored in the tank system, a component or components of that substance, or a tracer compound placed in the tank system
  - vi. in the UST excavation zone, the site is assessed to ensure compliance with the requirements of paragraph 5 subparagraph i through iv above and to establish the number and positioning of monitor wells that will detect any releases within the excavation zone from any portion of the tank that routinely contains product
  - vii. monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.
- 6. Groundwater monitoring:** Testing or monitoring for liquids in the groundwater must meet the following requirements:
  - i. the regulated substance stored is immiscible in water and has a specific gravity of less than one
  - ii. groundwater is never more than 20 ft from the ground surface and the hydraulic conductivity of the soil(s) between the UST system and the monitoring wells or devices is not less than 0.01 cm/s (e.g., the soil should consist of gravels, coarse to medium sands, coarse silts, or other permeable materials
  - iii. the slotted portion of the monitoring well casing must be designed to prevent migration of natural soils or filter pack into the well and to allow entry of regulated substance on the water table into the well under both high and low groundwater conditions
  - iv. monitoring wells should be sealed from the ground surface to the top of the filter pack
  - v. monitoring wells or devices intercept the excavation zone or are as close to it as is technically feasible
  - vi. the continuous monitoring devices or manual methods used can detect the presence of at least one-eighth of an inch of free product on top of the groundwater in the monitoring wells
  - vii. within and immediately below the UST system excavation zone, the site is assessed to ensure compliance with the requirements of paragraphs 6 i-v above and to establish

the number and positioning of monitoring wells or devices that will detect releases from any portion of the tank that routinely contains product

- viii. monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.
- 7. Interstitial monitoring:** Interstitial monitoring between the UST system and a secondary barrier immediately around or beneath it may be used, but only if the system is designed, constructed and installed to detect a leak from any portion of the tank that routinely contains product and also meets one of the following requirements:
- i. for double-walled systems, the sampling or testing method can detect a release through the inner wall in any portion of the tank that routinely contains product
  - ii. for UST systems with a secondary barrier within the excavation zone, the sampling or testing method used can detect a release between the UST system and the secondary barrier
    - a. the secondary barrier around or beneath the UST system consists of artificially constructed material that is sufficiently thick and impermeable (at least  $10^{-6}$  cm/s for the regulated substance stored) to direct a release to the monitoring point and permit its detection
    - b. the barrier is compatible with the regulated substance stored so that a release from the UST system will not cause a deterioration of the barrier allowing a release to pass through undetected
    - c. for cathodically protected tanks, the secondary barrier must be installed so that it does not interfere with the proper operation of the cathodic protection system
    - d. the groundwater, soil moisture, or rainfall will not render the testing or sampling method used inoperative so that a release could go undetected for more than 30 days
    - e. the site is assessed to ensure that the secondary barrier is always above the groundwater and not in a 25 yr flood plain, unless the barrier and monitoring designs are for use under such conditions
    - f. monitoring wells are clearly marked and secured to avoid unauthorized access and tampering.
  - iii. for tanks with an internally fitted liner, an automated device can detect a release between the inner wall of the tank and the liner. The liner is compatible with the substance stored.
- 8. Other methods:** Any other type of release detection method, or combination of methods, can be used if:
- i. it can detect a 0.2 gal/h leak rate or a release of 150 gal within a month with a probability of detection of 0.95 and a probability of false alarm of 0.05
  - ii. the implementing agency may approve another method, if it can be demonstrated that this method can detect releases as effectively as the methods listed in this appendix

(NOTE: The following are alternatives on the above listings for UST release detection options:

1. USTs meeting the requirements in 40 CFR 280.20 for new tanks (see checklist items UT.15.1 through UT.15.4) and the monthly inventory requirements in A1 and A2 above can use tank tightness testing as outlined in A3 at least every 5 yr until 22 December 1998, or until 10 yr after the tank is installed or upgraded under 40 CFR 280.21(b) (see checklist item UT.10.1).
2. USTs that do not meet the standards of 40 CFR 280.20 or 280.21 (see checklist items UT.10.1 through UT.15.4) may use monthly inventory as outlined in A1 or A2 and annual tank tightness testing done according to A3 until 22 December 1998 when the tank must be upgraded or permanently closed.
3. USTs with a capacity of 550 gal or less may use weekly tank gauging done according to A2.)

#### B. Underground Piping Options

1. **Automatic line detectors:** Methods that alert the operator to the presence of a leak by restricting or shutting off the flow of regulated substances through piping, or triggering an audible or visual alarm may be used only if they detect leaks of 3 gal/h at 10 lb/in.<sup>2</sup> line pressure within 1 h. An annual test of the operation of the leak detector must be conducted in accordance with the manufacturer's requirements.
2. **Line tightness testing:** A periodic test of piping may be conducted only if it can detect a 0.1 gal/h leak one and one-half times the operating pressure.
3. **Applicable tank methods:** The methods outlined in A5 through A8 may be used if they are designed to detect a release from any portion of the underground piping that routinely contains regulated substances.

(NOTE: The following is additional information on the above listings for underground piping release detection options:

1. Pressurized piping must meet both of the following:
  - a. be equipped with an automatic line leak detector as outlined in B1
  - b. have an annual line tightness test done according to B2 or have monthly monitoring done in accordance with B3.
2. Underground suction piping must either have a line tightness test done according to B2 at least every 3 yr or use a monthly monitoring method in accordance with B3. No release detection is required for suction piping that is designed and constructed to meet the following standards:
  - a. the belowgrade piping operates at less than atmospheric pressure
  - b. the belowgrade piping is sloped so that the contents of the pipe will drain back into the storage tank if the suction is released
  - c. only one check valve is included in each suction line
  - d. the check valve is located directly below and as close as practical to the suction pump
  - e. a method is provided that allows compliance with these standards to be readily determined.)

## SECTION 10

### WASTEWATER MANAGEMENT

U. S. ECAH, September 2000

#### A. Applicability

This section includes regulations, responsibilities, and compliance requirements associated with wastewater discharge at FWS facilities. Wastewater discharge can include any of the following:

1. Sanitary wastewater discharge directly to a receiving stream, or through an FWS treatment facility.
2. Sanitary or industrial wastewater discharge to a publicly owned treatment works (POTW) or other non-FWS facility.
3. Stormwater runoff from operational areas of the facility to a receiving stream or water body.
4. Industrial or storm wastewater drained to an industrial waste reservoir.

Most FWS facilities have wastewater discharge of one kind or another; therefore, this section will be applicable to most facilities.

#### B. Federal Legislation

- *The Federal Water Pollution Control Act.* This act, commonly known as the *Clean Water Act* (CWA), as amended 4 February 1987, 33 U.S. Code (USC) 1251-1387, Public Law (PL) 100-4, governs the control of water pollution in the nation. The objective of the act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Federal agencies are required to comply with all Federal, state, interstate, and local water pollution control requirements both substantively and procedurally (33 USC 1323(a)).
- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards.* This EO of 13 October 1978 requires Federally owned and operated facilities to comply with applicable Federal, state, and local pollution control standards. It makes the head of each executive agency responsible for seeing to it that the agencies, facilities, programs, and activities the agency funds meet applicable Federal, state, and local environmental requirements or to correct situations that are not in compliance with such requirements. In addition, the EO requires that each agency ensure that sufficient funds for environmental compliance are included in the agency budget.
- Federal regulations used to develop the checklist include:
  - EO 12088, *Federal Compliance with Pollution Control Standards.*
  - 40 CFR 122, *EPA Administered Permit Programs: The National Pollutant Discharge Elimination System.*
  - 40 CFR 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants.*
  - 40 CFR 403, *General Pretreatment Standards for New and Existing Sources.*
  - 40 CFR 503, *Standards for the Use or Disposal of Sewage Sludge.*

### **C. State/Local Regulations**

States normally have wastewater discharge legislation and regulations which require permitting similar to the National Pollution Discharge Elimination System (NPDES) program. The state is often delegated authority to administer the NPDES permits for discharges in their state. These permits are often joint permits issued pursuant to both Federal CWA and state legislation. In some cases, the state will not administer the NPDES program and will issue a state permit even though a NPDES permit has been issued by the U.S. Environmental Protection Agency (USEPA). The states and the USEPA normally cooperate in the permit issuance process to insure that the two permits are consistent, but there may be differences in monitoring requirements and the number of pollutants limited. These requirements normally do not conflict, but may require additional sampling and dual reporting.

States also have more stringent requirements for wastewater treatment plant operations. Many states have sewage treatment plant (STP) operator licensing and certification programs which require that an operator pass an exam and have a required amount of experience.

Local entities (counties, cities) may also have enforceable wastewater discharge limitations which regulate discharges to a POTW. Local limitations often include pH, temperature, and concentrations of various organic and inorganic compounds. Major industrial operations which discharge to an offsite POTW will be subjected to pretreatment permits issued by the POTW, state, or USEPA as appropriate.

### **D. FWS/DOI Manuals**

No applicable manuals final as of the publication of this handbook.

### **E. Key Compliance Requirements**

- NPDES Permits - Facilities with point source discharges and/or treatment works treating domestic sewage are required to have a Federal NPDES permit if located in states without a USEPA approved NPDES permit program. Facilities that are dischargers of stormwater associated with an industrial activity are required to apply for an individual permit, apply for a permit through a group application, or seek coverage under a promulgated stormwater general permit. Facilities must meet the sampling requirements stipulated by NPDES permits (40 CFR 122.1(b)(3) and 122.26(c)).
- Treatment Works - Facilities must not discharge into a treatment works any pollutant that would cause pass through or interference. Facilities shall not introduce pollutants into a treatment works that create a fire or explosion hazard, cause corrosive structural damage, have a pH below 5.0, or are solid or viscous enough to cause obstructions. Facilities are required to notify the treatment works immediately of any discharge, including any slug loadings, that could cause problems to the treatment works (40 CFR 403.5 and 403.12(f)).
- Operation and Maintenance of a Treatment Works - Treatment plant supervisors are required to maintain operating logs and records that are posted daily and are neat and legible. Treatment plants are required to be operated in accordance with all design parameters (40 CFR 403.12(f)).



- **Land Application of Sludge** - 40 CFR 503 details the pollutant concentrations, cumulative loading rates, and other restrictions pertinent to the land application of sludge that is generated during the treatment of domestic sludge in a treatment works.
- **Surface Disposal of Sewage Sludge** - The operation, management, monitoring, and closure requirements for units used for the surface disposal of sewage sludge are outlined in 40 CFR 503.20 through 503.28.
- **Incineration of Sewage Sludge** - Facilities with incinerators that fire sewage sludge must meet specific emissions standards for beryllium emissions, mercury emissions, and hydrocarbons. The incinerators are required to have continuous monitoring devices for hydrocarbons and oxygen in the exit gas, and continuous monitoring for combustion temperature as specified by the permitting authority. Assorted reports are required to be submitted and records kept (40 CFR 503.40 through 503.48).
- **Recordkeeping** - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### **F. Key Compliance Definitions**

- **Active Sewage Sludge Unit** - a sewage sludge unit that has not closed (40 CFR 503.21(a)).
- **Aerobic Digestion** - the biochemical decomposition of organic matter in sewage sludge into CO<sub>2</sub> and water by microorganisms in the presence of air (40 CFR 503.31(a)).
- **Agricultural Land** - land on which a food crop, a feed crop, or a fiber crop is grown. This includes range land and land used as pasture (40 CFR 503.11(a)).
- **Agronomic Rate** - the whole sludge application rate (dry weight basis) designed (40 CFR 503.11(b)):
  1. To provide the amount of nitrogen needed by the food crop, feed crop, fiber crop, cover crop, or vegetation grown on the land.
  2. To minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the groundwater.
- **Air Pollution Control Device** - one or more processes used to treat the exit gas from a sewage sludge incinerator stack (40 CFR 503.41(a)).
- **Anaerobic Digestion** - the biochemical decomposition of organic matter in sewage sludge into methane gas and CO<sub>2</sub> by microorganisms in the absence of air (40 CFR 503.31(b)).
- **Annual Pollutant Loading Rate** - the maximum amount of a pollutant that can be applied to a unit area of land during a 365-day period (40 CFR 503.11(c)).
- **Annual Whole Sludge Application Rate** - the maximum amount of sewage sludge (dry weight basis) that can be applied to a unit area of land during a 365 day period (40 CFR 503.11(d)).
- **Apply Sewage Sludge or Sewage Sludge Applied To The Land** - means land application of sewage sludge (40 CFR 503.9(a)).

- *Aquifer* - a geologic formation, group of geologic formations, or a portion of a geologic formation capable of yielding groundwater to wells or springs (40 CFR 503.21(b)).
- *Auxiliary Fuel* - fuel used to augment the fuel value of sewage sludge. This includes, but is not limited to, natural gas, fuel oil, coal, gas generated during anaerobic digestion of sewage sludge, and municipal solid waste (not to exceed 30 percent of the dry weight of sewage sludge and auxiliary fuel together). Hazardous wastes are not auxiliary fuel (40 CFR 503.41(b)).
- *Base Flood* - a flood that has a 1 percent chance of occurring in any given year (i.e., a flood with a magnitude equaled once in 100 yr) (40 CFR 503.9(b)).
- *Bulk Sewage Sludge* - sewage sludge that is not sold or given away in a bag or other container for application to the land (40 CFR 503.11(e)).
- *Class 1 Sludge Management Facility* - any POTW, as defined in 40 CFR 501.2, required to have an approved pretreatment program under 40 CFR 403.8(a) (including any POTW located in a state that has elected to assume local program responsibilities pursuant to 40 CFR 403.10(e)) and any treatment works treating domestic sewage, as defined in 40 CFR 122.2, classified as a Class 1 sludge management facility by the USEPA Regional Administrator, or, in the case of approved state programs, the Regional Administrator in conjunction with the state Director, because of the potential for its sewage sludge use or disposal practice to affect public health and the environment adversely.
- *Class A Sludge* - when one of the following method is used, it is considered Class A with respect to pathogens (40 CFR 503.32(a)(3)):
  - **Alternative 1.** Either the density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number/gram (MPN/g) of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in the sewage sludge shall be less than 3 MPN/4 g of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

The temperature of the sewage sludge that is used or disposed shall be maintained at a specific value for a period of time. When the percent solids of the sewage sludge is 7 percent or higher, the temperature of the sewage sludge shall be 50 °C [122 °F] or higher; the time period shall be 20 min or longer; and the temperature and time period shall be determined using the following equation, except when small particles of sewage sludge are heated by either warmed gases or an immiscible liquid.

$$D = \frac{131,700,000}{10^{0.1400t}} \quad \text{Eq. (2)}$$

Where, D = time in days. t = temperature in °C.

When the percent solids of the sewage sludge is 7 percent or higher and small particles of sewage sludge are heated by either warmed gases or an immiscible liquid, the temperature of the sewage sludge shall be 50 °C [122 °F] or higher; the time period shall be 15 s or longer; and the temperature and time period shall be determined using the above equation.

When the percent solids of the sewage sludge is less than 7 percent and the time period is at least 15 s, but less than 30 min, the temperature and time period shall be determined using the above equation.

When the percent solids of the sewage sludge is less than 7 percent; the temperature of the sewage sludge is 50 °C [122 °F] or higher; and the time period is 30 min or longer, the temperature and time period shall be determined using the below equation.

$$D = \frac{50,070,000}{10^{0.1400t}} \quad \text{Eq. (3)}$$

Where, D = time in days. t = temperature in °C.

- **Alternative 2.** Either the density of fecal coliform in the sewage sludge is less than 1000 MPN/g of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in the sewage sludge shall be less than 3 MPN/4 g of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

The pH of the sewage sludge that is used or disposed shall be raised to above 12 and shall remain above 12 for 72 h.

The temperature of the sewage sludge shall be above 52 °C [125.6 °F] for 12 h or longer during the period that the pH of the sewage sludge is above 12.

At the end of the 72 h period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.

- **Alternative 3.** Either the density of fecal coliform in the sewage sludge shall be less than 1000 MPN/g of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in sewage sludge shall be less than 3 MPN/4 g of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses.

When the density of enteric viruses in the sewage sludge prior to pathogen treatment is less than one Plaque-forming Unit per 4 g of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses until the next monitoring episode for the sewage sludge.

When the density of enteric viruses in the sewage sludge prior to pathogen treatment is equal to or greater than one Plaque-forming Unit per 4 g of total solids (dry weight basis), the sewage sludge is Class A with respect to enteric viruses when the density of enteric viruses in the sewage sludge after pathogen treatment is less than one Plaque-forming Unit

per 4 g of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the enteric virus density requirement are documented.

After the enteric virus reduction is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to enteric viruses when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented.

The sewage sludge shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains viable helminth ova.

When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is less than 1 per 4 g of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova until the next monitoring episode for the sewage sludge.

When the density of viable helminth ova in the sewage sludge prior to pathogen treatment is equal to or greater than 1 per 4 g of total solids (dry weight basis), the sewage sludge is Class A with respect to viable helminth ova when the density of viable helminth ova in the sewage sludge after pathogen treatment is less than 1 per 4 g of total solids (dry weight basis) and when the values or ranges of values for the operating parameters for the pathogen treatment process that produces the sewage sludge that meets the viable helminth ova density requirement are documented.

After the viable helminth ova reduction is demonstrated for the pathogen treatment process, the sewage sludge continues to be Class A with respect to viable helminth ova when the values for the pathogen treatment process operating parameters are consistent with the values or ranges of values documented.

- **Alternative 4.** Either the density of fecal coliform in the sewage sludge shall be less than 1000 MPN/g of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in the sewage sludge shall be less than 3 MPN/4 g of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per 4 g of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f), unless otherwise specified by the permitting authority.

The density of viable helminth ova in the sewage sludge shall be less than 1 per 4 g of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or give away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f), unless otherwise specified by the permitting authority.

- **Alternative 5.** Either the density of fecal coliform in the sewage sludge shall be less than 1000 MPN/g of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in the sewage sludge shall be less than 3 MPN/4 g of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

Sewage sludge that is used or disposed shall be treated in one of the Processes to Further Reduce Pathogens described in Appendix B of 40 CFR 503.

- **Alternative 6.** Either the density of fecal coliform in the sewage sludge shall be less than 1000 MPN/g of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in the sewage sludge shall be less than 3 MPN/4 g of total solids (dry weight basis) at the time the sewage sludge is used or disposed; at the time the sewage sludge is prepared for sale or given away in a bag or other container for application to the land; or at the time the sewage sludge or material derived from sewage sludge is prepared to meet the requirements in 40 CFR 503.10(b), 503.10(c), 503.10(e), or 503.10(f).

Sewage sludge that is used or disposed shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens, as determined by the permitting authority.

- **Class B Sludge** - when one of the following methods is used, it is considered Class B with respect to pathogens (40 CFR 503.32(b)(2)) **[Revised April 2000]**:
  1. Alternative 1: Seven samples of the sewage sludge that is used or disposed shall be collected. The geometric mean of the density of fecal coliform in the samples must be less than either 2 million MPN/g of total solids (dry weight basis) or 2 million colony forming units/g (CFU/g) of total solids (dry weight basis).
  2. Alternative 2: Sewage sludge that is used or disposed shall be treated in one of the processes to significantly reduce pathogens described in appendix B of 40 CFR 503.
  3. Alternative 3: Sewage sludge that is used or disposed is treated in a process that is equivalent to a process to significantly reduce pathogens, as determined by the permitting authority.
- **Co-Permittee** - a permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator (40 CFR 122.26(b)(1)) **[Added April 2000]**.
- **Contaminate an Aquifer** - to introduce a substance that causes the maximum contaminant level for nitrate in 40 CFR 141.62(b) to be exceeded in the ground water or that causes the existing concentration of nitrate in ground water to increase when the existing concentration of nitrate in the ground water exceeds the maximum contaminant level for nitrate in 40 CFR 141.62(b) (40 CFR 503.21) **[Revised April 2000]**.
- **Contaminated Groundwater** - water below the land surface in the zone of saturation which has been contaminated by activities associated with waste disposal (40 CFR 445.2(a)) **[Added July 2000]**.
- **Contaminated Stormwater** - stormwater which comes in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater. Some specific areas of a landfill that may produce contaminated stormwater include (but are not limited to): the open face of an active landfill with exposed waste (no cover added); the areas around wastewater treatment operations;

trucks, equipment, or machinery that has been in direct contact with the waste; and waste dumping areas (40 CFR 445.2(b)) **[Added July 2000]**.

- *Continuous Discharge* - a discharge which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities (40 CFR 123.3).
- *Control Efficiency* - the mass of a pollutant in the sewage sludge fed to an incinerator minus the mass of that pollutant in the exit gas from the incinerator stack divided by the mass of the pollutant in the sewage sludge fed to the incinerator (40 CFR 503.41(c)).
- *Cover* - soil or other material used to cover sewage sludge placed on an active sewage sludge unit (40 CFR 503.21(d)).
- *Cover Crop* - a small grain crop, such as oats, wheat, or barley, not grown for harvest (40 CFR 503.9(d)).
- *Cumulative Pollutant Loading Rate* - the maximum amount of an inorganic pollutant that can be applied to an area of land (40 CFR 503.11(f)).
- *Daily Discharge* - the discharge of a pollutant measured during a calendar day or any 24-h period that reasonably represents the calendar day for purposes of sampling (40 CFR 122.2).
- *Density Of Microorganisms* - the number of microorganisms per unit mass of total solids (dry weight) in the sewage sludge (40 CFR 503.31(c)).
- *Direct Discharge* - the discharge of a pollutant (40 CFR 122.2).
- *Discharge of Pollutant* - the addition of any pollutant to navigable waters from any point source and any addition of any pollutant to the waters of the contiguous zone or the ocean zone or the ocean from any point source, other than from a vessel or other floating craft (40 CFR 401.11(h)).
- *Dispersion Factor* - the ratio of the increase in the ground level ambient air concentration for a pollutant at or beyond the property line of the site where the sewage sludge incinerator is located to the mass emission rate for the pollutant from the incinerator stack (40 CFR 503.41(d)).
- *Displacement* - the relative movement of any two sides of a fault measured in any direction (40 CFR 503.21(e)).
- *Domestic Septage* - either liquid or solid material removed from a septic tank, cesspool, portable toilet, Type III marine sanitation device, or similar treatment works that receives only domestic sewage. Domestic septage does not include liquid or solid material removed from a septic tank, cesspool, or similar treatment works that receive either commercial wastewater or industrial wastewater and does not include grease removed from a grease trap at a restaurant (40 CFR 257.2).
- *Domestic Sewage* - waste and wastewater from humans or household operations that is discharged to or otherwise enters a treatment works (40 CFR 503.9(g)).

- *Effluent Limitations* - any restriction established by the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources, other than new sources, into navigable waters, the waters of the contiguous zone, or the ocean (40 CFR 401.11(i)).
- *Environmentally Sensitive Area* - an area of environmental importance which is in or adjacent to navigable waters (49 CFR 194.5).
- *Excluded Sludge* - The following are types of sludge and activities which are exempted from meeting the requirements outlined in 40 CFR 503:
  1. Processes used to treat domestic sewage or processes used to treat sewage sludge prior to final use except for the standards on pathogen and vector reduction in 40 CFR 503.32 and 503.33.
  2. Sewage sludge co-fired in an incinerator with other wastes or for the incinerator in which sewage sludge and other waste are co-fired.
  3. Sludge generated at an industrial facility during the treatment of industrial wastewater, including sewage sludge generated during the treatment of industrial wastewater combined with domestic sewage.
  4. Sewage sludge determined to be hazardous.
  5. Sewage sludge with a concentration of PCBs equal to greater than 50 mg/kg of total solids (dry weight basis).
  6. Ash generated during the firing of sewage sludge in a sewage sludge incinerator.
  7. Grit (i.e., sand, gravel, cinders, or other material with high specific gravity) or screenings (e.g., relatively large materials such as rags) generated during preliminary treatment of domestic sewage in a treatment works.
  8. Sludge generated during the treatment of either surface water or ground water used for drinking water.
  9. Commercial septage, industrial septage, a mixture of domestic septage and commercial septage, or a mixture of domestic septage and industrial septage (40 CFR 503.6).
- *Fault* - a fracture or zone of fractures in any materials along which strata on one side are displaced with respect to strata on the other side (40 CFR 503.21(f)).
- *Feed Crops* - crops produced primarily for consumption by animals (40 CFR 503.9(j)).
- *Feedlot* - a concentrated, confined animal or poultry growing operation for meat, milk, or egg production, or stabling in pens or houses wherein the animals or poultry are fed at the place of confinement and crop or forage growth or production is not sustained in the area of confinement (40 CFR 412.11(b)).
- *Fiber Crops* - crops such as flax and cotton (40 CFR 503.9(k)).
- *Final Cover* - the last layer of soil or other material placed on a sewage sludge unit at closure (40 CFR 503.21(g)).
- *Fluidized Bed Incinerator* - an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles suspended in the combustion chamber gas (40 CFR 503.41(e)).
- *Forest* - a tract of land thick with trees and underbrush (40 CFR 503.11(g)).

- *Holocene Time* - the most recent epoch of the Quaternary period, extending from the end of the Pleistocene epoch to the present (40 CFR 503.21(h)).
- *Hourly Average* - the arithmetic mean of all measurements, taken during 1 h. At least two measurements must be taken during the hour (40 CFR 503.41(f)).
- *Illicit Discharge* - any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities (40 CFR 122.26(b)(2)) **[Added April 2000]**.
- *Incorporated Place* - the District of Columbia, or a city, town, township, or village that is incorporated under the laws of the state in which it is located (40 CFR 122.26(b)(3)) **[Added April 2000]**.
- *Incineration* - the combustion of organic matter and inorganic matter in sewage sludge by high temperatures in an enclosed device (40 CFR 503.41(g)).
- *Indirect Discharge* - the introduction of pollutants into a POTW from any nondomestic source regulated under section 307(b), (c), or (d) of the act (40 CFR 403.3(g)).
- *Industrial Activities* - in relation to stormwater runoff, industrial activities include (40 CFR 122.26(b)(14)(i) through 122.26(b)(14)(xi)) **[Revised April 2000]**:
  1. Facilities subject to stormwater effluent limitations guidelines, new source performance standards under 40 CFR subchapter N.
  2. Facilities classified as Standard Industrial Classification (SIC) 24 (except 2434), 26 (except 265 and 267), 28 (except 283), 29, 311, 32 (except 323), 35, 344, 373.
  3. Facilities classified as SICs 10 through 14 (mineral industry) including active or inactive mining operations and oil and gas explorations, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate product, finished products, by-products or waste products located on the site of such operations.
  4. Hazardous waste treatment, storage, or disposal facilities (TSDFs), including those that are operating under interim status or a permit under Resource Conservation and Recovery Act (RCRA), Subpart C.
  5. Landfills, land application sites, and open dumps that receive or have received industrial wastes, including those sites that are subject to Federal regulation.
  6. Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but not limited to those classified as SICs 5015 and 5093.
  7. Steam electric power generating facilities, including coal handling sites.
  8. Transportation facilities classified as SICs 40, 41, 42 (except 4221-25, 43, 44, 45, and 5171) which have vehicle maintenance shops, equipment cleaning operations, or airport de-icing operations.
  9. Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludges that are located within the confines of the facility with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program. Not included are farmlands, domestic gardens, or lands used for sludge management where sludge is beneficially reused



and which are not physically located in the confines of the facility, or areas that are in compliance with section 405 of the CWA.

10. Construction activity including clearing, grading and excavation, except operations that result in the disturbance of less than 5 acres of total land area. Construction activity also includes the disturbance of less than 5 acres of total land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb 5 acres or more.
11. Facilities under SICs 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-25.

- *Industrial User* - a source of indirect discharge (40 CFR 403.3(h)).
- *Industrial Wastewater* - wastewater generated in a commercial or industrial process (40 CFR 503.9(n)).
- *Interference* - a discharge which, alone or in conjunction with one or more discharges from other sources inhibits or disrupts the POTW and causes a violation of any requirement of the POTW's NPDES permit (40 CFR 403.3(i)).
- *Job Shop* - a facility which owns not more than 50 percent (annual area basis) of the materials undergoing metal finishing (40 CFR 433.11).
- *Land Application* - the spraying or spreading of sewage sludge onto the land surface; the injection of sewage sludge below the land surface; or the incorporation of sewage sludge into the soil so that the sewage sludge can either condition the soil or fertilize crops or vegetation grown in the soil (40 CFR 503.11(h)).
- *Land With a High Potential For Public Exposure* - land that the public uses frequently. This includes, but is not limited to, a public contact site and a reclamation site located in a populated area (e.g., a construction site located in a city) (40 CFR 503.31(d)).
- *Land With a Low Potential For Public Exposure* - land the public uses infrequently. This includes, but is not limited to, agricultural land, forest, and a reclamation site located in an unpopulated area (e.g., a strip mine located in a rural area) (40 CFR 503.31(e)).
- *Landfill Unit* - an area of land or an excavation in which wastes are placed for permanent disposal, that is not a land application or land treatment unit, surface impoundment, underground injection well, waste pile, salt dome formation, a salt bed formation, an underground mine, or a cave as these terms are defined in 40 CFR 257.2, 258.2 and 264.10 (40 CFR 445.2(e)) **[Added July 2000]**.
- *Large Municipal Separate Storm Sewer System* - all municipal separate storm sewers that are either (40 CFR 122.26(b)(4)) **[Added April 2000]**:
  1. Located in an incorporated place with a population of 250,000 or more as determined by the 1990 Decennial Census by the Bureau of Census (Table 1 of Appendix 10-0).
  2. Located in the counties listed in Table 3 of Appendix 10-0, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties.
  3. Owned or operated by a municipality other than those described in paragraph 1 or 2 of this definition and that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the

designated storm sewer and the discharges from municipal separate storm sewers described under paragraph 1 or 2 of this definition. In making this determination, the Director may consider the following factors:

- a. Physical interconnections between the municipal separate storm sewers.
  - b. The location of discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in paragraph 1 of this definition.
  - c. The quantity and nature of pollutants discharged to waters of the United States.
  - d. The nature of the receiving waters.
  - e. Other relevant factors.
4. The Director may, upon petition, designate as a large municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region defined by a stormwater management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraphs 1, 2, or 3 of this definition.

- *Landfill Wastewater* - all wastewater associated with, or produced by, landfilling activities except for sanitary wastewater, non-contaminated storm water, contaminated groundwater, and wastewater from recovery pumping wells. Landfill wastewater includes, but is not limited to, leachate, gas collection condensate, drained free liquids, laboratory derived wastewater, contaminated stormwater and contact washwater from washing truck, equipment, and railcar exteriors and surface areas which have come in direct contact with solid waste at the landfill facility (40 CFR 445.2(f)) **[Added July 2000]**.

- *Large Municipal Separate Storm Sewer System* - all municipal separate storm sewers that are either (40 CFR 122.26(b)(4)) **[Added July 2000]**:

1. Located in an incorporated place with a population of 250,000 or more as determined by the 1990 Decennial Census by the Bureau of Census (Table 1 of Appendix 12-0).
2. Located in the counties listed in Table 3 of Appendix 12-0, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties.
3. Owned or operated by a municipality other than those described in paragraph 1 or 2 of this definition and that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the designated storm sewer and the discharges from municipal separate storm sewers described under paragraph 1 or 2 of this definition. In making this determination, the Director may consider the following factors:
  - a. Physical interconnections between the municipal separate storm sewers.
  - b. The location of discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in paragraph 1 of this definition.
  - c. The quantity and nature of pollutants discharged to waters of the United States.
  - d. The nature of the receiving waters.
  - e. Other relevant factors.
4. The Director may, upon petition, designate as a large municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region defined by a stormwater management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraphs 1, 2, or 3 of this definition.

- *Leachate Collection System* - a system or device installed immediately above a liner that is designed, constructed, maintained, and operated to collect and remove leachate from a sewage sludge unit (40 CFR 503.21(i)).
- *Liner* - soil or synthetic material that has a hydraulic conductivity of  $1 \times 10^{-7}$  cm/s [ $3 \times 10^{-8}$  in./s] or less (40 CFR 503.21(j)).
- *Lower Explosive Limit For Methane Gas* - the lowest percentage of methane gas in air, by volume, that propagates a flame at 25 °C [77 °F] and atmospheric pressure (40 CFR 503.21(k)).
- *Major Municipal Separate Storm Sewer Outfall* - a municipal separate storm sewer outfall that discharges from a single pipe with an inside diameter of 36 in. or more or its equivalent (discharge from a single conveyance other than circular pipe which is associated with a drainage area of more than 50 acres); or for municipal separate storm sewers that receive storm water from lands zoned for industrial activity (based on comprehensive zoning plans or the equivalent), an outfall that discharges from a single pipe with an inside diameter of 12 in. or more or from its equivalent (discharge from other than a circular pipe associated with a drainage area of 2 acres or more). (40 CFR 122.26(b)(5)) [Added April 2000].
- *Major Outfall* - a major municipal separate storm sewer outfall (40 CFR 122.26(b)(6)) [Added April 2000].
- *Management Practices (MPs)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *Medium Municipal Separate Storm Sewer System* - all municipal separate storm sewers that are either (40 CFR 122.26(b)(7)) [Added September 2000]:
  1. Located in an incorporated place with a population of 100,000 or more but less than 250,000, as determined by the 1990 Decennial Census by the Bureau of Census (see Table 2 of Appendix 10-0)).
  2. Located in the counties listed in Table 4 of Appendix 10-0, except municipal separate storm sewers that are located in the incorporated places, townships, or towns within such counties.
  3. Owned or operated by a municipality other than those described in paragraphs 1 or 2 of the definition for Large Municipal Separate Storm Sewer System and that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the designated storm sewer and the discharges from municipal separate storm sewers described under paragraphs 1 or 2 of the definition for *Large Municipal Separate Storm Sewer System*. In making this determination the Director may consider the following factors:
    - a. Physical interconnections between the municipal separate storm sewers.
    - b. The location of discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in paragraph 1 of this definition.
    - c. The quantity and nature of pollutants discharged to waters of the United States.
    - d. The nature of the receiving waters.
    - e. Other relevant factors.
  4. The Director may, upon petition, designate as a medium municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraphs 1, 2, or 3 of this definition.

- *Monthly Average (Incineration of Sewage Sludge)* - the arithmetic mean of the hourly averages for the hours a sewage sludge incinerator operates during the month (40 CFR 503.41(h)).
- *Monthly Average (Land Application of Sewage Sludge)* - the arithmetic mean of all measurements taken during the month (40 CFR 503.11(i)).
- *Municipal Separate Storm Sewer* - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) (40 CFR 122.26(b)(8)) **[Added April 2000]**:
  1. Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under state law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.
  2. Designed or used for collecting or conveying stormwater.
  3. Which is not a combined sewer.
  4. Which is not part of a POTW as defined at 40 CFR 122.2.
- *Municipality* - a city, town, borough, county, parish, district, association, or other public body (including an intermunicipal Agency of two or more of the foregoing entities: created by or under state law; an Indian tribe or an authorized Indian tribal organization having jurisdiction over sewage sludge management; or a designated and approved management Agency under section 208 of the CWA, as amended). The definition includes a special district created under State law, such as a water district, sewer district, sanitary district, utility district, drainage district, or similar entity, or an integrated waste management facility as defined in section 201(e) of the CWA, as amended, that has as one of its principal responsibilities the treatment, transport, use, or disposal of sewage sludge (40 CFR 503.9(o)).
- *National Pretreatment Standard* - any regulation containing pollutant discharge limits promulgated by the USEPA (40 CFR 403.3(j)).
- *Navigable Waters* - all navigable waters of the United States, tributaries of navigable waters of the United States, interstate waters, intrastate lakes, rivers, and streams which are utilized by interstate travelers for rivers, and streams which are utilized by interstate travelers for recreational or other purposes, intrastate lakes, rivers, and streams from which fish or shellfish are taken and sold in interstate commerce and intrastate lakes, rivers, and streams which are utilized for industrial purposes by industries in interstate commerce. Navigable waterways do not include prior converted cropland (40 CFR 401.11(l)).
- *New Source* - in relation to NPDES permits, any building, structure, facility, or installation from which there is or may be a discharge of pollutants the construction of which commenced (40 CFR 122.2 and 122.29(b)):
  1. After promulgation of standards of performance under section 306 of CWA which are applicable to such sources.
  2. After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal.

The following are the criteria for new source determination:

1. It is constructed at a site at which no other source is located.
  2. It totally replaces the process or production equipment that causes the discharge of pollutants at an existing sources.
  3. Its processes are substantially independent of an existing source at the same site.
- *New Source* - any building, structure, facility, or installation from where there is or may be the discharge of pollutants, the construction of which is commenced after the publication of proposed regulations prescribing a standards of performance under section 306 of the CWA, which will be applicable to such source as such standards is thereafter promulgated in accordance with section 306 of the act (40 CFR 401.11(e)).
  - *No Exposure* - all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product (40 CFR 122.26(g)) [Added April 2000].
  - *Non-contaminated Stormwater* - stormwater which does not come in direct contact with landfill wastes, the waste handling and treatment areas, or landfill wastewater. Non-contaminated stormwater includes storm water which flows off the cap, cover, intermediate cover, daily cover, and/or final cover of the landfill (40 CFR 445.2(g)) [Added July 2000].
  - *NPDES Permit* - a permit granted by USEPA to a direct discharger which permits wastewater discharge to a watercourse in accordance with the conditions of the permit (40 CFR 403.3(l)).
  - *Offsite* - outside the boundaries of a facility (40 CFR 445.2(h)) [Added July 2000].
  - *Onsite* - within the boundaries of a facility (40 CFR 445.2(i)) [Added July 2000].
  - *Open Lot* - pens or similar confinement areas with dirt, concrete (or paved or hard) surface wherein animals or poultry are substantially or entirely exposed to the outside environment except for possible small portions affording some protection by windbreaks, small shed-type shade areas (40 CFR 412.11(f)).
  - *Other Container* - either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of 1 metric ton (1.1 short tons) or less (40 CFR 503.11(j)).
  - *Outfall* - a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States(40 CFR 122.26(b)(9)) [Added April 2000].
  - *Overburden* - any material of any nature, consolidated or unconsolidated, that overlies a mineral deposit, excluding topsoil or similar naturally-occurring surface materials that are not disturbed by mining operations (40 CFR 122.26(b)(10)) [Added April 2000].
  - *pH* - the logarithm of the reciprocal of the hydrogen ion concentration (40 CFR 503.31(g)).

- *Pass Through* - a discharge which exits the POTW into waters in quantities or concentrations which, alone or in conjunction with one or more discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (40 CFR 403.3(n)).
- *Pasture* - land on which animals feed directly on feed crops such as legumes, grasses, grain stubble, or stover (40 CFR 503.11(k)).
- *Pathogenic Organisms* - disease-causing organisms. These include, but are not limited to, certain bacteria, protozoa, viruses, and viable helminth ova (40 CFR 503.31(f)).
- *Person* - an individual, association, partnership, corporation, municipality, state or Federal agency, or an agent or employee thereof (40 CFR 503.9(q)).
- *Person Who Prepares Sewage Sludge* - either the person who generates sewage sludge during the treatment of domestic sewage in a treatment works or the person who derives a material from sewage sludge (40 CFR 503.9(r)).
- *Place Sewage Sludge or Sewage Sludge Placed* - means disposal of sewage sludge on a surface disposal site (40 CFR 503.9(s)).
- *Point Source* - any discernible confined and discrete conveyance including but not limited to a pipe, ditch, channel, or conduit from which pollutants are or may be discharged (40 CFR 401.11(d)).
- *Pretreatment* - the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW (40 CFR 403.3(q)).
- *Process Generated Wastewater* - in relation to feedlots, this is water directly or indirectly used in the operation of a feedlot for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing pens, barns, manure pits, or other feedlot facilities; direct contact swimming, washing, or spray cooling of animals; and dust control (40 CFR 412.11(d)).
- *Process Wastewater* - any water which during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, or waste product (40 CFR 401.44(q)).
- *Process Wastewater for Feedlots* - any process generated wastewater and any precipitation (rain or snow) which comes into contact with any manure, litter, or bedding, or any other raw material or intermediate or final material or product used in or resulting from the production of animals or poultry or direct production (40 CFR 412.11(c)).
- *Public Contact Site* - land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses (40 CFR 503.11(l)).
- *Public Service* - the provision of landfill waste disposal services to individual members of the general public, publicly owned organizations (schools, universities, government agencies, municipalities) and not-for-profit organizations for which the landfill does not receive a fee or other remuneration (40 CFR 445.2(j)) **[Added July 2000]:**
  1. A landfill located on the same site as industrial or commercial operations.

2. A landfill not located on the same site as the industrial or commercial operations (offsite), but "wholly-owned" by the industrial or commercial facility and primarily dedicated to receiving waste from the related industrial or commercial facility.

- *Publicly Owned Treatment Works (POTW)* - a treatment works which is owned by the state or a municipality. This includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes, and other conveyances only if they convey waste to a POTW (40 CFR 403.3(o)).
- *Qualified Groundwater Scientist* - an individual with a baccalaureate or post-graduate degree in the natural sciences or engineering who has sufficient training and experience in groundwater hydrology and related fields, as may be demonstrated by state registration, professional certification, or completion of accredited university programs, to make sound professional judgments regarding groundwater monitoring, pollutant fate and transport, and corrective action (40 CFR 503.21(l)).
- *Range Land* - open land with indigenous vegetation (40 CFR 503.11(m)).
- *Reclamation Site* - drastically disturbed land that is reclaimed using sewage sludge. This includes, but is not limited to, strip mines and construction sites (40 CFR 503.11(n)).
- *Regulated Parameters* - for 40 CFR 445, numbered (P) and listed with approved methods of analysis in Table 1B at 40 CFR 136.3, these are defined as follows (40 CFR 445.2(k)) **[Added July 2000]**:
  1. Ammonia (as N) means ammonia reported as nitrogen. P4
  2. BOD<sub>5</sub> means 5-day biochemical oxygen demand. P9
  3. Arsenic means total arsenic. P6
  4. Chromium means total chromium. P19
  5. Zinc means total zinc. P75.
- *Regulated Parameters* - for 40 CFR 445, numbered (P) and listed with approved methods of analysis in Table 1C at 40 CFR 136.3, are as follows (40 CFR 445.2(l)) **[Added July 2000]**:
  1. Naphthalene. P68
  2. Phenol. P85.
- *Regulated Parameters* - for 40 CFR 445 listed with approved methods of analysis in the attachments to Methods 625 and 1625B in Appendix A at 40 CFR 136 are as follows (40 CFR 445.2(m)) **[Added July 2000]**:
  1. Aniline.
  2. Benzoic acid.
  3. p-Cresol.
  4. Pyridine.
  5. α-Terpineol.
- *Risk Specific Concentration* - the allowable increase in the average daily ground level ambient air concentration for a pollutant from the incineration of sewage sludge at or beyond the property line of the site where the sewage sludge incinerator is located (40 CFR 503.41(i)).
- *Runoff* - rainwater, leachate, or other liquid that drains overland on any part of a land surface and runs off of the land surface (40 CFR 503.9(v)).

- *Runoff Coefficient* - the fraction of total rainfall that will appear at a conveyance as runoff (40 CFR 122.26(b)(11)) [Added April 2000].
- *Seismic Impact Zone* - an area that has a 10 percent or greater probability that the horizontal ground level acceleration of the rock in the area exceeds 0.10 gravity once in 250 yr (40 CFR 503.21(m)).
- *Sewage Sludge* - solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in a treatment works. Sewage sludge includes, but is not limited to, domestic septage, scum or solids removed in primary, secondary, or advanced wastewater treatment processes; and a material derived from sewage sludge. Sewage sludge does not include ash generated during the firing of sewage sludges in a sewage sludge incinerator or grit and screenings generated during preliminary treatment of domestic sewage in a treatment works (40 CFR 257.2).
- *Sewage Sludge Feed Rate* - either the average daily amount of sewage sludge fired in all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located for the number of days in a 365-day period that each sewage sludge incinerator operates, or the average daily design capacity for all sewage sludge incinerators within the property line of the site where the sewage sludge incinerators are located (40 CFR 503.41(j)).
- *Sewage Sludge Incinerator* - an enclosed device in which only sewage sludge and auxiliary fuel are fired (40 CFR 503.41(k)).
- *Sewage Sludge Unit* - land on which only sewage sludge is placed for final disposal. This does not include land on which sewage sludge is either stored or treated. Land does not include waters of the United States, as defined in 40 CFR 122.2 (40 CFR 503.21(n)).
- *Sewage Sludge Unit Boundary* - the outermost perimeter of an active sewage sludge unit (40 CFR 503.21(o)).
- *Significant Materials* - this includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with storm water discharges(40 CFR 122.26(b)(12)) [Added April 2000].
- *Sludge-Only Facility* - any "treatment works treating domestic sewage" whose methods of sewage sludge use or disposal are subject to regulations promulgated pursuant to section 405(d) of the CWA and is required to obtain a permit under Sec. 122.1(b)(2) (40 CFR 122.2) [Added September 2000].
- *Small Municipal Separate Storm Sewer System (MS4)* - all separate storm sewers that are (40 CFR 122.26(b)(16)) [Added April 2000]:
  1. Owned or operated by the United States, a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to state law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.



2. Not defined as "large" or "medium" municipal separate storm sewer systems.
3. This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

A small MS4 is regulated under the NPDES storm water program when it is (40 CFR 122.32(a)):

1. Operated by Federal, state, tribal, and local governments, including state departments of transportation.
2. Located in an urbanized area as determined by the latest Decennial Census by the Bureau of the Census. (If the small MS4 is not located entirely within an urbanized area, only the portion that is within the urbanized area is regulated.)
3. Designated by the NPDES permitting authority or is based upon a petition.

A small MS4 may receive a waiver of permit coverage if it serves a population of less than 1,000 within the urbanized area and the following criteria are met (40 CFR 122.32(d)):

1. The system is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES stormwater program.
2. For discharges of any pollutants that have been identified as a cause of impairment of any water body to which the system discharges, storm water controls are not needed based on wasteload allocations that are part of a USEPA-approved or established TMDL that addresses the pollutants of concern.

A small MS4 may receive a waiver of permit coverage if it serves a population of less than 10,000 and the following criteria are met (40 CFR 122.32(e)):

1. The permitting authority has evaluated all waters of the United States, including small streams, tributaries, lakes, and ponds, that receive a discharge from the MS4.
2. For all such waters, the permitting authority has determined that stormwater controls are not needed based on wasteload allocations that are part of a USEPA approved or established TMDL that addresses the pollutants of concern or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutants of concern (NOTE: The pollutants of concern include BOD, sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the MS4.).
3. The permitting authority has determined that future discharges from the MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

- **Small MS4** - a small municipal separate storm sewer system (40 CFR 122.26(b)(17) [Added April 2000]).
- **Specific Oxygen Uptake Rate (SOUR)** - the mass of oxygen consumed per unit time per unit mass of total solids (dry weight basis) in the sewage sludge (40 CFR 503.31(h)).
- **Stack Height** - the difference between the elevation of the top of a sewage sludge incinerator stack and the elevation of the ground at the base of the stack when the difference is equal to or less than 65 m [213.25 ft]. When the difference is greater than 65 m [213.25 ft], stack height is the creditable stack height determined in accordance with 40 CFR 51.100(ii) (40 CFR 503.41(l)).

- *Store or Storage Of Sewage Sludge* - the placement of sewage sludge on land on which the sewage sludge remains for 2 yr or less. This does not include the placement of sewage sludge on land for treatment (40 CFR 503.9(y)).
- *Stormwater* - stormwater runoff, snow melt runoff, and surface runoff and drainage (40 CFR 122.26(b)(7)) [Added April 2000].
- *Stormwater Discharge Associated With an Industrial Activity* -the discharge from any conveyance that is used for collecting and conveying stormwater and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under this 40 CFR 122. For the categories of industries identified in 40 CFR 122.26, the term includes, but is not limited to, stormwater discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 CFR 40); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. For the purposes of this definition, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with stormwater drained from the above described areas. Industrial facilities (including industrial facilities that are federally, state, or municipally owned or operated that meet the description of the facilities listed in the definition of *Industrial Activities*) include those facilities designated under the provisions of 40 CFR 122.26(a)(1)(v) (40 CFR 122.26(b)(14)) [Revised April 2000].
- *Stormwater Discharge Associated With Small Construction Activity* - the discharge of stormwater from (40 CFR 122.26(b)(15)) [Added April 2000]:
  1. Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than 1 acre and less than 5 acres. Small construction activity also includes the disturbance of less than 1 acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than 1 and less than 5 acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. The Director may waive the otherwise applicable requirements in a general permit for a stormwater discharge from construction activities that disturb less than 5 acres where:
    - a. The value of the rainfall erosivity factor ("R" in the Revised Universal Soil Loss Equation) is less than five during the period of construction activity. The rainfall erosivity factor is determined in accordance with Chapter 2 of Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE), pages 21-64, dated January 1997. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C 552(a) and 1 CFR part 51. Copies may be obtained from EPA's Water Resource Center, Mail Code RC4100, 401 M St. S.W., Washington, DC 20460. A copy is also available for inspection at the U.S. EPA Water Docket , 401 M Street S.W., Washington, DC 20460, or the Office of the Federal Register, 800 N. Capitol Street N.W. Suite 700, Washington, DC. An operator must certify to the

Director that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five.

- b. Stormwater controls are not needed based on a total maximum daily load (TMDL) approved or established by USEPA that addresses the pollutants of concern or, for non-impaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction sites for the pollutants of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The pollutants of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the Director that the construction activity will take place, and storm water discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis.

2. Any other construction activity designated by the Director or, in states with approved NPDES programs, either the Director or the USEPA Regional Administrator, based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

- *Surface Disposal Site* - an area of land that contains one or more active sewage sludge units (40 CFR 503.21(p)).
- *Total Hydrocarbons* - the organic compounds in the exit gas from a sewage sludge incinerator stack measured using a flame ionization detection instrument referenced to propane (40 CFR 503.41(m)).
- *Total Solids* - the materials in sewage sludge that remain as residue when the sewage sludge is dried at 103 to 105 °C [217.4 to 221 °F] (40 CFR 503.31(i)).
- *Treat or Treatment Of Sewage Sludge* - the preparation of sewage sludge for final use or disposal. This includes, but is not limited to, thickening, stabilization, and dewatering of sewage sludge. This does not include storage of sewage sludge (40 CFR 503.9(z)).
- *Treatment Works* - either a federally owned, publicly owned, or privately owned device or system used to treat (including recycle and reclaim) either domestic sewage or a combination of domestic sewage and industrial waste of a liquid nature (40 CFR 503.9(aa)).
- *Uncontrolled Sanitary Landfill* - a landfill or open dump, whether in operation or closed, that does not meet the requirements for runoff or runoff controls established pursuant to subtitle D of the Solid Waste Disposal Act (40 CFR 122.26(b)(20)) [Added April 2000].
- *Unstabilized Solids* - organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process (40 CFR 503.31(j)).
- *Unstable Area* - land subject to natural or human-induced forces that may damage the structural components of an active sewage sludge unit. This includes, but is not limited to, land on which the soils are subject to mass movement (40 CFR 503.21(q)).
- *Vector Attraction* - the characteristic of sewage sludge that attracts rodents, flies, mosquitoes, or other organisms capable of transporting infectious agents (40 CFR 503.31(k)).

- *Vector Attraction Reduction Options* - the following are vector attraction reduction options (40 CFR 503.33(b)) [Added April 2000]:
  1. Mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent (see calculation procedures in "Environmental Regulations and Technology--Control of Pathogens and Vector Attraction in Sewage Sludge", EPA-625/R-92/013, 1992, U.S. Environmental Protection Agency, Cincinnati, Ohio 45268).
  2. When the 38 percent volatile solids reduction requirement in paragraph 1 cannot be met for an anaerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 °C. When at the end of the 40 days the volatile solids in the sewage sludge at the beginning of that period are reduced by less than 17 percent, vector attraction reduction is achieved.
  3. When the 38 percent volatile solids reduction requirement in paragraph 1 cannot be met for an aerobically digested sewage sludge, vector attraction reduction can be demonstrated by digesting a portion of the previously digested sewage sludge that has a percent solids of 2 percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 °C. When at the end of the 30 days the volatile solids in the sewage sludge at the beginning of that period are reduced by less than 15 percent, vector attraction reduction is achieved.
  4. The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 mg of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 °C.
  5. Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 °C and the average temperature of the sewage sludge shall be higher than 45 °C.
  6. The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 2 h and then at 11.5 or higher for an additional 22 h.
  7. The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials.
  8. The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.
  9. Sewage sludge shall be injected below the surface of the land. No significant amount of the sewage sludge shall be present on the land surface within 1 h after the sewage sludge is injected. When the sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge shall be injected below the land surface within 8 h after being discharged from the pathogen treatment process.
  10. Sewage sludge applied to the land surface or placed on an active sewage sludge unit shall be incorporated into the soil within 6 h after application to or placement on the land, unless otherwise specified by the permitting authority.
  11. When sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge shall be applied to or placed on the land within 8 h after being discharged from the pathogen treatment process.
  12. Sewage sludge placed on an active sewage sludge unit shall be covered with soil or other material at the end of each operating day.
  13. The pH of domestic septage shall be raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 min.

- *Volatile Solids* - the amount of the total solids in sewage sludge lost when the sewage sludge is combusted at 550 °C [1022 °F] in the presence of excess air (40 CFR 503.31(l)).
- *Wet Electrostatic Precipitator* - an air pollution control device that uses both electrical forces and water to remove pollutants in the exit gas from a sewage sludge incinerator stack (40 CFR 503.41(n)).
- *Wetlands* - those areas that are inundated or saturated by surface water or ground water at a frequency and duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (40 CFR 503.9(bb)).
- *Wet Scrubber* - an air pollution control device that uses water to remove pollutants in the exit gas from a sewage sludge incinerator stack (40 CFR 503.41(o)).



**WASTEWATER MANAGEMENT**  
**GUIDANCE FOR CHECKLIST USERS**

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	<b>REFER TO CHECKLIST ITEMS:</b>
All Facilities	WW.1.1 through WW.1.4
NPDES Permits	WW.10.1 through WW.10.11
Treatment Works Operations	WW.20.1
Discharges to POTWs/FOTWs General	WW.25.1 through WW.25.9
Dredging	WW.43.1
Effluent Limitations Feedlots	WW.45.1
Individual Sewage Systems Septic Tanks	WW.55.1
Land Application of Sludge General	WW.105.1 through WW.105.8
Vectors and Pathogens	WW.110.1 through WW.110.5
Notifications	WW.115.1 through WW.115.5
Monitoring	WW.120.1 and WW.120.2
Recordkeeping and Reporting	WW.125.1 through WW.125.8
Surface Disposal of Sludge General	WW.135.1 through WW.135.8
Monitoring and Documentation	WW.140.1 through WW.140.6
Sludge Incineration	WW.150.1 through WW.150.8

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## WASTEWATER MANAGEMENT

### Records To Review

- NPDES Permits
- NPDES Permit renewal applications (if expire within 180 days)
- Discharge monitoring reports for the past year
- Laboratory records and procedures and USEPA QA results
- Monthly operating reports for wastewater treatment facilities
- Flow monitoring calibration certification and supporting records
- Special reports, certifications, etc., required by NPDES permit
- Spill Prevention Control and Countermeasure (SPCC) plan
- Sewage treatment plant operator certification
- Sewer and storm drain layout
- Local service use permit
- Notification to local POTW
- Stormwater pollution prevention plan
- Pretreatment Permits

### Physical Features To Inspect

- Discharge outfall pipes
- Wastewater treatment facilities
- Industrial treatment facilities
- Streams, rivers, open waterways
- Floor and sink drains (especially in industrial areas)
- Stormwater collection points (especially in industrial areas)
- Oil storage tanks
- Oil/water separators
- Wastewater generation points



**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>WW.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), interagency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>WW.1.2.</b> FWS facilities are required to comply with state and local wastewater regulations (EO 12088, Section 1-1).</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local water quality requirements.</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies.</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> <li>- nonpoint sources</li> <li>- NPDES permits</li> <li>- wastewater</li> <li>- monitoring and recordkeeping for NPDES permitted sources</li> <li>- certification requirements for laboratories analyzing samples</li> <li>- wastewater treatment plant operator certification</li> <li>- sludge disposal</li> <li>- pretreatment standards</li> <li>- discharges to sewage treatment facilities</li> <li>- industrial wastewater</li> <li>- septic tanks</li> <li>- stormwater pollution prevention plan</li> <li>- stormwater discharges.)</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.1.3.</b> Facilities will meet regulatory requirements issued since the finalization of this handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p> <p><b>WW.1.4.</b> FWS facilities should report all NOV's to the Region and the Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p>	<p>Determine if any new regulations concerning wastewater have been issued since the finalization of this handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p> <p>Determine if the facility has received an NOV relating to wastewater management.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p>

**COMPLIANCE CATEGORY:  
WASTEWATER MANAGEMENT  
Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>WW.10</b></p> <p><b>NPDES PERMITS</b></p> <p><b>WW.10.1.</b> Point source discharges are required to have either a state NPDES or a Federal NPDES permit if located in states without an USEPA-approved NPDES permit program (40 CFR 122.1(b) and 122.41(a)). [Revised September 2000].</p>	<p>Verify that discharges of pollutants from any point source into waters of the United States have an NPDES permit.</p> <p>(NOTE: Look for oil/water separators and washracks that discharge directly to the environment.)</p> <p>(NOTE: This permit program also applies to owners or operators of any treatment works treating domestic sewage, whether or not the treatment works is otherwise required to obtain an NPDES permit. Exemptions from the NPDES permit requirements include facilities holding permits issued under the <i>Solid Waste Disposal Act</i>; <i>Safe Drinking Water Act</i>; <i>Marine Protection, Research, and Sanctuaries Act</i>; the <i>Clean Air Act</i>; or an USEPA-approved state program adequate to assure compliance with Section 405 of the CWA (i.e., sludge disposal requirements, implemented via 40 CFR 503). In addition, where no 40 CFR 503 standard exists for a facility's use or disposal practice, the owner/operator of the facility is not automatically required to submit a permit application (64 FR 42437). For example, industrial treatment works that treat domestic sewage along with process wastes are not currently addressed under 40 CFR 503 and, therefore, USEPA does not require that they apply for a sewage sludge permit at this time (64 FR 42437).)</p> <p>Verify that permit requirements are being met such as:</p> <ul style="list-style-type: none"> <li>- monitoring/sampling</li> <li>- concentrations of discharge constituents</li> <li>- recordkeeping and reports.</li> </ul> <p>(NOTE: Excursions from the permit required pH range are permitted subject to the following limitations:</p> <ul style="list-style-type: none"> <li>- the total time during which the pH values are outside the required range of pH values does not exceed 7 h and 26 min in any calendar month</li> <li>- no individual excursion from the range of pH values exceeds 60 min.)</li> </ul> <p>(NOTE: The Regional Administrator may designate any person subject to the standards for sewage sludge use and disposal as a "treatment works treating domestic sewage," where they find that a permit is necessary to protect public health and the environment from the</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.10.2.</b> Checklist item deleted [Deleted April 2000].</p> <p><b>WW.10.3.</b> Certain discharges of stormwater are required to be permitted (40 CFR 122.26(a), 122.26(c), 122.26(d), 122.26(g)(1) and 122.41(a)) [Revised September 2000].</p>	<p>adverse effects of sewage sludge or to ensure compliance with the technical standards for sludge use and disposal developed under CWA section 405(d.)</p> <p>Verify that any person designated as a "treatment works treating domestic sewage" submits an application for a permit within 180 days of being notified by the Regional Administrator that a permit is required.</p> <p>The contents of this checklist item have been incorporated into WW.10.7.</p> <p>Verify that permits have been obtained for all discharges from large and medium municipal separate storm sewer systems.</p> <p>Verify that the operator of a discharge from a municipal separate storm sewer that is part of a large or medium municipal separate storm sewer system does one of the following:</p> <ul style="list-style-type: none"> <li>- participates in a permit application (to be a permittee or a co-permittee) with one or more other operators of discharges from the large or medium municipal storm sewer system that covers all, or a portion of all, discharges from the municipal separate storm sewer system</li> <li>- submits a distinct permit application that only covers discharges from the municipal separate storm sewers for which the operator is responsible.</li> </ul> <p>(NOTE: One permit application may be submitted for all or a portion of all municipal separate storm sewers within adjacent or interconnected large or medium municipal separate storm sewer systems. Permits for all or a portion of all discharges from large or medium municipal separate storm sewer systems that are issued on a system-wide, jurisdiction-wide, watershed, or other basis may specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas that contribute stormwater to the system. Co-permittees need only comply with permit conditions relating to discharges from the municipal separate storm sewers for which they are operators.)</p> <p>Verify that an operator of a stormwater discharge associated with industrial activity that discharges through a large or medium municipal separate storm sewer system submits to the operator of the municipal separate storm sewer system receiving the discharge no later than 15 May 1991, or 180 days prior to commencing such discharge:</p>

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- the name of the facility
- a contact person and phone number
- the location of the discharge
- a description, including SIC, which best reflects the principal products or services provided by each facility
- any existing NPDES permit number.

(NOTE: Discharges composed entirely of stormwater are not stormwater discharges associated with industrial activity if there is "no exposure" of industrial materials and activities to rain, snow, snowmelt, and/or runoff, and the discharger satisfies the conditions in Appendix 10-0a.)

*(NOTE: See the definitions of Industrial Activities and Stormwater Discharge Associated With an Industrial Activity.)*

Verify that all stormwater discharges associated with industrial activity that discharge through a stormwater discharge system that is not a municipal separate storm sewer are covered by an individual permit, or a permit issued to the operator of the portion of the system that discharges to waters of the United States, with each discharger to the non-municipal conveyance a co-permittee to that permit.

Verify that, where there is more than one operator of a single system of such conveyances, all operators of stormwater discharges associated with industrial activity submit applications.

(NOTE: Conveyances that discharge stormwater runoff combined with municipal sewage are point sources and must obtain NPDES permits in accordance with 40 CFR 122.21.)

Verify that, for discharges composed entirely of stormwater that are not otherwise required to be permitted, operators obtain a NPDES permit only if:

- the discharge is from a small MS4 required to be regulated
- the discharge is a stormwater discharge associated with small construction activity
- the Director or, in states with approved NPDES programs, either the Director or the USEPA Regional Administrator, determines that stormwater controls are needed for the discharge based on wasteload allocations that are part of TMDLs that address the pollutant(s) of concern

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- the Director or, in states with approved NPDES programs, either the Director or the USEPA Regional Administrator, determines that the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

Verify that permit requirements are being met such as:

- monitoring/sampling
- concentrations of discharge constituents
- recordkeeping
- reports.

(NOTE: Dischargers of stormwater associated with industrial activity and with small construction activity are required to apply for an individual permit or seek coverage under a promulgated stormwater general permit. Facilities that are required to obtain an individual permit, or any discharge of stormwater that the Director is evaluating for designation and is not a municipal separate storm sewer, shall submit an NPDES application.)

(NOTE: The operator of an existing or new discharge composed entirely of stormwater from an oil or gas exploration, production, processing, or treatment operation, or transmission facility is not required to submit a permit application unless the facility meets one of the following:

- has had a discharge of stormwater resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21 or 40 CFR 302.6 at anytime since 16 November 1987
- has had a discharge of stormwater resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 110.6 at any time since 16 November 1987
- contributes to a violation of a water quality standard.)

(NOTE: The operator of an existing or new discharge composed entirely of stormwater from a mining operation is not required to submit a permit application unless the discharge has come into contact with, any overburden, raw material, intermediate products, finished product, byproduct or waste products located on the site of such operations.)

(NOTE: Instead of individual applications or notice of intent to be covered by a general permit for stormwater discharges associated with industrial activity, a group application may be filed by an entity



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representing a group of applicants (except facilities that have existing individual NPDES permits for stormwater) that are part of the same subcategory or, where such grouping is inapplicable, are sufficiently similar as to be appropriate for general permit coverage under 40 CFR 122.28.)

(NOTE: The operator of a discharge from a large or medium municipal separate storm sewer or a municipal separate storm sewer that is designated by the Director, may submit a jurisdiction-wide or system-wide permit application. Where more than one public entity owns or operates a municipal separate storm sewer within a geographic area (including adjacent or interconnected municipal separate storm sewer systems), such operators may be a coapplicant to the same application.)

Verify that, for discharges composed entirely of stormwater, a discharger that the Director determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States applies for a permit within 180 days of receipt of notice, unless permission for a later date is granted by the Director.

Verify that, for any stormwater discharge associated with industrial activity from a facility that is owned or operated by a municipality with a population of less than 100,000 that is not authorized by a general or individual permit, other than an airport, power plant, or uncontrolled sanitary landfill, the permit application is submitted to the Director by 10 March 2003.

Verify that, for any stormwater discharge associated with small construction activity, permit authorization is obtained by 10 March 2003, unless designated for coverage before then.

Verify that, for any discharge from a regulated small MS4, the permit application is submitted by one of the following:

- 10 March 2003 unless the MS4 serves a jurisdiction with a population under 10,000 and the NPDES permitting authority has established a phasing schedule
- within 180 days of notice, unless the NPDES permitting authority grants a later date.

(NOTE: See the definition of *Small Municipal Separate Storm Sewer System* for information on what is and what is not a regulated MS4.)

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.10.4.</b> Even where not covered by NPDES permits, stormwater discharge on the facility should be uncontaminated and periodic surveillance of these discharges should be completed (MP).</p> <p><b>WW.10.5.</b> Samples must be collected in accordance with proper collection, testing, preservation, and shipping procedures in Standard Methods for the Examination of Water and Wastewater (40 CFR 136.1 through 136.4).</p>	<p>Determine which drains at the facility are connected to the storm sewer and the location of all outfalls and discharge points.</p> <p>Determine if there is evidence of contamination (oil sheen, discoloration, etc.) by physical review of stormwater discharge sites.</p> <p>Verify that oil/water separators connected to the permitted storm sewer outfall on the facility are operating properly and correctly maintained.</p> <p>Determine if there is evidence of contaminated waste streams discharging to floor drains connected to the stormwater discharge system by checking major industrial shops or industrial areas physically, such as:</p> <ul style="list-style-type: none"> <li>- battery shop</li> <li>- corrosion control</li> <li>- engine shop</li> <li>- motor pool</li> <li>- paint shop</li> <li>- plating shop</li> <li>- pesticide shop</li> <li>- petroleum, oils, and lubricants (POL) area</li> <li>- golf courses</li> <li>- washracks</li> <li>- contractor storage areas.</li> </ul> <p>Determine if there are any plans to eliminate the discharge.</p> <p>Verify that:</p> <ul style="list-style-type: none"> <li>- proper sample containers are used</li> <li>- samples are refrigerated to 4 °C during compositing</li> <li>- proper preservation techniques are used</li> <li>- flow-proportioned samples are obtained where required by permit</li> <li>- sample holding times prior to analyses conform with requirements.</li> <li>- the chain of custody is maintained from sampling point through analytic testing to results (essential if litigation occurs).</li> </ul> <p>Verify that results are reported in facility's self-monitoring report.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.10.6.</b> Analytical testing must be done in accordance with USEPA approved analytical procedures (40 CFR 136.3).</p> <p><b>WW.10.7.</b> All holders of NPDES permits, whether point source or stormwater, are required to meet certain management and operational requirements (40 CFR 122.41(b) through 122.41(n)) [Added April 2000].</p>	<p>Determine if:</p> <ul style="list-style-type: none"> <li>- a USEPA approved analytical testing lab was used</li> <li>- proper approval was obtained from state/USEPA if alternate analytical procedures are used</li> <li>- parameters other than those required by the permit are analyzed</li> <li>- satisfactory calibration and maintenance of instruments and equipment is done</li> <li>- quality control procedures are used</li> <li>- duplicate samples are analyzed</li> <li>- spiked samples are used</li> <li>- a commercial laboratory is used</li> <li>- the commercial laboratory is state certified (states with formal certification program).</li> </ul> <p>Verify that, if the permittee wished to continue an activity regulated by a permit after the expiration date of the permit, the permittee applied for and obtained a new permit.</p> <p>(NOTE: A permittee in an enforcement action cannot use a defense that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.)</p> <p>Verify that the permittee takes all reasonable steps to minimize or prevent any discharges, sludge use, or disposal in violation of the permit if it has a reasonable likelihood of adversely affecting human health or the environment.</p> <p>Verify that the permittee at all times properly operates and maintains all facilities and systems of treatment and control (and related appurtenances), which are installed or used by the permittee to achieve compliance with the conditions of the permit.</p> <p>(NOTE: Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.)</p>

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(NOTE: A permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. A permit does not convey any property rights of any sort, or any exclusive privilege.)

Verify that the permittee provides to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit.

Verify that the permittee also provides to the Director, upon request, copies of records required to be kept by this permit.

(NOTE: The permittee is required to allow the Director, or an authorized representative (including an authorized contractor acting as a representative of the Administrator), upon presentation of credentials and other documents as may be required by law, to:

- enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit
- have access to and copy, at reasonable times, any records that are kept under the conditions of the permit
- inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit
- sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.)

Verify that samples and measurements taken for the purpose of monitoring are representative of the monitored activity.

Verify that the permittee retains records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit, for a period of at least 3 yr from the date of the sample, measurement, report or application.

Verify that records of monitoring information required by the permit related to the permittee's sewage sludge use and disposal activities, are retained for a period of at least 5 yr (or longer as required by 40 CFR 503).

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(NOTE: The retention period may be extended by request of the Director at any time.)

Verify that records of monitoring information include:

- the date, exact place, and time of sampling or measurements
- the individual(s) who performed the sampling or measurements
- the date(s) analyses were performed
- the individual(s) who performed the analyses
- the analytical techniques or methods used
- the results of such analyses.

Verify that monitoring results are conducted according to test procedures approved under 40 CFR 136 or, in the case of sludge use or disposal, approved under 40 CFR 136 unless otherwise specified in 40 CFR 03, unless other test procedures have been specified in the permit.

Verify that all applications, reports, or information submitted to the Director is signed and certified.

Verify that the permittee gives notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility.

(NOTE: Notice is required only when:

- the alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source
- the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged (This notification applies to pollutants which are subject neither to effluent limitations in the permit, nor to notification requirements under 40 CFR 122.42(a)(1))
- the alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.)

Verify that the permittee gives notice to the Director of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

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(NOTE: The permit is not transferable to any person except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary under the Clean Water Act. (see 40 CFR 122.61; in some cases, modification or revocation and reissuance is mandatory.)

Verify that monitoring results are reported at the intervals specified in the permit and are reported on a Discharge Monitoring Report (DMR) or forms provided or specified by the Director for reporting results of monitoring of sludge use or disposal practices.

Verify that, if the permittee monitors any pollutant more frequently than required by the permit using approved test procedures, or as specified in the permit, the results of this monitoring are included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Director.

(NOTE: Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.)

Verify that reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit are submitted no later than 14 days following each schedule date.

Verify that the permittee reports any noncompliance which may endanger health or the environment such that:

- information is provided orally within 24 h from the time the permittee became aware of the circumstances
- a written submission is provided within 5 days of the time the permittee becomes aware of the circumstances and contains a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Verify that the following is included in information which must be reported within 24 h:

- any unanticipated bypass which exceeds any effluent limitation in the permit

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	<ul style="list-style-type: none"> <li>- any upset which exceeds any effluent limitation in the permit</li> <li>- violation of a maximum daily discharge limitation for any of the pollutants listed by the Director in the permit to be reported within 24 h.</li> </ul> <p>(NOTE: The Director may waive the written report on a .case-by-case basis if the oral report has been received within 24 h.)</p> <p>Verify that the permittee reports all instances of noncompliance which are not otherwise reported, at the time monitoring reports are submitted.</p> <p>Verify that where the permittee has become aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it promptly submits such facts or information.</p> <p>Verify that the permittee only allows a bypass to occur which does not cause effluent limitations to be exceeded, if it is for essential maintenance to assure efficient operation.</p> <p>Verify that, if the permittee knows in advance of the need for a bypass, it submits prior notice, if possible, at least 10 days before the date of the bypass.</p> <p>Verify that the permittee submits notice of an unanticipated bypass within 24 h.</p> <p>(NOTE: Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:</p> <ul style="list-style-type: none"> <li>- bypass was unavoidable to prevent loss of life, personal injury, or severe property damage</li> <li>- there were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime</li> <li>- the permittee submitted notices as required.</li> </ul> <p>Verify that, if a permittee wishes to establish an affirmative defense of upset, they demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:</p> <ul style="list-style-type: none"> <li>- an upset occurred and that the permittee can identify the cause(s) of the upset</li> <li>- the permitted facility was at the time being properly operated</li> <li>- the permittee submitted required 24 h notice of the upset</li> <li>- the permittee complied with any remedial measures required.</li> </ul>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.10.8.</b> Existing manufacturing, commercial, mining, and silvicultural dischargers are required to meet additional conditions (40 CFR 122.42(a)) [Added April 2000].</p>	<p>Verify that all existing manufacturing, commercial, mining, and silvicultural dischargers notify the Director as soon as they know, or have reason to believe:</p> <ul style="list-style-type: none"> <li>- that any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following notification levels:               <ul style="list-style-type: none"> <li>- 100 µg/L</li> <li>- 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and 1 mg/L for antimony</li> <li>- 5 times the maximum concentration value reported for that pollutant in the permit application</li> <li>- the level established by the Director.</li> </ul> </li> <li>- that any activity has occurred or will occur that would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following notification levels:               <ul style="list-style-type: none"> <li>- 500 µg/L</li> <li>- 1 mg/L for antimony</li> <li>- 10 times the maximum concentration value reported for that pollutant in the permit application</li> <li>- the level established by the Director.</li> </ul> </li> </ul>
<p><b>WW.10.9.</b> All POTWs are required to meet additional conditions (40 CFR 122.42(b)) [Added April 2000].</p>	<p>Verify that all POTWs provide adequate notice to the Director of the following:</p> <ul style="list-style-type: none"> <li>- any new introduction of pollutants into the POTW from an indirect discharge that would be subject to section 301 or 306 of the CWA if the discharger were directly discharging those pollutants</li> <li>- any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.</li> </ul> <p>(NOTE: Adequate notice shall include information on:</p> <ul style="list-style-type: none"> <li>- the quality and quantity of effluent introduced into the POTW</li> <li>- any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.)</li> </ul>



**COMPLIANCE CATEGORY:  
WASTEWATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.10.10.</b> Municipal separate storm sewer systems are required to meet additional conditions (40 CFR 122.42(c)) [Added April 2000].</p>	<p>Verify that the operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the Director submits an annual report by the anniversary of the date of the issuance of the permit for the system.</p> <p>Verify that the report includes:</p> <ul style="list-style-type: none"> <li>- the status of implementing the components of the stormwater management program that are established as permit conditions</li> <li>- proposed changes to the stormwater management programs that are established as permit conditions</li> <li>- revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit</li> <li>- a summary of data, including monitoring data, that is accumulated throughout the reporting year</li> <li>- annual expenditures and budget for the year following each annual report</li> <li>- a summary describing the number and nature of enforcement actions, inspections, and public education programs</li> <li>- identification of water quality improvements or degradation.</li> </ul>
<p><b>WW.10.11.</b> Transfer of permits may only occur under certain conditions (40 CFR 122.61 and 122.63) [Added April 2000].</p>	<p>Verify that a permit is transferred by the permittee to a new owner or operator only if the permit has been modified or revoked and reissued, or a minor modification made, to identify the new permittee and incorporate such other requirements as may be necessary under CWA.</p> <p>(NOTE: As an alternative, any NPDES permit may be automatically transferred to a new permittee if:</p> <ul style="list-style-type: none"> <li>- the current permittee notifies the Director at least 30 days in advance of the proposed transfer date</li> <li>- the notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them</li> <li>- the Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify or revoke and reissue the permit.)</li> </ul> <p>(NOTE: A modification may also be a minor modification under 40 CFR 122.63. If this notice is not received, the transfer is effective on the date specified in the agreement.)</p> <p>(NOTE: Under 40 CFR 122.63, minor modifications may only:</p> <ul style="list-style-type: none"> <li>- correct typographical errors</li> <li>- require more frequent monitoring or reporting by the permittee</li> </ul>

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- change an interim compliance date in a schedule of compliance, provided the new date is not more than 120 days after the date specified in the existing permit and does not interfere with attainment of the final compliance date requirement
- allow for a change in ownership or operational control of a facility where the Director determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Director
- change the construction schedule for a discharger that is a new source without affecting a discharger's obligation to have all pollution control equipment installed and in operation prior to discharge
- delete a point source outfall when the discharge from that outfall is terminated and does not result in discharge of pollutants from other outfalls except in accordance with permit limits
- incorporate conditions of a POTW pretreatment program that has been approved in accordance with the procedures in 40 CFR 403.11 (or a modification thereto that has been approved in accordance with the procedures in 40 CFR 403.18) as enforceable conditions of the POTW's permits.)

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**REGULATORY  
REQUIREMENTS:**

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**TREATMENT WORKS**

**WW.20  
Operations**

**WW.20.1.** Personnel engaged or employed in the operation and maintenance of water pollution control facilities should be trained in safety and occupational hazards (MP).

Determine if periodic refresher training is conducted by interviewing operating maintenance staff.

Verify that training is conducted by reviewing training records.



**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>DISCHARGES TO POTWs/FOTWs</b></p> <p><b>WW.25 General</b></p> <p><b>WW.25.1.</b> Facilities must not discharge into a POTW/FOTW any pollutant which would cause pass through or interference (40 CFR 403.5(a) and 403.5(c)(2)).</p> <p><b>WW.25.2.</b> Facilities shall not introduce specific pollutants into a POTW/FOTW (40 CFR 403.5(b)).</p>	<p>Determine the following:</p> <ul style="list-style-type: none"> <li>- what point source discharges are at the facility</li> <li>- what drains in the facility lead to the treatment works</li> <li>- what do personnel pour down the drains leading to the treatment works</li> <li>- what types of materials are located in areas where spills may reach the drains to the treatment works.</li> </ul> <p>Determine which drains are connected to the sanitary sewer draining to a POTW/FOTW and possible pollutants entering these drains.</p> <p>Verify that the facility is not discharging to a POTW/FOTW pollutants which would cause a pass through or interference (see definitions).</p> <p>Determine if the POTW/FOTW has imposed any pretreatment standards or reporting requirements on the facility and verify that they are being met.</p> <p>Verify that pollutants, which create a fire or explosion hazard in the POTW/ FOTW, including but not limited to, waste streams with a closed cup flashpoint of less than 140 °F (60 °C) are not being discharged from the facility to a POTW/FOTW.</p> <p>Verify that pollutants, which will cause corrosive structural damage to the POTW/FOTW, are not being discharged from the facility to a POTW/FOTW.</p> <p>Verify that in no case are discharges with a pH below 5.0 released.</p> <p>Verify that solid or viscous pollutants in amounts which will cause obstruction to the flow are not being discharged to the POTW/FOTW. Examples are:</p> <ul style="list-style-type: none"> <li>- fish cleaning stations</li> <li>- pieces of metals, rubber, and wood from shops</li> <li>- sand and sediment.</li> </ul>

**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.25.3.</b> Facilities are required to notify the POTW/FOTW immediately of any discharge, including slug loading, that could cause problems to the POTW/FOTW (40 CFR 403.12(f)).</p> <p><b>WW.25.4.</b> FOTWs may only accept wastewaters that meet one of four conditions (FFCA, PL 102-386, Section 3023(a)).</p>	<p>Verify that no pollutants, including pollutants with oxygen demand, are released at a flow rate or concentration that will cause interference with the POTW/FOTW.</p> <p>Verify that heat in amounts that would inhibit biological activity at the POTW/ FOTW resulting in interference is not discharged, including:</p> <ul style="list-style-type: none"> <li>- scrubber water</li> <li>- boiler blow down.</li> </ul> <p>(NOTE: In no case will the temperature of discharges result in a temperature at the POTW/FOTW of greater than 40 °C (104 °F).)</p> <p>Verify that petroleum, oil, nonbiodegradable cutting oil, or products of mineral oil origin are not discharged in amounts that would result in a pass through or interference (specifically check maintenance areas and oil/water separators).</p> <p>Verify that pollutants which would result in the presence of toxic gases, vapors, or fumes within the POTW/FOTW in quantities that would cause acute worker health and safety problems are not discharged.</p> <p>Verify that no trucked or hauled pollutants are discharged except at discharge points designated by the POTW/FOTW.</p> <p>Determine if the facility has been granted any exemptions or variances concerning its discharges.</p> <p>Verify that personnel at the facility are aware of the need to notify the POTW/FOTW of any discharge that would cause problems.</p> <p>Verify that all wastewater being discharged to the FOTW meets one of the following conditions:</p> <ul style="list-style-type: none"> <li>- a pretreatment standard is established for the source and the source is in compliance with the standard</li> </ul>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.25.5.</b> Industrial users that are not required to meet a categorical pretreatment standard are required to submit specific reports (40 CFR 403.12(h)).</p> <p><b>WW.25.6.</b> Industrial users are required to notify the POTW, the Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharges into the POTW of a substance which would be a hazardous waste (40 CFR 403.12(p)).</p>	<ul style="list-style-type: none"> <li>- a schedule for establishing a pretreatment standard for the source has been set by the USEPA and the schedule dictates that the standard will be in place by October 1999. Additionally, the source is in compliance with the standard after the effective date of the standard</li> <li>- the industrial source meets land disposal restriction standards under 40 CFR 268</li> <li>- the industrial activity generates less than 100 kg [220 lb] of hazardous waste per month.</li> </ul> <p>Verify that, if the facility is a significant noncategorical industrial user, it submits a description of the nature, concentration, and flow of pollutants to the Control Authority.</p> <p>Verify that the report is submitted at least once every 6 mo.</p> <p>(NOTE: If the sampling is being done by the POTW itself, no report is necessary.)</p> <p>(NOTE: The Control authority is: the POTW/FOTW, if the POTW's/FOTW's submission for its pretreatment program has been approved or the Approval Authority if the submission has not been approved.)</p> <p>Determine if the facility is discharging any substance to a POTW which would be classified as a hazardous waste if disposed of in any other manner.</p> <p>Verify that, if they are discharging a hazardous waste to the POTW, the correct people have been notified of the following:</p> <ul style="list-style-type: none"> <li>- the name of the waste</li> <li>- the type of discharge (batch, continuous, or other)</li> <li>- USEPA hazardous waste number.</li> </ul> <p>Verify that, if the discharge is more than 100 kg/mo, the following information is also included to the extent that it is known and readily available:</p> <ul style="list-style-type: none"> <li>- identification of the hazardous constituents</li> <li>- an estimate of the mass and concentrations of the constituents in the waste discharges during the calendar month.</li> </ul>

**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.25.7.</b> FOTWs cannot accept the discharge of any acutely hazardous wastes (FFCA, PL 102-386, Section 3023(b)).</p> <p><b>WW.25.8.</b> All industrial users are required to notify the POTW/ FOTW in advance of any substantial change in the volume or character of pollutants in their discharge (40 CFR 403.12(j)).</p> <p><b>WW.25.9.</b> Industrial users and POTWs/ FOTWs are required to keep specific reports (40 CFR 403.12(o)).</p>	<p>Verify that, if any hazardous waste is discharged to the FOTW, it is not acutely hazardous waste.</p> <p>Verify that the sources of industrial discharge on the facility notify the POTW/ FOTW in advance of any substantial changes in the volume or character of pollutants in their discharge, including any listed or characteristic hazardous wastes.</p> <p>Verify that the facility and the POTW/FOTW keeps records of all information resulting from monitoring activities.</p> <p>Verify that the records include for all samples the following information:</p> <ul style="list-style-type: none"> <li>- the date, exact place, methods, and time of sampling and the names of the person or persons taking the samples</li> <li>- the dates analyses were performed</li> <li>- who performed analyses</li> <li>- the analytical techniques, methods used</li> <li>- the results of the analyses.</li> </ul> <p>Verify that records are kept for 3 yr and are signed and certified by the facility equivalent of a responsible corporate officer.</p>



**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.43</b></p> <p><b>DREDGING</b></p> <p><b>WW.43.1.</b> Department of the Army permits are required for the discharge of dredged or fill material into waters of the United States (33 CFR 323.3(a)(b)).</p>	<p>Determine if the facility has wetlands.</p> <p>Verify that any activities involving dredging and filling wetlands are permitted by the Army Corps of Engineers.</p> <p>(NOTE: Fill material means any material used for the primary purpose of replacing an aquatic area with dry land or of changing the bottom elevation of a water body. The term does not include any pollutant discharged into the water primarily to dispose of waste, as that activity is regulated under Section 402 of CWA.)</p>



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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>EFFLUENT LIMITATIONS</b></p> <p><b>WW.45 Feedlots</b></p> <p><b>WW.45.1.</b> Feedlots, except those for ducks, are required to meet specific effluent limitation standards (40 CFR 412.12 through 412.16).</p>	<p>Determine if the facility operates a feedlot.</p> <p>Verify that there is no discharge of process wastewater pollutants to navigable waters.</p> <p>(NOTE: For existing sources, when best practicable control technology (BPT) currently available is used, process waste pollutants may be discharged to navigable waters whenever rainfall events, either chronic or catastrophic, cause an overflow of process wastewater from a facility designed, constructed, and operated to contain all process generated wastewaters plus the runoff from a 10-yr, 24-h rainfall event for the location of the point source. If the best available technology economically achievable is used it is a 25-yr, 24-h rainfall event.)</p> <p>(NOTE: For new sources, process waste pollutants may be discharged to navigable waters whenever rainfall events, either chronic or catastrophic, cause an overflow of process wastewater from a facility designed, constructed, and operated to contain all process generated wastewaters plus the runoff from a 25-yr, 24-h rainfall event for the location of the point source.)</p> <p>Verify that, for existing sources, the following pretreatment standard is met for discharge to a POTW:</p> <ul style="list-style-type: none"> <li>- fecal coliform: no irritation</li> <li>- BOD<sub>5</sub>: no irritation.</li> </ul>



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**REGULATORY  
REQUIREMENTS:**

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**INDIVIDUAL SEWAGE  
SYSTEMS**

**WW.55  
Septic Tanks**

**WW.55.1.** Septic tanks should be periodically pumped of solids and sludge (MP).

Verify that septic tanks have periodically been pumped of solids and sludge.

(NOTE: Pumping is typically recommended every 3 yr.)



**COMPLIANCE CATEGORY:  
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>LAND APPLICATION OF SLUDGE</b></p> <p><b>WW.105 General</b></p> <p><b>WW.105.1.</b> Representative samples of sewage sludge applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator are required to be collected and analyzed (40 CFR 503.8) [Revised April 2000].</p> <p><b>WW.105.2.</b> Depending on when the last time bulk sewage sludge subject to the cumulative loading rates in Table 2, Appendix 10-2 was last applied to a site, specific standards have to be met (40 CFR 503.10(b), 503.10(c), 503.10(e), 503.10(f), and 503.12(e)(2)) [Revised April 2000].</p>	<p>(NOTE: Checklist items WW.105.1 through WW.150.7 apply only to sludge generated during the treatment of domestic sewage in a treatment works. For exclusions see the definitions of the term Excluded Sludge. A summary of the important compliance dates is found in Appendix 10-1.)</p> <p>Determine if sewage sludge is applied to the land, placed on a surface disposal site, or fired in a sewage sludge incinerator.</p> <p>Verify that the sludge is analyzed prior to application, placement, or firing for the following according to the methodologies outlined in 40 CFR 503.8(b):</p> <ul style="list-style-type: none"> <li>- enteric viruses</li> <li>- fecal coliforms</li> <li>- helminth ova</li> <li>- inorganic pollutants</li> <li>- salmonella bacteria</li> <li>- SOUR</li> <li>- total, fixed, and volatile solids.</li> </ul> <p>Verify that, before bulk sewage sludge subject to the cumulative pollutant loading rates in Table 2, Appendix 10-2 is applied to the land, the person who proposes to apply the bulk sewage sludge contacts the permitting authority for the state in which the bulk sewage sludge will be applied to determine whether bulk sewage sludge subject to the cumulative pollutant loading rates in Table 2, Appendix 10-2 has been applied to the site since 20 July 1993.</p> <p>(NOTE: If bulk sewage sludge subject to the cumulative pollutant loading rates in Table 2, Appendix 10-2 has not been applied to the site since 20 July 1993, the cumulative amount for each pollutant listed in Table 2, Appendix 10-2 may be applied to agricultural land, a forest, a public contact site, or a reclamation site.)</p> <p>Verify that, if bulk sewage sludge subject to the cumulative pollutant loading rates in Table 2, Appendix 10-2 has been applied to the site since 20 July 1993, and the cumulative amount of each pollutant applied to the site in the bulk sewage sludge since that date is known, the cumulative amount of each pollutant applied to the site is used to determine the additional amount of each pollutant that can be applied to agricultural land, a forest, a public contact site, or a reclamation site.</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>WW.105.3.</b> Bulk sewage sludge or sewage sludge sold or given away in a bag or other container must meet specific standards (40 CFR 503.10(b), 503.10(c), 503.10(e), 503.10(f), 503.13(a)(1), 503.13(a)(4), 503.14(e), 503.15(a)(3), 503.15((c)(3), 503.32(a), 503.33(a)(3)) [Revised April 2000].</p>	<p>Verify that, if bulk sewage sludge subject to the cumulative pollutant loading rates in Table 2, Appendix 10-2 has been applied to the site since 20 July 1993, and the cumulative amount of each pollutant applied to the site in the bulk sewage sludge since that date is not known, an additional amount of each pollutant is not applied to the agricultural land, a forest, a public contact site, or a reclamation site.</p> <p>(NOTE: These requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-2, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements (see definitions):</p> <ul style="list-style-type: none"> <li>- when bulk sewage sludge is applied to the land</li> <li>- when a bulk material derived from sewage sludge is applied to the land</li> <li>- when sewage sludge is sold or given away in a bag or other container for application to the land</li> <li>- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.</li> </ul> <p>(NOTE: The Regional Administrator of EPA or, in the case of a state with an approved sludge management program, the State Director, may apply any or all of these requirements to the bulk sewage sludge or to bulk material derived from sewage sludge on a case-by-case basis after determining that the general requirements are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge or the bulk material derived from sewage sludge.)</p> <p>Verify that bulk sewage sludge or sewage sludge sold or given away in a bag or other container is not applied to the land if the concentration of any pollutant in the sewage sludge exceeds the ceiling concentration for the pollutant in Table 3, Appendix 10-2.</p> <p>Verify that, if sewage sludge is sold or given away in a bag or other container for application to the land, one of the following is met:</p> <ul style="list-style-type: none"> <li>- the concentration of each pollutant in the sewage sludge does not exceed the concentration for the pollutant in Table 1, Appendix 10-2</li> <li>- the product of the concentration of each pollutant in the sewage sludge and the annual whole sludge application rate for the sewage sludge does not cause the annual pollutant loading rate for the pollutant in Table 4, Appendix 10-2 to be exceeded.</li> </ul>



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(NOTE: The procedure used to determine the annual whole sludge application rate is presented in Appendix A of 40 CFR 503.)

Verify that either a label is affixed to the bag or other container in which sewage sludge that is sold or given away for application to the land, or an information sheet is provided to the person who receives sewage sludge sold or given away in another container for application to the land.

Verify that the label or information sheet contains the following information:

- the name and address of the person who prepared the sewage sludge that is sold or given away in a bag or other container for application to the land
- statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the label or information sheet
- the annual whole sludge application rate for the sewage sludge that does not cause any of the annual pollutant loading rates in Table 4, Appendix 10-2, to be exceeded.

(NOTE: These labeling requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-2, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions):

- when bulk sewage sludge is applied to the land
- when a bulk material derived from sewage sludge is applied to the land
- when sewage sludge is sold or given away in a bag or other container for application to the land
- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.)

(NOTE: The Regional Administrator of EPA or, in the case of asState with an approved sludge management program, the State Director, may apply any or all of these labeling requirements to the bulk sewage sludge or to bulk material derived from sewage sludge on a case-by-case basis after determining that the general requirements are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge or the bulk material derived from sewage sludge.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>WW.105.4.</b> The application of bulk sewage sludge is not permitted in specific circumstances (40 CFR 503.10(b), 503.10(c), 503.10(e), 503.10(f), 503.14(a) through 503.14(c)) [Revised April 2000].</p>	<p>Verify that sewage sludge meets the Class A pathogen requirements.</p> <p>(NOTE: See the definition of Class A Sludge for the alternatives that can be used to attain this classification.)</p> <p>Verify that the Class A pathogen requirements are met either prior to or at the same time as meeting the vector attraction reduction requirements (see definitions), except when the following vector reduction requirements are used:</p> <ul style="list-style-type: none"> <li>- the pH of sewage sludge is be raised to 12 or higher by alkali addition and, without the addition of more alkali, remains at 12 or higher for 2 h and then at 11.5 or higher for an additional 22 h</li> <li>- the percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials</li> <li>- the percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.</li> </ul> <p>Verify that one of the vector reduction requirements listed in paragraphs 1 through 8 of the definition for vector reduction requirements is used.</p> <p>Verify that bulk sewage sludge is not applied to the land if it is likely to adversely affect a threatened or endangered species listed under section 4 of the <i>Endangered Species Act</i> or its designated critical habitat.</p> <p>Verify that bulk sewage sludge is not applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters of the United States, as defined in 40 CFR 122.2, except as provided in a permit issued under section 402 or 404 of the CWA.</p> <p>Verify that bulk sewage sludge is not applied to agricultural land, forest, or a reclamation site that is 10 m or less from waters of the United States, as defined in 40 CFR 122.2, unless otherwise specified by the permitting authority.</p>

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<p><b>WW.105.5.</b> Bulk sewage sludge applied to agricultural land, forest, a public contact site, or a reclamation site must meet specific standards (40 CFR 503.10(b), 503.10(c), 503.10(e), 503.10(f), 503.12(b), 503.13(a)(2), 503.14(d), 503.15(a)(1), 503.15(c)(1) 503.32(a), 503.32(b), 503.33(a)(1), 503.33(b)) [Revised April 2000].</p>	<p>(NOTE: These requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-2, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions):</p> <ul style="list-style-type: none"> <li>- when bulk sewage sludge is applied to the land</li> <li>- when a bulk material derived from sewage sludge is applied to the land</li> <li>- when sewage sludge is sold or given away in a bag or other container for application to the land</li> <li>- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.)</li> </ul> <p>(NOTE: The Regional Administrator of EPA or, in the case of a state with an approved sludge management program, the State Director may apply any or all of these requirements to the bulk sewage sludge or to bulk material derived from sewage sludge on a case-by-case basis after determining that the general requirements are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge or the bulk material derived from sewage sludge.)</p> <p>Verify that, if bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site, either of the following are met:</p> <ul style="list-style-type: none"> <li>- the cumulative loading rate for each pollutant does not exceed the cumulative pollutant loading rate for the pollutant in Table 2, Appendix 10-2</li> <li>- the concentration of each pollutant in the sewage sludge does not exceed the concentration for the pollutant in Table 1, Appendix 10-2.</li> </ul> <p>(NOTE: The requirements for cumulative loading rates do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-2, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions):</p> <ul style="list-style-type: none"> <li>- when bulk sewage sludge is applied to the land</li> <li>- when a bulk material derived from sewage sludge is applied to the land</li> <li>- when sewage sludge is sold or given away in a bag or other container for application to the land</li> </ul>

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- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.)

(NOTE: The Regional Administrator of EPA or, in the case of a state with an approved sludge management program, the State Director, may apply any or all of these cumulative loading rate requirements to the bulk sewage sludge or to bulk material derived from sewage sludge on a case-by-case basis after determining that the general requirements are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge or the bulk material derived from sewage sludge.)

Verify that bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site at a whole sludge application rate that is equal to or less than the agronomic rate for the bulk sewage sludge, unless, in the case of a reclamation site, otherwise specified by the permitting authority.

Verify that sewage sludge meets either the Class A or the Class B pathogen requirements.

(NOTE: See the definition of Class A Sludge or Class B Sludge for the alternatives that can be used to attain this classification.)

Verify that the Class A pathogen requirements are met either prior to or at the same time as meeting the vector attraction reduction requirements (see definitions), except when the following vector reduction requirements are used:

- the pH of sewage sludge is be raised to 12 or higher by alkali addition and, without the addition of more alkali, remains at 12 or higher for 2 h and then at 11.5 or higher for an additional 22 h
- the percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials
- the percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.

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**WW.105.6.** Bulk sewage sludge applied to a lawn or home garden must meet certain standards (40 CFR 503.13(a)(3), 503.15(a)(2), 503.15(c)(2), 503.32(a), 503.33(a)(2)) [Revised April 2000].

Verify that, if sewage sludge meets the Class B requirements, the following site restrictions are met:

- food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface are not harvested for 14 mo after application of sewage sludge
- food crops with harvested parts below the surface of the land are not harvested for 20 mo after application of sewage sludge when the sewage sludge remains on the land surface for 4 mo or longer prior to incorporation into the soil
- food crops with harvested parts below the surface of the land are not harvested for 38 mo after application of sewage sludge when the sewage sludge remains on the land surface for less than 4 mo prior to incorporation into the soil
- food crops, feed crops, and fiber crops are not harvested for 30 days after application of sewage sludge
- animals are not grazed on the land for 30 days after application of sewage sludge
- turf grown on land where sewage sludge is applied is not harvested for 1 yr after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority
- public access to land with a high potential for public exposure is restricted for 1 yr after application of sewage sludge
- public access to land with a low potential for public exposure is restricted for 30 days after application of sewage sludge.

Verify that one of the vector reduction requirements listed in paragraphs 1 through 11 of the definition for vector reduction requirements is used.

Verify that, if bulk sewage sludge is applied to a lawn or home garden, it does not contain pollutants in excess of the limits in Table 1, Appendix 10-2.

Verify that sewage sludge meets the Class A pathogen requirements.

(NOTE: See the definition of Class A Sludge for the alternatives that can be used to attain this classification.)

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**WW.105.7.** The application of domestic septage to agricultural land, forest, or a reclamation site must meet specific requirements (40 CFR 503.10(b), 503.10(c), 503.10(e), 503.10(f), 503.12(c), 503.13(c), 503.15(b), 503.15(d), 503.32(c), 503.33(a)(5)) [Revised April 2000].

Verify that the Class A pathogen requirements are met either prior to or at the same time as meeting the vector attraction reduction requirements (see definitions), except when the following vector reduction requirements are used:

- the pH of sewage sludge is be raised to 12 or higher by alkali addition and, without the addition of more alkali, remains at 12 or higher for 2 h and then at 11.5 or higher for an additional 22 h
- the percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials
- the percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process is equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.

Verify that one of the vector reduction requirements listed in paragraphs 1 through 8 of the definition for vector reduction requirements is met.

Verify that the annual application rate for domestic septage applied to agricultural lands, forest or a reclamation site during a 365-day period does not exceed the annual application rate calculated using the following equation:

$$AAR = \frac{N}{0.0026}$$

AAR = annual application rate in gallons per acre per 365-day period

N = amount of nitrogen in pounds per acre per 365-day period needed by the crop or vegetation grown on the land.

(NOTE: The annual application rate requirements do not apply when the following meets the pollutant concentrations in Table 1, Appendix 10-2, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions):

- when bulk sewage sludge is applied to the land

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- when a bulk material derived from sewage sludge is applied to the land
- when sewage sludge is sold or given away in a bag or other container for application to the land
- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.)

(NOTE: The Regional Administrator of EPA or, in the case of a state with an approved sludge management program, the State Director may apply any or all of these annual application rate requirements to the bulk sewage sludge or to bulk material derived from sewage sludge on a case-by-case basis after determining that the general requirements are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge or the bulk material derived from sewage sludge.)

Verify that one of the following is met when domestic septage is applied to agricultural land, forest, or a reclamation site:

- site restrictions as follows:
  - food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface are not harvested for 14 mo after application of sewage sludge
  - food crops with harvested parts below the surface of the land are not harvested for 20 mo after application of sewage sludge when the sewage sludge remains on the land surface for 4 mo or longer prior to incorporation into the soil
  - food crops with harvested parts below the surface of the land are not harvested for 38 mo after application of sewage sludge when the sewage sludge remains on the land surface for less than 4 mo prior to incorporation into the soil
  - food crops, feed crops, and fiber crops are not harvested for 30 days after application of sewage sludge
  - animals are not grazed on the land for 30 days after application of sewage sludge
  - turf grown on land where sewage sludge is applied is not harvested for 1 yr after application of the sewage sludge when the harvested turf is placed on either land with a high potential for public exposure or a lawn, unless otherwise specified by the permitting authority
  - public access to land with a high potential for public exposure is restricted for 1 yr after application of sewage sludge

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	<ul style="list-style-type: none"> <li>- public access to land with a low potential for public exposure is restricted for 30 days after application of sewage sludge.</li> <li>- the pH is raised to 12 or higher by alkali addition and, without the addition of more alkali, remains at 12 or higher for 30 min and the following site restrictions are met:               <ul style="list-style-type: none"> <li>- food crops with harvested parts that touch the sewage sludge/soil mixture and are totally above the land surface are not harvested for 14 mo after application of sewage sludge</li> <li>- food crops with harvested parts below the surface of the land are not harvested for 20 mo after application of sewage sludge when the sewage sludge remains on the land surface for 4 mo or longer prior to incorporation into the soil</li> <li>- food crops with harvested parts below the surface of the land are not harvested for 38 mo after application of sewage sludge when the sewage sludge remains on the land surface for less than 4 mo prior to incorporation into the soil</li> <li>- food crops, feed crops, and fiber crops are not harvested for 30 days after application of sewage sludge.</li> </ul> </li> </ul> <p>Verify that one of the following vector reduction requirements is used:</p> <ul style="list-style-type: none"> <li>- sewage sludge is injected below the surface of the land; no significant amount of the sewage sludge is present on the land surface within 1 h after the sewage sludge is injected; when the sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge is injected below the land surface within 8 h after being discharged from the pathogen treatment process</li> <li>- sewage sludge applied to the land surface or placed on a surface disposal site is incorporated into the soil within 6 h after application to or placement on the land; when sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge is applied to or placed on the land within 8 h after being discharged from the pathogen treatment process</li> <li>- the pH of domestic septage is raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 min.</li> </ul>



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<p><b>WW.105.8.</b> When applying sewage sludge to an active sewage sludge unit, certain requirements must be met (40 CFR 503.33(a)(4) and 503.33(a)(5)) [Added April 2000].</p>	<p>Verify that one of the vector reduction requirements listed in paragraphs 1 through 11 of the definition for vector reduction requirements is met when sewage sludge, other than domestic septage, is placed on an active sewage sludge unit.</p> <p>Verify that one of the following vector reduction requirements is met when applying domestic septage on an active sewage sludge unit:</p> <ul style="list-style-type: none"> <li>- sewage sludge is injected below the surface of the land; no significant amount of the sewage sludge is present on the land surface within 1 h after the sewage sludge is injected; when the sewage sludge that is injected below the surface of the land is Class A with respect to pathogens, the sewage sludge is injected below the land surface within 8 h after being discharged from the pathogen treatment process</li> <li>- sewage sludge applied to the land surface or placed on a surface disposal site is incorporated into the soil within 6 h after application to or placement on the land; when sewage sludge that is incorporated into the soil is Class A with respect to pathogens, the sewage sludge is applied to or placed on the land within 8 h after being discharged from the pathogen treatment process</li> <li>- sewage sludge placed on an active sewage sludge unit is covered with soil or other material at the end of each operating day</li> <li>- the pH of domestic septage is raised to 12 or higher by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 30 min.</li> </ul>



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**LAND APPLICATION OF  
SLUDGE**

**WW.110  
Vectors and Pathogens**

**WW.110.1.** Checklist  
item deleted **[Deleted  
April 2000].**

**WW.110.2.** Checklist  
item deleted **[Deleted  
April 2000].**

**WW.110.3.** Checklist  
item deleted **[Deleted  
April 2000].**

**WW.110.4.** Checklist  
item deleted **[Deleted  
April 2000].**

**WW.110.5.** Checklist  
item deleted **[Deleted  
April 2000].**



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**LAND APPLICATION OF  
SLUDGE**

**WW.115  
Notifications**

**WW.115.1.** Persons who prepare sewage sludge are required to provide specific notifications (40 CFR 503.10(b), 503.10(c), 503.10(e), 503.10(f), 503.12(d), 503.12(f), 503.12(g), and 503.12(l)) [Revised April 2000].

(NOTE: The requirements for land application of sewage sludge apply to any person who prepares sewage sludge that is applied to the land, to any person who applies sewage sludge to the land, to sewage sludge applied to the land, and to the land on which sewage sludge is applied. These requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-6, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions) (40 CFR 503.10(a), 503.10(d), and 503.10(g)) [Added April 2000]:

- when a bulk material derived from sewage sludge is applied to the land
- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.)

(NOTE: These requirements apply to sewage sludge generated during the treatment of domestic sewage in a treatment works. For exclusions see the definition of the term "exempted sludge.")

Verify that the person who prepares bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site provides the person who applies the bulk sewage sludge written notification of the concentration of total nitrogen (as N on a dry weight basis) in the bulk sewage sludge.

Verify that, when a person who prepares bulk sewage sludge provides the bulk sewage sludge to a person who applies the bulk sewage sludge to the land, the preparer of the sewage sludge provides the person who applies the sewage sludge notice and necessary information to comply with the requirements in 40 CFR 503.10 through 503.18.

Verify that, when a person who prepares sewage sludge provides the sewage sludge to another person who prepares the sewage sludge, the provider of the sewage sludge provides the receiver of the sewage sludge notice and necessary information to comply with the requirements in 40 CFR 503.10 through 503.18.

Verify that any person who prepares bulk sewage sludge that is applied to land in a state other than the state in which the bulk sewage sludge is prepared provides written notice containing the following information, prior to the initial application of bulk sewage sludge to the land application site by the applier, to the permitting authority for the State in which the bulk sewage sludge is proposed to be applied:

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- the location, by either street address or latitude and longitude, of each land application site
- the approximate time period in which bulk sewage sludge will be applied to the site
- the name, address, telephone number, and NPDES permit number (if appropriate) for the person who prepares the bulk sewage sludge
- the name, address, telephone number, and NPDES permit number (if appropriate) for the person who will apply the bulk sewage sludge.

(NOTE: These requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-6, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions):

- when bulk sewage sludge is applied to the land
- when a bulk material derived from sewage sludge is applied to the land
- when sewage sludge is sold or given away in a bag or other container for application to the land
- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.)

(NOTE: The Regional Administrator of EPA or, in the case of a state with an approved sludge management program, the State Director, may apply any or all of these requirements to the bulk sewage sludge or to bulk material derived from sewage sludge on a case-by-case basis after determining that the general requirements are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge or the bulk material derived from sewage sludge.)

**WW.115.2.** Checklist item deleted. **[Deleted April 2000].**

This checklist item was incorporated into WW.115.1.

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.115.3.</b> Persons who apply bulk sewage sludge to the land are required to provide notice to the land owner or lease holder (40 CFR 503.10(b), 503.10(c), 503.10(e), and 503.10(f), and 503.12(h)) <b>[Revised April 2000]</b>.</p>	<p>Verify that notice is given that includes the information needed to verify compliance with the land application regulations.</p> <p>(NOTE: These requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-6, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions):</p> <ul style="list-style-type: none"> <li>- when bulk sewage sludge is applied to the land</li> <li>- when a bulk material derived from sewage sludge is applied to the land</li> <li>- when sewage sludge is sold or given away in a bag or other container for application to the land</li> <li>- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.</li> </ul> <p>(NOTE: The Regional Administrator of EPA or, in the case of a state with an approved sludge management program, the State Director, may apply any or all of these requirements to the bulk sewage sludge or to bulk material derived from sewage sludge on a case-by-case basis after determining that the general requirements are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge or the bulk material derived from sewage sludge.)</p>
<p><b>WW.115.4.</b> Checklist item deleted. <b>[Deleted April 2000]</b>.</p>	<p>This checklist item was incorporated into WW.115.1.</p>
<p><b>WW.115.5.</b> When applying bulk sewage sludge subject to the cumulative loading rates in Table 2, Appendix 10-6, written notice is required to be provided prior to the initial application of the sludge (40 CFR 503.10(b), 503.10(c), 503.10(e), and 503.10(f), and 503.12(j)) <b>[Revised April 2000]</b>.</p>	<p>Verify that, any person who applies bulk sewage sludge subject to the cumulative pollutant loading rates in Table 2, Appendix 10-6 to the land provides written notice to the permitting authority for the state in which the bulk sewage sludge will be applied.</p> <p>Verify that the notice includes:</p> <ul style="list-style-type: none"> <li>- the location, by either street address or latitude and longitude, of the land application site</li> <li>- the name, address, telephone number, and NPDES permit number (if appropriate) of the person who will apply the bulk sewage sludge.</li> </ul> <p>Verify that notice is provided prior to the initial application of bulk sewage sludge to a land application site by the applier.</p>

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(NOTE: These requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-6, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions):

- when bulk sewage sludge is applied to the land
- when a bulk material derived from sewage sludge is applied to the land
- when sewage sludge is sold or given away in a bag or other container for application to the land
- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.

(NOTE: The Regional Administrator of EPA or, in the case of a state with an approved sludge management program, the State Director, may apply any or all of these requirements to the bulk sewage sludge or to bulk material derived from sewage sludge on a case-by-case basis after determining that the general requirements are needed to protect public health and the environment from any reasonably anticipated adverse effect that may occur from any pollutant in the bulk sewage sludge or the bulk material derived from sewage sludge.)



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<p><b>LAND APPLICATION OF SLUDGE</b></p> <p><b>WW.120 Monitoring</b></p> <p><b>Ww.120.1.</b> Monitoring for the limitations in Tables 1 through 4 of Appendix 10-6, pathogen density in Class A and Class B pathogens, and vector attraction reduction requirements must be done according to the frequency in Table 5, Appendix 10-6 (40 CFR 503.16(a)) [Revised April 2000].</p> <p><b>WW.120.2.</b> In specific instances, when domestic sewage is applied to agricultural land, forest, or a reclamation site, each container of domestic septage is required to be monitored for compliance (40 CFR 503.16(b)) [Revised April 2000].</p>	<p>(NOTE: The requirements for land application of sewage sludge apply to any person who prepares sewage sludge that is applied to the land, to any person who applies sewage sludge to the land, to sewage sludge applied to the land, and to the land on which sewage sludge is applied. These requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-6, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions) (40 CFR 503.10(a), 503.10(d), and 503.10(g)) [Added April 2000]:</p> <ul style="list-style-type: none"> <li>- when a bulk material derived from sewage sludge is applied to the land</li> <li>- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.)</li> </ul> <p>(NOTE: These requirements apply to sewage sludge generated during the treatment of domestic sewage in a treatment works. For exclusions see the definition of the term "exempted sludge.")</p> <p>Verify that monitoring for the limitations in Tables 1 through 4 of Appendix 10-6, pathogen density in Class A and Class B pathogens, and vector attraction reduction requirements is done according to the frequency in Table 5 of Appendix 10-6.</p> <p>(NOTE: After the sewage sludge has been monitored for 2 yr, the permitting authority may reduce the frequency of monitoring for pollutant concentrations and for pathogen density requirements.)</p> <p>Verify that each container of domestic septage is monitored if the pH has been raised to 12 or higher by alkali addition, and kept there for 30 min.</p>



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**LAND APPLICATION OF  
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**WW.125  
Recordkeeping and  
Reporting**

**WW.125.1.** When bulk sewage sludge is applied to the land or sold in a bag or container, specific recordkeeping requirements must be met (40 CFR 503.17(a)(1), 503.17(a)(6)) [Revised April 2000].

(NOTE: The requirements for land application of sewage sludge apply to any person who prepares sewage sludge that is applied to the land, to any person who applies sewage sludge to the land, to sewage sludge applied to the land, and to the land on which sewage sludge is applied. These requirements do not apply when the following meets the ceiling concentrations and pollutant concentrations in Tables 1 and 3 of Appendix 10-6, the Class A pathogen requirements (see definitions), and one of the vector attraction reduction requirements in 40 CFR 503.33(b)(1) through (b)(8) (see definitions) (40 CFR 503.10(a), 503.10(d), and 503.10(g)) [Added April 2000]:

- when a bulk material derived from sewage sludge is applied to the land
- when a material derived from sewage sludge is sold or given away in a bag or other container for application to the land.)

(NOTE: These requirements apply to sewage sludge generated during the treatment of domestic sewage in a treatment works. For exclusions see the definition of the term "exempted sludge.")

Determine if bulk sewage sludge is applied to the land, or if bulk sewage sludge is sold or given away in a bag or container.

Verify that, if the sludge meets the requirements in Table 1, Appendix 10-2, Class A pathogen requirements, and vector attraction reduction requirements (see definitions) the following information is retained for 5 yr:

- the concentration of each pollutant listed in Table 1, Appendix 10-2 in the sewage sludge
- the following certification statement:
  - "I certify, under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements in Sec. 503.32(a) and the vector attraction reduction requirement in [insert one of the vector attraction reduction requirements in Sec. 503.33(b)(1) through Sec. 503.33(b)(8)] was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."
- a description of how the Class A pathogen requirements are met
- a description of how one of the vector attraction reduction requirements is met.

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<p><b>WW.125.2.</b> When bulk material is derived from sewage sludge for application to the land or material derived from sewage sludge is to be sold or given away in a bag or container, specific recordkeeping requirements must be met (40 CFR 503.17(a)(2)) [Revised April 2000].</p>	<p>Verify that, when bulk sewage sludge is given away or sold in a bag or container and it meets the requirements in Table 4, Appendix 10-6, the preparer retains the following information for 5 yr:</p> <ul style="list-style-type: none"> <li>- the annual whole sludge application rate for the sewage sludge that does not cause the annual pollutant loading rates in Table 4, Appendix 10-6 to be exceeded</li> <li>- the concentration of each pollutant listed in Table 4, Appendix 10-6 in the sewage sludge</li> <li>- the following certification statement:               <p style="margin-left: 40px;">"I certify, under penalty of law, that the information that will be used to determine compliance with the management practice in Sec. 503.14(e), the Class A pathogen requirement in Sec. 503.32(a), and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in Sec. 503.33(b)(1) through Sec. 503.33(b)(8)) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> </li> <li>- a description of how the Class A pathogen requirements are met</li> <li>- a description of how one of the vector attraction requirements is met.</li> </ul> <p>Verify that, if the derived material meets the requirements in Table 1, Appendix 10-6, Class A pathogen requirements, and vector attraction reduction requirements (see definitions), the following information is retained for 5 yr:</p> <ul style="list-style-type: none"> <li>- the concentration of each pollutant listed in Table 1, Appendix 10-6</li> <li>- the following certification statement:               <p style="margin-left: 40px;">"I certify, under penalty of law, that the information that will be used to determine compliance with the Class A pathogen requirements in Sec. 503.32(a) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in Sec. 503.33(b)(1) through (b)(8)) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> </li> </ul>

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<p><b>WW.125.3.</b> When bulk sewage sludge is applied to agricultural land, forest, a public contact site, or a reclamation site, specific reporting requirements must be met (40 CFR 503.17(a)(3) through 503.17(a)(5)) [Revised April 2000].</p>	<ul style="list-style-type: none"> <li>- a description of how the Class A pathogen requirements are being met</li> <li>- a description of how the vector attraction reduction is being met.</li> </ul> <p>Determine if bulk sewage sludge is applied to agricultural land, forest, a public contact site, or reclamation site.</p> <p>Verify that, if bulk sewage sludge material applied to agricultural land, forest, a public contact site, or a reclamation site meets the requirements in Table 1, Appendix 10-6, Class A pathogen requirements, and vector attraction reduction requirements (see definitions), the following information is retained for 5 yr by the person who prepares the sludge:</p> <ul style="list-style-type: none"> <li>- the concentration of each pollutant listed in Table 1, Appendix 10-6</li> <li>- the following statement:               <p align="center">"I certify, under penalty of law, the information that will be used to determine compliance with the Class A pathogen requirements in Sec. 503.32(a) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> </li> <li>- a description of how the Class A pathogen requirements are being met</li> <li>- a description of how the vector attraction reduction is being met.</li> </ul> <p>Verify that, if bulk sewage sludge material applied to agricultural land, forest, a public contact site, or a reclamation site meets the requirements in Table 1, Appendix 10-6, Class A pathogen requirements, and vector attraction reduction requirements, the following information is retained for 5 yr by the person who applies the sludge:</p> <ul style="list-style-type: none"> <li>- the following statement:               <p align="center">"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in Sec. 503.14 and the vector attraction reduction requirement in (insert either Sec. 503.33(b)(9) or (b)(10)) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> </li> </ul>

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	<ul style="list-style-type: none"> <li>- a description of how required management practices are implemented</li> <li>- a description of how the vector reduction requirements are met.</li> </ul> <p>Verify that, if bulk sewage sludge material applied to agricultural land, forest, a public contact site, or a reclamation site meets the requirements in Table 1, Appendix 10-6, Class B pathogen requirements, and vector attraction reduction requirements, the following information is retained for 5 yr by the person who prepares the sludge:</p> <ul style="list-style-type: none"> <li>- the concentration of each pollutant listed in Table 1, Appendix 10-6</li> <li>- the following statement:               <p style="margin-left: 40px;">"I certify under, penalty of law, that the information that will be used to determine compliance with the Class B pathogen requirements in Sec. 503.32(b) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in Sec. 503.33(b)(1) through (b)(8) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> </li> <li>- a description of how the Class A pathogen requirements are being met</li> <li>- a description of how the vector attraction reduction is being met.</li> </ul> <p>Verify that, if bulk sewage sludge material applied to agricultural land, forest, a public contact site, or a reclamation site meets the requirements in Table 1, Appendix 10-6, Class B pathogen requirements, and vector attraction reduction requirements, the following information is retained for 5 yr by the person who applies the sludge:</p> <ul style="list-style-type: none"> <li>- the following statement:               <p style="margin-left: 40px;">"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in Sec. 503.14, the site restrictions in Sec. 503.32(b)(5), and the vector attraction reduction requirement in (insert either Sec. 503.33(b)(9) or (b)(10) if one of those requirements is met) was prepared for each site on which bulk sewage sludge is applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this</p> </li> </ul>

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information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

- a description of how required management practices are implemented
- a description of how the vector reduction requirements are met
- the date bulk sewage sludge is applied to each site.

Verify that, if bulk sewage sludge material applied to agricultural land, forest, a public contact site, or a reclamation site meets the requirements in Table 2, Appendix 10-6, the following information is retained for 5 yr by the person who prepares the sludge:

- the concentration of each pollutant listed in Table 3, Appendix 10-6
- the following statement:

"I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements in (insert either Sec. 503.32(a) or Sec. 503.32(b)) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in Sec. 503.33(b)(1) through (b)(8) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."

- a description of how the pathogen requirements are being met
- a description of how the vector attraction reduction is being met when used.

Verify that, if bulk sewage sludge material applied to agricultural land, forest, a public contact site, or a reclamation site meets the requirements in Table 2, Appendix 10-6, the following information is retained indefinitely by the person who applies the sludge:

- the location, by either street address or latitude and longitude, of each site on which bulk sewage sludge is applied
- the number of hectares in each site on which bulk sewage sludge is applied
- the date bulk sewage sludge is applied to each site
- the cumulative amount of each pollutant (i.e., kilograms) listed in Table 2, Appendix 10-6 in the bulk sewage sludge applied to each site, including the amount applied since July 30, 1993
- the amount of sewage sludge (i.e., metric tons) applied to each site

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	<ul style="list-style-type: none"> <li>- the following certification statement:                "I certify, under penalty of law, that the information that will be used to determine compliance with the requirement to obtain information in Sec. 503.12(e)(2) was prepared for each site on which bulk sewage sludge was applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</li> <li>- a description of how the requirements to obtain information in 40 CFR 503.12(e)(2) (see checklist item <b>WW.105.2</b>) are met.</li> </ul> <p>Verify that, if bulk sewage sludge material applied to agricultural land, forest, a public contact site, or a reclamation site meets the requirements in Table 2, Appendix 10-6, the following information is retained for 5 yr by the person who applies the sludge:</p> <ul style="list-style-type: none"> <li>- the following certification statement:                "I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in Sec. 503.14 was prepared for each site on which bulk sewage sludge was applied under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</li> <li>- a description of how the management practices in 40 CFR 503.14 are met for each site on which bulk sewage sludge is applied</li> <li>- the following certification statement when the bulk sewage sludge meets the Class B pathogen requirements:                "I certify, under penalty of law, that the information that will be used to determine compliance with the site restrictions in Sec. 503.32(b)(5) for each site on which Class B sewage sludge was applied was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</li> <li>- a description of how the site restrictions are met for each site on which Class B bulk sewage sludge is applied</li> <li>- the following certification statement</li> </ul>



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	<p>"I certify, under penalty of law, that the information that will be used to determine compliance with the vector attraction reduction requirement in (insert either Sec. 503.33(b)(9) or Sec. 503.33(b)(10)) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> <p>- a description of how the vector attraction reduction requirements are met.</p>
<p><b>WW.125.4.</b> Checklist item deleted [Deleted April 2000].</p>	<p>This checklist item has been incorporated into WW.125.3.</p>
<p><b>WW.125.5.</b> Checklist item deleted [Deleted April 2000].</p>	<p>This checklist item has been incorporated into WW.125.3.</p>
<p><b>WW.125.6.</b> Checklist item deleted [Deleted April 2000].</p>	<p>This checklist item has been incorporated into WW.125.1.</p>
<p><b>WW.125.7.</b> When domestic septage is applied to agricultural land, forest, or a reclamation site, specific recordkeeping requirements must be met (40 CFR 503.17(b)) [Revised April 2000].</p>	<p>Determine if domestic septage is applied to agricultural land, forest, a public contact site, or reclamation site.</p> <p>Verify that the following information is retained for 5 yr by the person who applies the domestic septage:</p> <ul style="list-style-type: none"> <li>- the location of each site on which domestic septage is applied</li> <li>- the number of acres in each site on which domestic septage is applied</li> <li>- the date of application at each site</li> <li>- the nitrogen requirements for the crop or vegetation grown on each site during a 365-day period</li> <li>- the rate in gal/acre per 365-day period at which domestic septage is applied to each site</li> <li>- the following statement: <ul style="list-style-type: none"> <li>"I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements (insert either Sec. 503.32(c)(1) or Sec. 503.32(c)(2)) and the vector attraction reduction requirement in [insert Sec. 503.33(b)(9), 503.33(b)(10), or Sec. 503.33(b)(12)] was prepared under my direction and supervision in accordance with the system designed to ensure</li> </ul> </li> </ul>

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<p><b>WW.125.8.</b> Class I sludge management facilities, POTW/FOTWs with a design flow rate equal to or greater than 1 million gal/day, and POTW/FOTWs that serve 10,000 people or more are required to submit specific information to the permitting authority (40 CFR 503.18) [Revised April 2000].</p>	<p>that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.”</p> <ul style="list-style-type: none"> <li>- a description of how the pathogen requirements are being met</li> <li>- a description of how the vector attraction reduction is being met.</li> </ul> <p>Verify that the following information is submitted to the permitting authority by 19 February of each year:</p> <ul style="list-style-type: none"> <li>- the concentration of each pollutant listed in Table 1, Appendix 10-6</li> <li>- a statement certifying which form of vector attraction reduction is being used and that Class A pathogen requirements are being met</li> <li>- a description of how the Class A pathogen requirements are being met</li> <li>- a description of how the vector attraction reduction is being met.</li> </ul> <p>Verify that the following information is submitted on 19 February of each year when 90 percent or more of any of the cumulative loading rates in Table 2, Appendix 10-6 are reached at a land application site:</p> <ul style="list-style-type: none"> <li>- the concentration of each pollutant listed in Table 2, Appendix 10-6</li> <li>- the number of hectares in each site upon which bulk sewage sludge is applied</li> <li>- the date and time bulk sewage sludge is applied to each site</li> <li>- the cumulative amount of each pollutant from Table 2, Appendix 10-6 in the bulk sewage sludge applied to each site</li> <li>- amount applied to each site</li> <li>- a certification statement indicating that required information for each site has been obtained</li> <li>- a description of how the requirements to obtain information were met.</li> </ul>

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<p><b>SURFACE DISPOSAL OF SLUDGE</b></p> <p><b>WW.135</b> General</p> <p><b>WW.135.1.</b> An active sewage sludge unit that is located within 60 m of a fault that has displacement in Holocene time, or is located in an unstable area pursuant to either section 402 or 404 of the CWA is required to close by 22 March 1994 (40 CFR 503.22(b)) [Revised April 2000].</p> <p><b>WW.135.2.</b> A written closure and postclosure plan that meets specific requirements must be submitted to the permitting authority 180 days prior to the date of closure of an active sewage sludge unit (40 CFR 503.22(c)) [Revised April 2000].</p>	<p>(NOTE: The requirements concerning the surface disposal of sludge applies to any person who prepares sewage sludge that is placed on a surface disposal site, to the owner/operator of a surface disposal site, to sewage sludge placed on a surface disposal site, and to a surface disposal site. The requirements concerning surface disposal of sludge do not apply to sewage sludge stored on the land or to the land on which sewage sludge is stored. It also does not apply to sewage sludge that remains on the land for longer than 2 yr when the preparer of the sewage sludge demonstrates that the land on which the sewage sludge remains is not an active sewage sludge unit. It also does not apply to sewage treated on the land or to the land on which the sewage sludge is treated (40 CFR 503.20) [Revised April 2000].)</p> <p>(NOTE: These requirements apply to sewage sludge generated during the treatment of domestic sewage in a treatment works. For exclusions see the definition of the term "exempted sludge.")</p> <p>Determine if there is a sewage sludge unit that is located within 60 m of a fault that has displacement in Holocene time, or is located in an unstable area pursuant to either section 402 or 404 of the CWA.</p> <p>Verify that the unit was closed by 22 March 1994 unless, in the case of an active sewage sludge unit located within 60 m of a fault that has displacement in Holocene time, otherwise stipulated by the permitting authority.</p> <p>Determine if there are plans to close an active sewage sludge unit or if one has recently been closed.</p> <p>Verify that the closure and postclosure plan was submitted to the permitting authority at least 180 days in advance of closure and the plan contained the following:</p> <ul style="list-style-type: none"> <li>- a discussion of how the leachate collection system will be operated and maintained for 3 yr after closure if the unit has a liner and leachate collection system</li> <li>- a description of the system used to monitor for methane gas in the air in any structure within the surface disposal site and in the air at the property line of the surface disposal site</li> </ul>

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<p><b>WW.135.3.</b> Active sewage sludge units without a liner and leachate collection system are required to meet specific standards (40 CFR 503.23) [Revised April 2000].</p>	<p>- a discussion of how public access will be restricted for 3 yr after the last sewage sludge was placed on the land.</p> <p>Verify that the following concentrations are not exceeded in sewage sludge placed on an active sewage sludge unit without a liner and leachate collection system:</p> <ul style="list-style-type: none"> <li>- arsenic: 73 mg/kg</li> <li>- chromium: 600 mg/kg</li> <li>- nickel: 420 mg/kg.</li> </ul> <p>(NOTE: Amounts are based on a dry weight basis.)</p> <p>(NOTE: At the time of permit application, the owner/operator of a surface disposal site may request site-specific pollutant limits for an active sewage sludge unit without a liner and leachate collection system when the existing values for site parameters specified by the permitting authority are different from the values for those parameters used to develop the above pollutant limits and when the permitting authority determines that site-specific pollutant limits are appropriate for the active sewage sludge unit.)</p> <p>Verify that the concentration of each pollutant listed above in sewage sludge placed on an active sewage sludge unit without a liner and leachate collection system, does not exceed either the concentration for the pollutant determined during a site-specific assessment, as specified by the permitting authority, or the existing concentration of the pollutant in the sewage sludge, whichever is lower.</p> <p>Verify that, except when there are site-specific limits, the concentration of arsenic, chromium, and nickel in sewage sludge placed on an active sewage sludge unit with a boundary less than 150 m from the property line of the surface disposal site does not exceed the concentration determined using the following procedure:</p> <ul style="list-style-type: none"> <li>- the actual distance from the active sewage sludge unit boundary to the property line of the surface disposal site is determined</li> <li>- the concentration of each pollutant listed in Table 6, Appendix 10-2 in the sewage sludge does not exceed the concentration that corresponds to the actual distance in the Table.</li> </ul>
<p><b>WW.135.4.</b> Checklist item deleted [Deleted April 2000].</p>	<p>This checklist item was incorporated into WW.135.3.</p>

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<p><b>WW.135.5.</b> Sewage sludge units are required to be operated according to specific operation and management standards (40 CFR 503.24) [Revised April 2000].</p>	<p>Verify that sewage sludge is not placed in an active sewage sludge unit if it is likely to adversely affect a threatened or endangered species or its designated critical habitat.</p> <p>Verify that active sewage sludge units:</p> <ul style="list-style-type: none"> <li>- do not restrict the flow of a base flood</li> <li>- are located 60 m or more from a fault that has displacement in Holocene time, unless otherwise specified by the permitting authority</li> <li>- are not located in an unstable area</li> <li>- will not contaminate an aquifer</li> <li>- are not located in a wetland unless by permit.</li> </ul> <p>(NOTE: The results of a groundwater monitoring program developed by a qualified groundwater scientist or a certification by a qualified groundwater scientist will be used to demonstrate that sewage sludge placed on an active sewage sludge unit does not contaminate an aquifer.)</p> <p>Verify that, when a surface disposal site is located in a seismic impact zone, the unit is designed to withstand the maximum recorded horizontal ground level acceleration.</p> <p>Verify that the following occurs for runoff:</p> <ul style="list-style-type: none"> <li>- the runoff is collected and disposed of in accordance with an NPDES permit and any other applicable requirements</li> <li>- the runoff collection system has the capacity to handle runoff from a 24-h, 25-yr storm event.</li> </ul> <p>Verify that leachate is handled so that:</p> <ul style="list-style-type: none"> <li>- the leachate collection system for an active sewage sludge unit that has a liner and leachate collection system is operated and maintained during the period the sewage sludge unit is active and for 3 yr after the sewage sludge unit closes</li> <li>- leachate from an active sewage sludge unit that has a liner and a leachate collection system is collected and disposed of in accordance with the applicable requirements from when the unit is active and for 3 yr after the sewage sludge unit closes.</li> </ul>

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Verify that the following occurs when a cover is placed on a sewage sludge unit:

- the concentration of methane gas in the air in any structure within the surface disposal site of an active unit does not exceed 25 percent of the lower explosive limit for methane gas during the period that the unit is active and the concentration of the methane gas in air at the property line of the surface disposal site does not exceed the lower explosive limit for methane gas during the period that the sewage sludge unit is active
- at closure when the final cover is placed the concentration of methane gas in air in any structure within any structure within the surface disposal site does not exceed 25 percent of the lower explosive limit for methane gas for 3 yr after the unit closes, and the concentration of methane gas in air at the property line of the unit does not exceed the lower explosive limit for methane gas 3 yr after closure unless otherwise specified by the permitting authority.

Verify that a food or feed crop or a fiber crop are not grown on an active sewage sludge unit unless it has been demonstrated to the permitting authority that through management practices, public health and the environment are protected from any reasonably anticipated adverse effects.

Verify that animals are not grazed on an active sewage sludge unit unless it has been demonstrated to the permitting authority that through management practices, public health and the environment are protected from any reasonably anticipated adverse effects.

Verify that public access is restricted for the period that the surface disposal site contains an active unit, and for 3 yr after the last active sewage sludge unit in the surface disposal site closes.

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<p><b>WW.135.6.</b> Class A or one of the Class B pathogen requirements (see definitions) must be met when placing sewage sludge on an active sewage sludge unit unless it is covered with soil or other material at the end of each operating day (40 CFR 503.25(a)) <b>[Revised April 2000]</b>.</p> <p><b>WW.135.7.</b> Vector attraction reduction must be done when sewage sludge or domestic septage is placed on an active sewage sludge unit (40 CFR 503.25(b) and 503.25(c)) <b>[Revised April 2000]</b>.</p> <p><b>WW.135.8.</b> The owner of a surface disposal site is required to provide written notification to the subsequent owner of the site that sewage sludge was placed on the land (40 CFR 503.22(d)) <b>[Added April 2000]</b>.</p>	<p>Verify that sewage sludge being placed on an active sewage sludge unit meets Class A or tClass B pathogen requirements.</p> <p>Verify that if the sludge does not meet pathogen requirements, it is covered with soil or other material at the end of each operating day.</p> <p>Verify that, when other than domestic septage is placed on an active sewage sludge unit, one of the vector attraction reduction requirements in paragraphs 1 through 11 of the vector attraction reduction alternatives (see definitions) are met when sewage sludge is placed on an active sewage sludge unit.</p> <p>Verify that, when domestic septage is placed on an active sewage sludge unit, one of the vector attraction reduction requirements in paragraphs 9 through 12 of the vector attraction reduction alternatives (see definitions) are met when domestic septage is placed on an active sewage sludge unit.</p> <p>Verify that, if there are plans to turn the surface disposal site over to another owner, the subsequent owner is notified that sewage sludge was placed on the land.</p>





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<p><b>SURFACE DISPOSAL OF SLUDGE</b></p> <p><b>WW.140</b> <b>Monitoring and Documentation</b></p> <p><b>WW.140.1.</b> Monitoring for pollutants, pathogens, and vector attraction reduction requirements for sewage sludge placed on an active sewage sludge unit must be done according to the frequency in Table 5, Appendix 10-2 (40 CFR 503.26(a)) [Revised April 2000].</p> <p><b>WW.140.2.</b> If, when domestic septage is placed on an active sewage sludge unit, the pH of the septage is raised to 12 or higher by alkali addition and remains at 12 or higher without alkali addition for 30 min, each container of domestic septage must be monitored (40 CFR 503.26(b)) [Revised April 2000].</p>	<p>(NOTE: The requirements concerning the surface disposal of sludge applies to any person who prepares sewage sludge that is placed on a surface disposal site, to the owner/operator of a surface disposal site, to sewage sludge placed on a surface disposal site, and to a surface disposal site. The requirements concerning surface disposal of sludge do not apply to sewage sludge stored on the land or to the land on which sewage sludge is stored. It also does not apply to sewage sludge that remains on the land for longer than 2 yr when the preparer of the sewage sludge demonstrates that the land on which the sewage sludge remains is not an active sewage sludge unit. It also does not apply to sewage treated on the land or to the land on which the sewage sludge is treated (40 CFR 503.20) [Added April 2000].)</p> <p>(NOTE: These requirements apply to sewage sludge generated during the treatment of domestic sewage in a treatment works. For exclusions see the definition of the term "exempted sludge.")</p> <p>Verify that monitoring for pollutants, pathogens, and vector attraction reduction requirements for sewage sludge, other than domestic septage, placed on an active sewage sludge unit is done according to the frequency in Table 5, Appendix 10-6.</p> <p>(NOTE: The permitting authority may reduce the frequency of monitoring after the sewage sludge has been monitored for 2 yr at the required frequencies.)</p> <p>Verify that when domestic septage is placed on an active sewage sludge unit and the pH of the septage is raised to 12 or higher by alkali addition and remains at 12 or higher without alkali addition for 30 min, each container of domestic septage is monitored.</p>

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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.140.3.</b> In specific circumstances, air in structures within a surface disposal site and at property lines of the surface disposal site are required to be monitored continuously for methane gas (40 CFR 503.26(c) [Revised April 2000].</p> <p><b>WW.140.4.</b> Specific recordkeeping requirements must be met when sewage sludge, other than domestic septage, is placed on an active sewage sludge unit (40 CFR 503.27(a)) [Revised April 2000].</p>	<p>Verify that continuous monitoring occurs during the period that the surface disposal site contains an active sewage sludge unit on which the sewage sludge is covered and for 3 yr after a unit closes when a final cover is placed on the sewage sludge.</p> <p>Verify that the person who prepares sewage sludge retains the following information for 5 yr:</p> <ul style="list-style-type: none"> <li>- the concentration of arsenic, chromium, and nickel in the sludge</li> <li>- the following certification statement: <ul style="list-style-type: none"> <li>"I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements in (insert Sec. 503.32(a), Sec. 503.32(b)(2), Sec. 503.32(b)(3), or Sec. 503.32(b)(4) when one of those requirements is met) and the vector attraction reduction requirement in (insert one of the vector attraction reduction requirements in Sec. 503.33(b)(1) through (b)(8) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</li> </ul> </li> <li>- a description of how the pathogen requirements are being met when done</li> <li>- a description of how the vector attraction reduction requirements are being met when done.</li> </ul> <p>Verify that the owner/operator of the surface disposal site retains the following for 5 yr:</p> <ul style="list-style-type: none"> <li>- the concentrations of the pollutants listed in Table 6, Appendix 10-6</li> <li>- the following certification statement: <ul style="list-style-type: none"> <li>"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in Sec. 503.24 and the vector attraction reduction requirement in (insert one of the requirements in Sec.</li> </ul> </li> </ul>

**COMPLIANCE CATEGORY:  
WASTEWATER MANAGEMENT  
Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>WW.140.5.</b> Specific recordkeeping requirements must be met when domestic septage is placed on an active sewage sludge unit (40 CFR 503.27(b)) [Revised April 2000].</p>	<p>503.33(b)(9) through Sec. 503.33(b)(11) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> <ul style="list-style-type: none"> <li>- a description of how the management practices in 40 CFR 503.24 (see checklist item WW.135.3) are being met</li> <li>- a description of how the vector attraction reduction requirements are being met when they are done.</li> </ul> <p>Verify that the person who applies domestic septage with a pH of greater than 12 retains the following information for 5 yr:</p> <ul style="list-style-type: none"> <li>- the following statement:               <p style="margin-left: 40px;">"I certify, under penalty of law, that the information that will be used to determine compliance with the vector attraction reduction requirements in Sec. 503.33(b)(12) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> </li> <li>- a description of how the vector attraction reduction requirements are being met when done.</li> </ul> <p>Verify that the owner/operator of the surface disposal site retains the following for 5 yr:</p> <ul style="list-style-type: none"> <li>- the following statement:               <p style="margin-left: 40px;">"I certify, under penalty of law, that the information that will be used to determine compliance with the management practices in Sec. 503.24 and the vector attraction reduction requirements in (insert Sec. 503.33(b)(9) through Sec. 503.33(b)(11) if one of those requirements is met) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine or imprisonment."</p> </li> <li>- a description of how the management practices of 40 CFR 503.24 (see checklist item WW.135.5) are being met</li> <li>- a description of how the vector attraction reduction requirements are being met when they are done.</li> </ul>

**COMPLIANCE CATEGORY:  
WASTEWATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.140.6.</b> Class I sludge management facilities, POTWs with a design flow rate equal to or greater than 1 million gal/day, and POTWs that serve 10,000 people or more are required to submit specific information to the permitting authority on 19 February of each year (40 CFR 503.28) [Revised April 2000].</p>	<p>Verify that the following information is submitted to the permitting authority on 19 February of each year:</p> <ul style="list-style-type: none"> <li>- the concentration of arsenic, chromium, and nickel in the sludge</li> <li>- the following certification statement:               <p style="margin-left: 40px;">"I certify, under penalty of law, that the pathogen requirements in [insert Sec. 503.32(a), Sec. 503.32(b)(2), Sec. 503.32(b)(3), or Sec. 503.32(b)(4) when one of those requirements is met] and the vector attraction reduction requirements in [insert one of the vector attraction reduction requirements in Sec. 503.33(b)(1) through Sec. 503.33(b)(8) when one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine the [pathogen requirements and vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> </li> <li>- a description of how the pathogen requirements are being met when done</li> <li>- a description of how the vector attraction reduction requirements are being met when done</li> <li>- the concentrations of the pollutants listed in Table 6, Appendix 10-6</li> <li>- the following certification statement:               <p style="margin-left: 40px;">"I certify, under penalty of law, that the management practices in Sec. 503.24 and the vector attraction reduction requirement in [insert one of the requirements in Sec. 503.33 (b)(9) through (b)(11) if one of those requirements is met] have been met. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices [and the vector attraction reduction requirements if appropriate] have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment."</p> </li> <li>- a description of how the management practices in 40 CFR 503.24 (see checklist item WW.135.5) are being met</li> </ul>

**COMPLIANCE CATEGORY:  
WASTEWATER MANAGEMENT  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.150</b> <b>SLUDGE INCINERATION</b></p> <p><b>WW.150.1.</b> Sewage sludge incinerators are required to meet specific pollutant limitations (40 CFR 503.43) <b>[Revised April 2000]</b>.</p> <p><b>WW.150.2.</b> Checklist item deleted <b>[Deleted April 2000]</b>.</p> <p><b>WW.150.3.</b> Sewage sludge incinerators are required to meet specific operational standards (40 CFR 503.44) <b>[Revised April 2000]</b>.</p>	<p>(NOTE: The requirements concerning the incineration of sewage sludge applies to a person who fires sewage sludge in a sewage sludge incinerator, to a sewage sludge incinerator, and to sewage sludge fired in a sewage sludge incinerator. They also apply to the exit gas from a sewage sludge incinerator stack (40 CFR 503.40(a) and 503.40(b)) <b>[Added April 2000]</b>.)</p> <p>(NOTE: These requirements apply to sewage sludge generated during the treatment of domestic sewage in a treatment works. For exclusions see the definition of the term "exempted sludge".)</p> <p>Verify that incinerators that fire sewage sludge meet the requirements on beryllium and mercury emissions outlined in 40 CFR 61.30 through 61.34 and 61.50 through 61.56.</p> <p>Verify that the daily concentration of lead in sewage sludge fed to a sewage sludge incinerator does not exceed the concentration calculated using Formula 1 in Appendix 10-8.</p> <p>Verify that the daily concentration for arsenic, cadmium, chromium, and nickel in sewage sludge fed to a sewage sludge incinerator each do not exceed the concentration calculated using Formula 2 in Appendix 10-8.</p> <p>(NOTE: See the text of 40 CFR 503.43(e) for details on air dispersion modeling.)</p> <p>This checklist item was combined with WW.150.1.</p> <p>Verify that the total hydrocarbons concentration in the exit gas from a sewage sludge incinerator is corrected for zero percent moisture by multiplying the measured total hydrocarbons concentration by the correction factor calculated using Formula 1 in Appendix 10-9.</p> <p>Verify that the total hydrocarbons concentration in the exit gas from a sewage sludge incinerator is corrected to seven percent oxygen by multiplying the measured total hydrocarbons concentration by the correction factor calculated using Formula 2 in Appendix 10-9.</p> <p>Verify that the monthly average concentration for total hydrocarbons in the exit gas from a sewage sludge incinerator stack, corrected for zero</p>

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.150.4.</b> Sewage sludge incinerators are required to meet specific management standards (40 CFR 503.40(c) and 503.45) [Revised April 2000].</p>	<p>percent moisture using the correction factor from the first equation and to seven percent oxygen using the correction factor from the second equation does not exceed 100 parts per million on a volumetric basis when measured using the instrument required by 40 CFR 503.45(a) (see checklist item WW.150.4).</p> <p>Verify that an instrument that continuously measures and records the total hydrocarbons concentration in the sewage sludge incinerator stack exit gas is installed, calibrated, operated, and maintained for each sewage sludge incinerator.</p> <p>Verify that the total hydrocarbons instrument employs a flame ionization detector; has a heated sampling line maintained at a temperature of 150 °C or higher at all times; and is calibrated at least once every 24-h operating period using propane.</p> <p>(NOTE: The requirements for total hydrocarbon instrumentation do not apply if the following conditions are met:</p> <ul style="list-style-type: none"> <li>- the exit gas from a sewage sludge incinerator stack is monitored continuously for carbon monoxide</li> <li>- the monthly average concentration of carbon monoxide in the exit gas from a sewage sludge incinerator stack, corrected for zero percent moisture and to seven percent oxygen, does not exceed 100 parts per million on a volumetric basis</li> <li>- the person who fires sewage sludge in a sewage sludge incinerator retains the following information for 5 yr: <ul style="list-style-type: none"> <li>- the carbon monoxide concentrations in the exit gas</li> <li>- a calibration and maintenance log for the instrument used to measure the carbon monoxide concentration</li> </ul> </li> <li>- Class I sludge management facilities, POTWs with a design flow rate equal to or greater than 1 million gal/day, and POTWs that serve a population of 10,000 people or greater submit the monthly average carbon monoxide concentrations in the exit gas to the permitting authority on 19 February of each year.)</li> </ul> <p>Verify that an instrument that continuously measures and records the oxygen concentration in the sewage sludge incinerator stack exit gas is installed, calibrated, operated, and maintained for each sewage sludge incinerator.</p> <p>Verify that an instrument that continuously measures and records information used to determine the moisture content in the sewage sludge incinerator stack exit gas is installed, calibrated, operated, and maintained for each sewage sludge incinerator.</p>

**COMPLIANCE CATEGORY:  
WASTEWATER MANAGEMENT  
Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
<p><b>WW.150.5.</b> Checklist item deleted [Deleted April 2000].</p> <p><b>WW.150.6.</b> Sewage sludge incinerators are required to meet specific monitoring standards (40 CFR 503.40(c) and 503.46) [Revised April 2000].</p>	<p>Verify that an instrument that continuously measures and records combustion temperatures is installed, calibrated, operated, and maintained for each sewage sludge incinerator.</p> <p>Verify that operation of a sewage sludge incinerator does not cause the operating combustion temperature for the sewage sludge incinerator to exceed the performance test combustion temperature by more than 20 percent.</p> <p>(NOTE: An air pollution control device shall be appropriate for the type of sewage sludge incinerator and the operating parameters for the air pollution control device shall be adequate to indicate proper performance of the air pollution control device. For sewage sludge incinerators subject to the requirements in Subpart O of 40 CFR 60, operation of the air pollution control device shall not violate the requirements for the air pollution control device in subpart O of 40 CFR 60. For all other sewage sludge incinerators, operation of the air pollution control device shall not cause a significant exceedance of the average value for the air pollution control device operating parameters from the performance test.</p> <p>Verify that sewage sludge is not fired in a sewage sludge incinerator if it is likely to adversely affect a threatened or endangered species listed under section 4 of the <i>Endangered Species Act</i> or its designated critical habitat.</p> <p>This checklist item was combined with WW.150.4.</p> <p>(NOTE: The frequency of monitoring for beryllium and mercury shall be as required in 40 CFR 61.30 through 61.34 and 61.50 through 61.56.)</p> <p>Verify that the frequency of monitoring for arsenic, cadmium, chromium, lead, and nickel in sewage sludge fed to a sewage sludge incinerator is as outlined in Appendix 10-10.</p> <p>(NOTE: After the sewage sludge has been monitored for 2 yr at the frequency in Appendix 10-10, the permitting authority may reduce the frequency of monitoring for arsenic, cadmium, chromium, lead, and nickel.)</p>

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Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
SEPTEMBER 2000**

**WW.150.7.** Sewage sludge incinerators are required to meet specific recordkeeping standards (40 CFR 503.40(c) and 503.47) [Revised April 2000].

Verify that the total hydrocarbons concentration and oxygen concentration in the exit gas from a sewage sludge incinerator stack, the information used to measure moisture content in the exit gas, and the combustion temperatures for the sewage sludge incinerator are monitored continuously.

(NOTE: The requirements for total hydrocarbon monitoring do not apply if the following conditions are met:

- the exit gas from a sewage sludge incinerator stack is monitored continuously for carbon monoxide
- the monthly average concentration of carbon monoxide in the exit gas from a sewage sludge incinerator stack, corrected for zero percent moisture and to seven percent oxygen, does not exceed 100 parts per million on a volumetric basis
- the person who fires sewage sludge in a sewage sludge incinerator retains the following information for 5 yr:
  - the carbon monoxide concentrations in the exit gas
  - a calibration and maintenance log for the instrument used to measure the carbon monoxide concentration
- Class I sludge management facilities, POTWs with a design flow rate equal to or greater than 1 million gal/day, and POTWs that serve a population of 10,000 people or greater submit the monthly average carbon monoxide concentrations in the exit gas to the permitting authority on 19 February of each year.)

(NOTE: For sewage sludge incinerators subject to the requirements in subpart O of 40 CFR 60, the frequency of monitoring for the appropriate air pollution control device operating parameters shall be the frequency of monitoring in subpart O of 40 CFR 60. For all other sewage sludge incinerators, the appropriate air pollution control device operating parameters shall be at least daily.)

Verify that the person who fires sewage sludge in a sewage sludge incinerator shall develop the following information and retain that information for 5 yr:

- the concentration of lead, arsenic, cadmium, chromium, and nickel in the sewage sludge fed to the sewage sludge incinerator
- the total hydrocarbons concentrations in the exit gas from the sewage sludge incinerator stack
- information that indicates the requirements in the National Emission Standard for beryllium in 40 CFR 61.30 through 61.34 are met



**COMPLIANCE CATEGORY:  
WASTEWATER MANAGEMENT  
Fish and Wildlife Service**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS: SEPTEMBER 2000
	<ul style="list-style-type: none"> <li>- information that indicates the requirements in the National Emission Standard for mercury in 40 CFR 61.50 through 61.56 are met</li> <li>- the operating combustion temperatures for the sewage sludge incinerator</li> <li>- values for the air pollution control device operating parameters</li> <li>- the oxygen concentration and information used to measure moisture content in the exit gas from the sewage sludge incinerator stack</li> <li>- the sewage sludge feed rate</li> <li>- the stack height for the sewage sludge incinerator</li> <li>- the dispersion factor for the site where the sewage sludge incinerator is located</li> <li>- the control efficiency for lead, arsenic, cadmium, chromium, and nickel for each sewage sludge incinerator</li> <li>- the risk-specific concentration for chromium calculated using the required equation, if applicable</li> <li>- a calibration and maintenance log for the instruments used to measure the total hydrocarbons concentration and oxygen concentration in the exit gas from the sewage sludge incinerator stack, the information needed to determine moisture content in the exit gas, and the combustion temperatures.</li> </ul> <p>(NOTE: The requirements for total hydrocarbon recordkeeping do not apply if the following conditions are met:</p> <ul style="list-style-type: none"> <li>- the exit gas from a sewage sludge incinerator stack is monitored continuously for carbon monoxide</li> <li>- the monthly average concentration of carbon monoxide in the exit gas from a sewage sludge incinerator stack, corrected for zero percent moisture and to seven percent oxygen, does not exceed 100 parts per million on a volumetric basis</li> <li>- the person who fires sewage sludge in a sewage sludge incinerator retains the following information for 5 yr: <ul style="list-style-type: none"> <li>- the carbon monoxide concentrations in the exit gas</li> <li>- a calibration and maintenance log for the instrument used to measure the carbon monoxide concentration</li> </ul> </li> <li>- Class I sludge management facilities, POTWs with a design flow rate equal to or greater than 1 million gal/day, and POTWs that serve a population of 10,000 people or greater submit the monthly average carbon monoxide concentrations in the exit gas to the permitting authority on 19 February of each year.)</li> </ul>

**COMPLIANCE CATEGORY:  
WASTEWATER MANAGEMENT  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>WW.150.8.</b> Class I sludge management facilities, POTWs with a design flow rate equal to or greater than 1 million gal/day, and POTWs that serve 10,000 people or more are required to submit specific information to the permitting authority on 19 February of each year (40 CFR 503.48) [Revised April 2000].</p>	<p>Verify that Class I sludge management facilities, POTWs with a design flow rate equal to or greater than 1 million gal/day, and POTWs that serve a population of 10,000 people or greater submit the following information to the permitting authority on 19 February of each year:</p> <ul style="list-style-type: none"> <li>- the concentration of lead, arsenic, cadmium, chromium, and nickel in the sewage sludge fed to the sewage sludge incinerator</li> <li>- the total hydrocarbons concentrations in the exit gas from the sewage sludge incinerator stack</li> <li>- information that indicates the requirements in the National Emission Standard for beryllium in 40 CFR 61.30 through 61.34 are met</li> <li>- information that indicates the requirements in the National Emission Standard for mercury in 40 CFR 61.50 through 61.56 are met</li> <li>- the combustion temperatures, including the maximum combustion temperature, for the sewage sludge incinerator</li> <li>- values for the air pollution control device operating parameters</li> <li>- the oxygen concentration and information used to measure moisture content in the exit gas from the sewage sludge incinerator stack.</li> </ul>

Appendix 10-0

Population Parameters  
 (40 CFR 122, Appendices F through I)  
 [Added April 2000]

Table 1: Incorporated Places With Populations Greater Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census (40 CFR 122, Appendix F)	
State	Incorporated Place
Alabama	Birmingham
Arizona	Phoenix Tucson
California	Long Beach Los Angeles Oakland Sacramento San Diego San Francisco San Jose
Colorado	Denver
District of Columbia	
Florida	Jacksonville Miami Tampa
Georgia	Atlanta
Illinois	Chicago
Indiana	Indianapolis
Kansas	Wichita
Kentucky	Louisville
Louisiana	New Orleans
Maryland	Baltimore
Massachusetts	Boston
Michigan	Detroit
Minnesota	Minneapolis St. Paul

**Table 1: Incorporated Places With Populations Greater Than 250,000  
According to the 1990 Decennial Census by the Bureau of the Census  
(40 CFR 122, Appendix F)**

State	Incorporated Place
Missouri	Kansas City St. Louis
Nebraska	Omaha
New Jersey	Newark
New Mexico	Albuquerque
New York	Buffalo Bronx Borough Brooklyn Borough Manhattan Borough Queens Borough Staten Island Borough
North Carolina	Charlotte
Ohio	Cincinnati Cleveland Columbus Toledo
Oklahoma	Oklahoma City Tulsa
Oregon	Portland
Pennsylvania	Philadelphia Pittsburgh
Tennessee	Memphis Nashville/Davidson
Texas	Austin Dallas El Paso Fort Worth Houston San Antonio
Virginia	Norfolk Virginia Beach
Washington	Seattle
Wisconsin	Milwaukee

**Table 2: Incorporated Places With Populations Greater Than 100,000 But  
Less Than 250,000 According to the 1990 Decennial Census by the  
Bureau of the Census  
(40 CFR 122, Appendix G)**

State	Incorporated Place
Alabama	Huntsville Mobile Montgomery
Alaska	Anchorage
Arizona	Mesa Tempe
Arkansas	Little Rock.
California	Anaheim Bakersfield Berkeley Chula Vista Concord El Monte Escondido Fremont Fresno Fullerton Garden Grove Glendale Hayward Huntington Beach Inglewood Irvine Modesto Moreno Valley Oceanside Ontario Orange
Colorado	Aurora Colorado Springs Lakewood Pueblo
Connecticut	Bridgeport Hartford New Haven Stamford Waterbury

**Table 2: Incorporated Places With Populations Greater Than 100,000 But  
Less Than 250,000 According to the 1990 Decennial Census by the  
Bureau of the Census  
(40 CFR 122, Appendix G)**

State	Incorporated Place
Florida	Fort Lauderdale Hialeah Hollywood Orlando St. Petersburg Tallahassee
Georgia	Columbus Macon Savannah
Idaho	Boise City
Illinois	Peoria Rockford
Indiana	Evansville Fort Wayne Gary South Bend
Iowa	Cedar Rapids Davenport Des Moines
Kansas	Kansas City Topeka
Kentucky	Lexington-Fayette
Louisiana	Baton Rouge Shreveport
Massachusetts	Springfield Worcester
Michigan	Ann Arbor Flint Grand Rapids Lansing Livonia Sterling Heights Warren
Mississippi	Jackson

**Table 2: Incorporated Places With Populations Greater Than 100,000 But  
Less Than 250,000 According to the 1990 Decennial Census by the  
Bureau of the Census  
(40 CFR 122, Appendix G)**

State	Incorporated Place
Missouri	Independence Springfield
Nebraska	Lincoln
Nevada	Las Vegas Reno
New Jersey	Elizabeth Jersey City Paterson
New York	Albany Rochester Syracuse Yonkers
North Carolina	Durham Greensboro Raleigh Winston-Salem
Ohio	Akron Dayton Youngstown
Oregon	Eugene
Pennsylvania	Allentown Erie
Rhode Island	Providence
South Carolina	Columbia
Tennessee	Chattanooga Knoxville
Texas	Abilene Amarillo Arlington Beaumont Corpus Christi Garland Irving Laredo Lubbock

**Table 2: Incorporated Places With Populations Greater Than 100,000 But Less Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census (40 CFR 122, Appendix G)**

State	Incorporated Place
	Mesquite Pasadena Plano Waco
Utah	Salt Lake City
Virginia	Alexandria Chesapeake Hampton Newport News Portsmouth Richmond Roanoke
Washington	Spokane Tacoma
Wisconsin	Madison

**Table 3: Counties With Unincorporated Urbanized Areas With a Population of 250,000 or More According to the 1990 Decennial Census by the Bureau of the Census (40 CFR 122, Appendix H)**

State	County	Unincorporated Urbanized Population
California	Los Angeles Sacramento San Diego	886,780 594,889 250,414
Delaware	New Castle	296,996
Florida	Dade	1,014,504
Georgia	DeKalb	448,686
Hawaii	Honolulu <sup>1</sup>	114,506
Maryland	Anne Arundel Baltimore Montgomery	344,654 627,593 599,028



<b>Table 3: Counties With Unincorporated Urbanized Areas With a Population of 250,000 or More According to the 1990 Decennial Census by the Bureau of the Census (40 CFR 122, Appendix H)</b>		
<b>State</b>	<b>County</b>	<b>Unincorporated Urbanized Population</b>
	Prince George's	494,369
Texas	Harris	729,206
Utah	Salt Lake	270,989
Virginia	Fairfax	760,730
Washington	King	520,468

<sup>1</sup> County was previously listed in this appendix; however, population dropped to below 250,000 in the 1990 Census.

<b>Table 4: Counties With Unincorporated Urbanized Areas Greater Than 100,000 But Less Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census (40 CFR 122, Appendix I)</b>		
<b>State</b>	<b>County</b>	<b>Unincorporated Urbanized Population</b>
Alabama	Jefferson	78,608
Arizona	Pima	162,202
California	Alameda	115,082
	Contra Costa	131,082
	Kern	128,503
	Orange	223,081
	Riverside	166,509
	San Bernardino	162,202
Colorado	Arapahoe	103,248
Florida	Broward	142,329
	Escambia	167,463
	Hillsborough	398,593
	Lee	102,337
	Manatee	123,828
	Orange	378,611
	Palm Beach	360,553
	Pasco	148,907
	Pinellas	255,772
	Polk	121,528
	Sarasota	172,600

**Table 4: Counties With Unincorporated Urbanized Areas Greater Than 100,000 But Less Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census (40 CFR 122, Appendix I)**

State	County	Unincorporated Urbanized Population
	Seminole	127,873
Georgia	Clayton Cobb Fulton Gwinnett Richmond	133,237 322,595 127,776 237,305 126,476
Kentucky	Jefferson	239,430
Louisiana	East Baton Rouge Parish Jefferson Parish	102,539 331,307
Maryland	Howard	157,972
North Carolina	Cumberland	146,827
Nevada	Clark	327,618
Oregon	Multnomah <sup>1</sup> Washington	52,923 116,687
South Carolina	Greenville Richland	147,464 130,589
Virginia	Arlington Chesterfield Henrico Prince William	170,936 174,488 201,367 157,131
Washington	Pierce Snohomish	258,530 157,218

<sup>1</sup> County was previously listed in this appendix; however, population dropped to below 100,000 in the 1990 Census.

## Appendix 10-0a

### Conditional Exclusion for "No Exposure" of Industrial Activities and Materials to Stormwater. (40 CFR 122.26(g)) [Added April 2000]

To qualify for the "no exposure" exclusion, the operator of the discharge must:

1. Provide a storm resistant shelter to protect industrial materials and activities from exposure to rain, snow, snow melt, and runoff;
2. Complete and sign a certification that there are no discharges of storm water contaminated by exposure to industrial materials and activities from the entire facility, except as provided below
3. Submit the signed certification to the NPDES permitting authority once every 5 yr;
4. Allow the Director to inspect the facility to determine compliance with the "no exposure" conditions;
5. Allow the Director to make any "no exposure" inspection reports available to the public upon request; and
6. For facilities that discharge through an MS4, upon request, submit a copy of the certification of "no exposure" to the MS4 operator, as well as allow inspection and public reporting by the MS4 operator.

To qualify for the "no exposure" exclusion, storm resistant shelter is not required for:

1. Drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak ("Sealed" means banded or otherwise secured and without operational taps or valves);
2. Adequately maintained vehicles used in material handling; and
3. Final products, other than products that would be mobilized in storm water discharge (e.g., rock salt).

The "no exposure" certification includes submission of the following information, at a minimum, to aid the NPDES permitting authority in determining if the facility qualifies for the no exposure exclusion:

1. The legal name, address, and phone number of the discharger;
2. The facility name and address, the county name, and the latitude and longitude where the facility is located;
3. Indication that none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation:
  - a) Using, storing, or cleaning industrial machinery or equipment, and areas where residuals from using, storing, or cleaning industrial machinery or equipment remain and are exposed to storm water;
  - b) Materials or residuals on the ground or in storm water inlets from spills/leaks;
  - c) Materials or products from past industrial activity;
  - d) Material handling equipment (except adequately maintained vehicles);
  - e) Materials or products during loading/unloading or transporting activities;
  - f) Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);
  - g) Materials contained in open, deteriorated, or leaking storage drums, barrels, tanks, and similar containers;
  - h) Materials or products handled/stored on roads or railways owned or maintained by the discharger;
  - i) Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);
  - j) Application or disposal of process wastewater (unless otherwise permitted); and

4. Particulate matter or visible deposits of residuals from roof stacks/vents not otherwise regulated, i.e., under an air quality control permit, and evident in the storm water outflow; the following certification statement, and be signed in accordance with the signatory requirements of 40 CFR 122.22: "I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from NPDES stormwater permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility identified in this document (except as allowed under paragraph (g)(2) of this section). I understand that I am obligated to submit a no exposure certification form once every 5 yr to the NPDES permitting authority and, if requested, to the operator of the local MS4 into which this facility discharges (where applicable). I understand that I must allow the NPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Stormwater discharges from construction activities identified in paragraphs (b)(14)(x) and (b)(15) are not eligible for this conditional exclusion.

This conditional exclusion from the requirement for an NPDES permit is available on a facility-wide basis only, not for individual outfalls. If a facility has some discharges of storm water that would otherwise be "no exposure" discharges, individual permit requirements should be adjusted accordingly.

If circumstances change and industrial materials or activities become exposed to rain, snow, snow melt, and/or runoff, the conditions for this exclusion no longer apply. In such cases, the discharge becomes subject to enforcement for un-permitted discharge. Any conditionally exempt discharger who anticipates changes in circumstances should apply for and obtain permit authorization prior to the change of circumstances.

The NPDES permitting authority retains the authority to require permit authorization (and deny this exclusion) upon making a determination that the discharge causes, has a reasonable potential to cause, or contributes to an instream excursion above an applicable water quality standard, including designated uses.

## Appendix 10-1

### Relevant Dates for the Sewage Sludge Program (40 CFR 503)

Publication of 40 CFR 503 in 58 FR 9248.	19 February 1993
Publication of amendments to Sewage Sludge Permit Program regulations in 58 FR 9404.	19 February 1993
Effective date of 40 CFR 503.	22 March 1993
Requirements for monitoring and recordkeeping under 40 CFR 503 become effective (except for THC).	20 July 1993
Permit applications due from facilities required to have (or requesting) site-specific limits.	18 August 1993
Compliance date for 40 CFR 503 requirements other than monitoring, recordkeeping and reporting (where construction is not required).	19 February 1993
Requirements for monitoring, recordkeeping and reporting for THC under 40 CFR 503 become effective (where construction is not required).	19 February 1993
Requirements for reporting under 40 CFR 503 become effective.	19 February 1993
Limited permit application information due from sludge-only facilities (not needing site-specific limits).	19 February 1993
Due for closure of active sewage sludge units: <ol style="list-style-type: none"> <li>1. located within 60 m of a fault that has displacement in Holocene time (unless authorized by the permitting authority)</li> <li>2. located in a wetland (unless authorized under an NPDES permit)</li> <li>3. located in an unstable area.</li> </ol>	22 March 1993
Compliance date for 40 CFR 503 requirements other than monitoring, recordkeeping, and reporting (where construction is required).	19 February 1993
Requirements for monitoring, recordkeeping, and reporting for THC under 40 CFR 503 become effective (where construction is required).	19 February 1993
Date when active sewage sludge unit owners/operators must submit closure plans.	180 days prior to the date the unit closes.
Permit application information due from facilities with NPDES permits (not needing site-specific limits).	At the time of the next NPDES permit renewal.
Permit application information due from facilities who commence operations after 19 February 1993.	180 days prior to the date proposed for commencing operation.



Appendix 10-2

Use or Disposal of Sewage Sludge  
(40 CFR 503.13(b)(1) through 503.13(b)(4); 503.16, Table 1;  
503.23, Table 1; 503.26, Table 1; 503.46, Table 1)  
[Revised April 2000]

Table 1: Pollutant Concentrations for Sludge

Pollutant	Monthly Average Concentrations (mg/kg, dry weight basis)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	36
Zinc	2800

Table 2: Cumulative Pollutant Loading Rates for Sludge

Pollutant	Cumulative Pollutant Loading Rate (kg/hectare)
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

Table 3: Ceiling Concentrations for Sludge

<b>Pollutant</b>	<b>Ceiling Concentration (mg/kg, dry weight basis)</b>
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

**Table 4: Annual Pollutant Loading Rates**

<b>Pollutant</b>	<b>Annual Pollutant Loading Rates (kg/hectare/365-day period)</b>
Arsenic	2.0
Cadmium	1.9
Copper	75
Lead	15
Mercury	0.85
Nickel	21
Selenium	5.0
Zinc	140



**Table 5: Frequency of Monitoring - Land Application and Surface Disposal**

Amount of sewage sludge* (metric tons/365-day period)	Frequency
Greater than zero but less than 290	Once per year
Equal to or greater than 290 but less than 1500	Once per quarter (four times per year)
Equal to or greater than 1500 but less than 15,000	Once per 60 days (six times per year)
Equal to or greater than 15,000	Once per month (12 times per year)

\* Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge received by a person who prepares sewage sludge that is sold or given away in a bag or other container for application to the land (dry weight basis).

**Table 6: Pollutant Concentrations for an Active Sewage Sludge Unit**

Unit Boundary to Property Site	Pollutant Concentration <sup>1</sup>		
	Arsenic mg/kg	Chromium mg/kg	Nickel mg/kg
0 to less than 25	30	200	210
25 to less than 50	34	220	240
50 to less than 75	39	260	270
75 to less than 100	46	300	320
100 to less than 125	53	360	390
125 to less than 150	62	450	420
<sup>1</sup> Dry weight basis			



**Appendix 10-3**

**This Appendix has been incorporated into Appendix 10-2 [April 2000].**

**Appendix 10-4**

**This Appendix has been incorporated into Appendix 10-2 [April 2000].**

**Appendix 10-5**

**This Appendix has been incorporated into Appendix 10-2 [April 2000].**

**Appendix 10-6**

**This Appendix has been incorporated into Appendix 10-2 [April 2000].**

**Appendix 10-7**

**This Appendix has been incorporated into Appendix 10-2 [April 2000].**



## Appendix 10-8

### Lead Concentration in Sewage Sludge Fed to an Incinerator (40 CFR 503.43) [Revised April 2000]

#### Formula 1

$$C = \frac{0.1 \times \text{NAAQS} \times 86,400}{\text{DF} \times (1 - \text{CE}) \times \text{SF}}$$

Where:

C = Average daily concentration of lead in sewage sludge in mg/kg of total solids (dry weight basis).

NAAQS = National Ambient Air Quality Standard for lead in  $\mu\text{g}/\text{m}^3$ .

DF = Dispersion factor in micrograms per cubic meter per gram per second.

CE = Sewage sludge incinerator control efficiency for lead in hundredths.

SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

(NOTE: When the sewage sludge stack height is 65 m or less, the actual sewage sludge incinerator stack height shall be used in an air dispersion model specified by the permitting authority to determine the dispersion factor (DF) in the above equation. When the sewage sludge incinerator stack height exceeds 65 m, the creditable stack height shall be determined in accordance with 40 CFR 51.100(ii) and the creditable stack height shall be used in an air dispersion model specified by the permitting authority to determine the DF in the above equation.)

#### Formula 2

$$C = \frac{\text{RSC} \times 86,400}{\text{DF} \times (1 - \text{CE}) \times \text{SF}}$$

Where:

C = Average daily concentration of arsenic, cadmium, chromium, or nickel in sewage sludge in mg/kg of total solids (dry weight basis).

CE = Sewage sludge incinerator control efficiency for arsenic, cadmium, chromium, or nickel in hundredths.

DF = Dispersion factor in micrograms per cubic meter per gram per second.

RSC = Risk-specific concentration for arsenic, cadmium, chromium, or nickel in  $\mu\text{g}/\text{m}^3$ .

SF = Sewage sludge feed rate in metric tons per day (dry weight basis).

(NOTE: The control efficiency (CE) in the above equation shall be determined from a performance test of the sewage sludge incinerator, as specified by the permitting authority.)

(NOTE: See the text of 40 CFR 503.43(d)(2) and 503.43(d)(3) for guidance on calculating the RSC.)

(NOTE: When the sewage sludge incinerator stack height is equal to or less than 65 m, the actual sewage sludge incinerator stack height shall be used in an air dispersion model, as specified by the permitting authority, to determine the DF in the above equation. When the sewage sludge

incinerator stack height is greater than 65 m, the creditable stack height shall be determined in accordance with 40 CFR 51.100(ii) and the creditable stack height shall be used in an air dispersion model, as specified by the permitting authority, to determine the DF in the above equation. The CE in the above equation shall be determined from a performance test of the sewage sludge incinerator, as specified by the permitting authority.)

### Appendix 10-9

#### Total Hydrocarbon Operational Standards (40 CFR 503.44)

##### Formula 1

$$\text{Corrective Factor (percent moisture)} = \frac{1}{(1-X)}$$

Where:

X - decimal fraction of the percent moisture in the sewage sludge incinerator exit gas in hundredths

##### Formula 2

$$\text{Corrective Factor (oxygen)} = \frac{14}{(21-Y)}$$

Where:

Y - percent oxygen concentration in the sewage sludge incinerator stack exit gas (dry volume/dry volume)





Appendix 10-10

Frequency of Monitoring For Incineration  
(40 CFR 503.46, Table 1)  
[Added April 2000]

Amount of sewage sludge* (metric tons/365 day period)	Frequency
Greater than zero but less than 290	Once per year
Equal to or greater than 290 but less than 1,500	Once per quarter (four times per year)
Equal to or greater than 1,500 but less than 15,000	Once per 60 days (six times per year)
Equal to or greater than 15,000	Once per month (12 times per year)

\* Either the amount of bulk sewage sludge applied to the land or the amount of sewage sludge received by a person who prepares sewage sludge that is sold or given away in a bag or other container for application to the land (dry weight basis).



## SECTION 11

### GREENING

U.S. ECAH, September 2000

#### A. Applicability

(NOTE: This section contains introduction and checklist information moved from Hazardous Materials and Solid Waste Management [September 2000].)

This section addresses pollution prevention, recycling, and green acquisition.

Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in July 2000, for example [Added July 2000].

#### B. Federal Legislation

- EO 13148, *Greening the Government through Leadership in Environmental Management*. This EO, dated 21 April 2000, mandates that environmental management considerations must be a fundamental and integral component of Federal Government policies, operations, planning, and management. This EO revokes EO 12856 of August 3, 1993, EO 12969 of August 8, 1995, and Section 1-4, Pollution Control Plan, of EO 12088 of October 13, 1978. The primary goals of this EO in the arena of program management are [Added September 2000]:

1. Through the development and implementation of environmental management systems, each agency shall ensure that strategies are established to support environmental leadership programs, policies, and procedures and that agency senior level managers explicitly and actively endorse these strategies.
2. Each agency shall comply with environmental regulations by establishing and implementing environmental compliance audit programs and policies that emphasize pollution prevention as a means to both achieve and maintain environmental compliance.

The primary goals of this EO in the arena of pollution prevention are:

1. Each agency shall strive to reduce or eliminate harm to human health and the environment from releases of pollutants to the environment.
2. Each agency shall advance the national policy that, whenever feasible and cost-effective, pollution should be prevented or reduced at the source.
3. Through innovative pollution prevention, effective facility management, and sound acquisition and procurement practices, each agency shall reduce its reported Toxic Release Inventory (TRI) releases and off-site transfers of toxic chemicals for treatment and disposal by 10 percent annually, or by 40 percent overall by 31 December 2006.

4. Through identification of proven substitutes and established facility management practices, including pollution prevention, each agency shall reduce its use of selected toxic chemicals, hazardous substances, and pollutants, or its generation of hazardous and radioactive waste types at its facilities by 50 percent by 31 December 2006.
5. Through evaluating present and future uses of ozone-depleting substances and maximizing the purchase and the use of safe, cost-effective, and environmentally preferable alternatives, each agency shall develop a plan to phase out the procurement of Class I ozone-depleting substances for all nonexcepted uses by 31 December 2010.

The primary goal of this EO in the hazardous materials arena is that Federal facilities shall be leaders and responsible members of their communities by informing the public and their workers of possible sources of pollution resulting from facility operations

- Comprehensive Procurement Guidelines (CPG) - Government agencies are required to increase their purchases of products containing recovered materials. Types of products for which recommended recycle content has been established include:
  1. Paper and paper products, excluding building and construction paper grades.
  2. Vehicular products.
  3. Construction products.
  4. Transportation products.
  5. Park and recreation products.
  6. Landscaping products.
  7. Non-paper office products.

CPG requirements apply to all procuring agencies and to all procurement actions involving items designated by USEPA, where the procuring agency purchases \$10,000 or more worth of one of these items during the course of a fiscal year, or where the cost of such items or of functionally equivalent items purchased during the preceding fiscal year was \$10,000 or more. This guideline applies to Federal agencies, to state and local agencies using appropriated Federal funds to procure designated items, and to persons contracting with any such agencies with respect to work performed under such contracts. Federal procuring agencies should note that the requirements of RCRA section 6002 apply to them whether or not appropriated Federal funds are used for procurement of designated items. The \$10,000 threshold applies to procuring agencies as a whole rather than to agency subgroups such as regional offices or subagencies of a larger department or agency. The CPG guidelines do not apply to purchases of designated items that are unrelated to or incidental to Federal funding, i.e., not the direct result of a contract or agreement with, or a grant, loan, or funds disbursement to, a procuring agency. The guidelines also do not apply to purchases made by private party recipients (e.g., individuals, non-profit organizations) of Federal funds pursuant to grants, loans, cooperative agreements, and other funds disbursements (RCRA, Section 6002(c)(1); EO 13101, and 40 CFR 247.2 through 247.17) **[Added July 2000]**.

- EO 13148 Plan - Federal facilities are required to develop a written plan that sets forth the facility's contribution to the goals and requirements established in EO 13148. This plan is to be completed by 31 March 2002 (EO 13148, Sec. 305(b)) **[Added July 2000]**.
- *Resource Conservation and Recovery Act (RCRA)* of 1976. This is the Federal law which governs the disposal of solid waste. Subtitle D of this act, as last amended in November 1984, Public Law (PL) 98-616, 42 U.S. Code (USC) 6941-6949a, establishes Federal standards and requirements for state and regional authorities respecting solid waste disposal. The objectives of this subtitle are to assist in developing and encouraging methods for the disposal of solid waste which are environmentally sound and which maximize the utilization of valuable resources recoverable from solid waste. The objectives are to be achieved through Federal technical and financial assistance to states and regional authorities for comprehensive planning (42 USC 6941).

- *The Solid Waste Disposal Act (SWDA)* of 1965, as amended. This act requires that Federal facilities comply with all Federal, state, interstate, and local requirements concerning the disposal and management of solid wastes. These requirements include permitting, licensing, and reporting.
- EO 13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*. This EO, dated 14 September 1998, mandates the head of each executive agency incorporate waste prevention and recycling in the agency's daily operations and work to increase and expand markets for recovered materials through greater Federal Government preference and demand for such products. Under this EO, it is the national policy to prefer pollution prevention, whenever feasible. Pollution that cannot be prevented should be recycled; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should be used only as a last resort. This EO also stipulates that agencies will comply with executive branch policies for the acquisition and use of environmentally preferable products and services and implement cost-effective procurement preference programs favoring the purchase of these products and services. Finally, the EO creates a Steering Committee, a Federal Environmental Executive (FEE), and a Task Force, and establishes Agency Environmental Executive (AEE) positions within each agency, to be responsible for ensuring the implementation of this order. The FEE, AEEs, and members of the Steering Committee and Task Force are to be full-time Federal Government employees. This EO revokes EO 12873. See the Pollution Prevention portion of the Hazardous Materials section of the ECAH for checklist items based on this EO [Added April 2000].
- Federal regulations used to develop the checklist include:
  - EO 13148, *Greening the Government through Leadership in Environmental Management*.
  - EO 13101, *Greening the Government through Waste Prevention, Recycling, and Federal Acquisition*.

### C. State/Local Regulations

For information on regulations in specific states, see the State Supplements to ECAH.

### D. FWS/DOI Manuals

- 561 FW 6, *RCRA Hazardous Waste*. This chapter, dated 12 June 1995, provides guidance for the handling and disposition of solid waste material at Service facilities.
- 561 FW 13, *Compliance Requirements, Medical Waste*. This chapter, dated 10 April 1996, provides guidance for medical waste management at Service facilities.
- 561 FW 15, *Recycling and Waste Reduction*. This chapter, dated 30 January 1992, establishes policy for the operation of a recycling and waste reduction program.
- 560 FW 2, *Pollution Prevention*. This chapter, dated 24 June 1994, encourages the use of pollution prevention to conserve natural resources.
- *Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition*, February 2000. This Plan outlines goals, implementing strategies, and management controls to satisfy the requirements of EO 13101 and to further and focus efforts to make DOI facilities more sustainable (both in design and operation). The goals establish DOI targets for diversion of waste through recycling at 40%, 45%, and 50% for the years 2000,

2005, and 2010. Goals for green purchasing and property management focus on the use of nine recycled content, environmentally preferable, and/or biobased products in all DOI facilities, which will be tracked as indicators of broader program adoption. Strategies are outlined to institute policies and practices which will promote the incorporation of environmental considerations into all levels of procurement, from credit card purchasing to large acquisitions. Other strategies approach this issue through facility and property management activities. Implementation is overseen by the Interior Management Council and Interior's Agency Environmental Executive, as supported by an interbureau workgroup [Added July 2000].

#### E. Key Compliance Requirements

- Comprehensive Procurement Guidelines (CPG) - Government agencies are required to increase their purchases of products containing recovered materials. Types of products for which recommended recycle content has been established include:
  1. Paper and paper products, excluding building and construction paper grades.
  2. Vehicular products.
  3. Construction products.
  4. Transportation products.
  5. Park and recreation products.
  6. Landscaping products.
  7. Non-paper office products.

CPG requirements apply to all procuring agencies and to all procurement actions involving items designated by USEPA, where the procuring agency purchases \$10,000 or more worth of one of these items during the course of a fiscal year, or where the cost of such items or of functionally equivalent items purchased during the preceding fiscal year was \$10,000 or more. This guideline applies to Federal agencies, to state and local agencies using appropriated Federal funds to procure designated items, and to persons contracting with any such agencies with respect to work performed under such contracts. Federal procuring agencies should note that the requirements of RCRA section 6002 apply to them whether or not appropriated Federal funds are used for procurement of designated items. The \$10,000 threshold applies to procuring agencies as a whole rather than to agency subgroups such as regional offices or subagencies of a larger department or agency. The CPG guidelines do not apply to purchases of designated items that are unrelated to or incidental to Federal funding, i.e., not the direct result of a contract or agreement with, or a grant, loan, or funds disbursement to, a procuring agency. The guidelines also do not apply to purchases made by private party recipients (e.g., individuals, non-profit organizations) of Federal funds pursuant to grants, loans, cooperative agreements, and other funds disbursements (RCRA, Section 6002(c)(1); EO 13101, and 40 CFR 247.2 through 247.17) [Added July 2000].

- EO 13148 Plan - Federal facilities are required to develop a written plan that sets forth the facility's contribution to the goals and requirements established in EO 13148. This plan is to be completed by 31 March 2002 (EO 13148, Sec. 305(b)) [Added July 2000].
- Recycling - FWS facilities should participate in any state or local recycling programs and reduce the volume of solid waste materials at the source whenever practical. Facilities with offices of over 100 office workers are required to recover high-grade paper. Facilities at which more than 500 families reside are required to recycle newspapers. Any facility generating 10 tons or more of waste corrugated containers per month is required to segregate or collect separately for recycling or alternate energy use (40 CFR 246.200-1 and 246.202-1) [Reviewed July 2000].

- Recordkeeping - Regardless of the regulatory requirements concerning the length of time which records must be kept, it is advisable to maintain records beyond the regulated periods of time in order to support FWS compliance.

#### F. Key Compliance Definitions

- *Acquisition* – the acquiring by contract with appropriate funds for supplies or services (including construction) by and for the use of the Federal Government through purchase or lease, whether the supplies or services are already in existence or must be created, developed, demonstrated, and evaluated. Acquisition begins at the point when an agency's needs are established and includes the description of requirements to satisfy agency needs, solicitation, and selection of sources, award of contracts, contract financing, contract performance, contract administration, and those technical and management functions directly related to the process of fulfilling agency needs by contract (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Biobased Products (Biobased-Content Product or BCP)* – a commercial or industrial product (other than food or feed) that utilizes biological products or renewable domestic agricultural (plant, animal, and marine) or forestry products (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Environmentally Preferable* – products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. This comparison may consider raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, or disposal of the product or service (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *High-Grade Paper* - letterhead, dry copy papers, miscellaneous business forms, stationary, typing paper, tablet sheets, and computer printout paper and cards, commonly sold as "white ledger", "computer printout" and "tab card" grade by the wastepaper industry (40 CFR 246.101) [Reviewed July 2000].
- *Household Waste* - any solid waste, (including garbage, trash, and sanitary waste in septic tanks) derived from households (including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use-recreation areas) (40 CFR 258.2 and 40 CFR 60.751) [Reviewed July 2000].
- *Life Cycle Assessment* – the comprehensive examination of a product's environmental and economic aspects and potential impacts throughout its lifetime, including raw material extraction, transportation, manufacturing, use, and disposal (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Life Cycle Cost* – the amortized annual cost of a product, including capital costs, installation costs, operating costs, maintenance costs, and disposal costs discounted over the lifetime of the product (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *MARPOL 73/78 - the International Convention for the Prevention of Pollution from Ships, 1973* as amended by the Protocol of 1978 (33 CFR 151.05).
- *Municipal Solid Waste* - residential and commercial solid wastes generated within a community (40 CFR 240.101) [Reviewed July 2000].
- *Municipal Solid Waste Landfill* - an entire disposal facility in a contiguous geographical space, where household waste is placed in or on land. An MSW landfill may also receive other types of RCRA Subtitle D wastes (40 CFR 257.2) such as commercial solid waste, nonhazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste. Portions of an MSW landfill may be separated by access roads. An MSW landfill may be publicly or privately owned. An MSW landfill may be a new MSW landfill, an existing MSW landfill, or a lateral expansion (40 CFR 60.751) [Added July 2000].
- *Nondegradable Waste* - any waste that does not decompose through chemical breakdown or microbiological activity. Examples are, but are not limited to, concrete, municipal waste combustor ash, and metal (40 CFR 60.751) [Reviewed July 2000].
- *Ozone-depleting Substance* - any substance designated as a Class I or Class II substance by USEPA in 40 CFR 82 (EO 13148, Sec. 1006) [Added July 2000].
- *Pollution Prevention – Source Reduction as defined in the Pollution Prevention Act of 1990 (42 USC 13102), and other practices that reduce or eliminate the creation of pollutants through:* (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000]:
  1. increased efficiency in the use of raw materials, energy, water, or other resources
  2. protection of natural resources by conservation.
- *Postconsumer Material* – a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is part of a broader category of Recovered Material (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Recovered Materials* – waste materials and by-products that have been recovered or diverted from solid waste, but such term does not include those materials and by-products generated from and commonly reused within an original manufacturing process (42 USC 6903(19)) [Added September 2000].
- *Recyclability* – the ability of a product or material to be recovered from, or otherwise diverted from, the solid waste stream for the purpose of recycling (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Recycle Refrigerant* - to extract refrigerant from an appliance and clean refrigerant for reuse without meeting all of the requirements for reclamation. In general, recycled refrigerant is refrigerant that is cleaned using oil separation and single or multiple passes through devices, such as replaceable core filter-driers, which reduce moisture, acidity, and particulate matter. These procedures are usually implemented at the field job site (40 CFR 82.152).



- *Recycled-Content Product or RCP* – products or services that include in their manufacture, recovered materials (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Recycling* – the series of activities, including collection, separation, and processing by which products or other materials are recovered from the solid waste stream for use in the form of raw materials in the manufacture of new products other than fuel for producing heat or power by combustion. For purposes of this *Strategic Plan*, recycling shall include composting of green organic waste (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Separate Collection* - collection of recyclable materials which have been separated at the point of generation and keeping those materials separated from other collected solid waste in separate compartments of a single collection vehicle or through the use of separate collection vehicles (40 CFR 246.101) [Reviewed July 2000].
- *Solid Waste* - in relation to MSWLF, any garbage or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded materials, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial mining and agricultural operations, and from community activities, but does not include solid or dissolved materials in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permit under 33 USC 1342, or source, special nuclear, or byproduct material as defined by the *Atomic Energy Act* of 1954, as amended (68 Statute 932) (40 CFR 258.2) [Reviewed July 2000].
- *Solid Waste* - garbage, refuse, sludge, and other discarded solid materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved materials in domestic sewage or other significant pollutants in water resources (40 CFR 240.101) [Reviewed July 2000].
- *Solid Waste* - any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges that are point sources subject to permits under 33 U.S.C. 1342, or source, special nuclear, or by-product material as defined by the *Atomic Energy Act of 1954*, as amended (42 U.S.C 2011 et seq.) (40 CFR 60.751) [Added July 2000].
- *Solid Waste Storage Container* - a receptacle used for the temporary storage of solid waste while awaiting collection (40 CFR 243.101) [Added July 2000].
- *Source Separation* - the setting aside of recyclable materials at their point of generation by the generator (40 CFR 246.101) [Reviewed July 2000].
- *Special Wastes* - nonhazardous solid wastes requiring handling other than that normally used for municipal solid wastes (40 CFR 240.101) [Reviewed July 2000].
- *State Director* - the chief administrative officer of the lead state agency responsible for implementing the state permit program for 40 CFR 257, subpart B and 40 CFR 258 regulated facilities (40 CFR 258.2) [Added July 2000].

- *Waste Prevention* – any change in the design, manufacturing, purchase, or use of materials or products (including packaging) to reduce their amount or toxicity before they are discarded. Waste prevention also refers to the reuse of products or materials (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].
- *Waste Reduction* – preventing or decreasing the amount of waste being generated through waste prevention, recycling, or purchasing recycled and environmentally preferable products (Strategic Plan for Greening the Department of the Interior Through Waste Prevention, Recycling, and Federal Acquisition, May 2000) [Added September 2000].

**GREENING PROTOCOL**  
**GUIDANCE FOR CHECKLIST USERS**

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	<b>REFER TO CHECKLIST ITEMS:</b>
All Facilities	GR.1.1 through GR.1.5
Environmental Management Plans	GR.12.1 through GR.12.7
Recycling	GR.25.1 through GR.25.7

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Select portions of this section (i.e., Review of Federal Legislation, State and Local Regulations, Key Compliance Requirements, Key Terms and Definitions, Typical Records to Review, Typical Physical Features to Inspect, and the Checklist) have been reviewed by USEPA personnel from the Office of Enforcement and Compliance Assurance (OECA) and USEPA's Office of General Counsel. USEPA's comments and suggestions for changes have been incorporated in this version of the ECAH. USEPA did not review all portions of this section. USEPA also did not review and comment on items pertaining to federal Executive Orders, DOT regulations, OSHA regulations or any other area outside of Title 40 of the Code of Federal Regulations. Portions which have been added or revised as a result of this review are identified as either being reviewed, revised or added in July 2000, for example **[Added July 2000]**.

## GREENING

### Records To Review

- Document showing who is designated as pollution prevention & recycling coordinator
- Pollution Prevention Plans
- Procurement Records
- State and Federal inspection reports
- Records of recycling practices, including the sale of materials for the purpose of recycling
- Records that identify recycling calculations and goals
- Office plan for recycling materials
- Records that show amount of recycling accomplished

### Physical Features To Inspect

- Resource recovery facilities
- Areas where nonhazardous waste is disposed
- Construction debris areas
- Waste receptacles
- Compost facilities
- Recycling centers
- Office paper for post consumer content and disposal of printing cartridges

**COMPLIANCE CATEGORY:  
GREENING  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: FYOO DRAFT FOR REVIEW</b>
<p><b>GR.1</b></p> <p><b>ALL FACILITIES</b></p> <p><b>GR.1.1.</b> The current status of any ongoing or unresolved consent orders, compliance agreements, notices of violation (NOVs), inter-agency agreements, or equivalent state enforcement actions is required to be examined (a finding under this checklist item will have the enforcement action/identifying information as the citation).</p> <p><b>GR.1.2.</b> FWS facilities are required to comply with state and local greening regulations as specified in EO 12088, Section 1-1 (RP).</p> <p><b>GR.1.3.</b> Facilities will meet regulatory requirements issued since the finalization of this handbook (a finding under this checklist item will have the citation of the new regulation as a basis of finding).</p> <p><b>GR.1.4.</b> FWS facilities should report all NOVs to the Region and Environmental and Facility Compliance (EFC) (MP) [Revised June 1998].</p>	<p>Determine if noncompliance issues have been resolved by reviewing a copy of the previous report, consent orders, compliance agreements, NOVs, interagency agreements, or equivalent state enforcement actions.</p> <p>Verify that the facility is complying with state and local greening requirements.</p> <p>Determine if any new regulations concerning solid waste have been issued since the finalization of this handbook.</p> <p>Verify that the facility is in compliance with newly issued regulations.</p> <p>Determine if the facility has received an NOV relating to greening.</p> <p>Verify that the NOV was reported to the Region and the EFC.</p>

**COMPLIANCE CATEGORY:  
GREENING  
Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
FYOO DRAFT FOR REVIEW**

**GR.1.5.** All facilities must maintain an annually updated list of all chemicals used in their operations in accordance with EO 13148 Section 503 (RP) [Added September 2000.]

Verify that the facility has an updated list of all chemicals used in their operations (e.g., formalin, pesticides, solvents, picric acid, gasoline, chlorine, pentachlorophenol).

(NOTE: These chemicals will be evaluated for substitutes that are less harmful to human health and the environment.)

**COMPLIANCE CATEGORY:  
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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GR.12</b></p> <p><b>ENVIRONMENTAL MANAGEMENT PLANS</b></p> <p><b>GR.12.1</b> Environmental management plans are required to be developed by March 31, 2002 as specified in EO 13148, Section 305(b) (RP) [Revised September 2000].</p> <p><b>GR.12.2</b> Pollution prevention initiatives are required to be considered in all plans, drawings, work statements, specifications, or other product descriptions (RP) [Added July 1999].</p> <p><b>GR.12.3.</b> Government agencies are required to increase their purchases of products containing recovered materials (RCRA, Section 6002(c)(1); EO 13101, and 40 CFR 247.2 through 247.17) [Added July 1999, Revised September 2000].</p>	<p>Verify that an Environmental Management Plan has been prepared.</p> <p>(NOTE: If a pollution prevention plan has been prepared that outlines how pollution reduction goals will be met, it may be updated.)</p> <p>Verify that the plan addresses key areas and responsibilities.</p> <p>Verify that the plan follows guidance issued by Federal and state regulators and internal policies.</p> <p>(NOTE: Moved from HM.12.1 September 2000.)</p> <p>Verify that the following are considered in plans, drawings, work statements, specifications, or other product descriptions, as appropriate:</p> <ul style="list-style-type: none"> <li>- elimination of virgin material requirements</li> <li>- use of biobased products</li> <li>- use of recovered materials</li> <li>- reuse of product</li> <li>- life cycle cost</li> <li>- recyclability</li> <li>- use of environmentally preferable products</li> <li>- waste prevention (including toxicity reduction or elimination)</li> <li>- ultimate disposal.</li> </ul> <p>(NOTE: Moved from HM.12.3. September 2000.)</p> <p>(NOTE: This applies to all procuring agencies and to all procurement actions involving items designated by USEPA, where the procuring agency purchases \$10,000 or more worth of one of these items during the course of a fiscal year, or where the cost of such items or of functionally equivalent items purchased during the preceding fiscal year was \$10,000 or more. This guideline applies to Federal agencies, to state and local agencies using appropriated Federal funds to procure designated items, and to persons contracting with any such agencies with respect to work performed under such contracts. Federal procuring agencies should note that the requirements of RCRA section 6002 apply to them whether or not appropriated Federal funds are used for procurement of designated items. The \$10,000 threshold</p>

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applies to procuring agencies as a whole rather than to agency subgroups such as regional offices or subagencies of a larger department or agency.)

Verify that procured Comprehensive Procurement Guideline (CPG) designated items are composed of the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, considering such guidelines.

Verify that, if the purchase of products containing recovered materials does not meet USEPA Guidelines, the facility has written justification that products are not available competitively within a reasonable timeframe, do not meet appropriate performance standards, or are only available at unreasonable prices.

(NOTE: Written justification is not required for purchases below the micropurchase threshold.)

(NOTE: For each designated CPG, USEPA has issued a Recovered Materials Advisory Notice (RMAN), which establishes the recommended recycle content level for a given product. See Appendix 11-1 for examples of the RMANs for designated CPGs. The following is the current list of CPG categories and products:

- paper and paper products, excluding building and construction paper grades
- vehicular products:
  - lubricating oils containing re-refined oil (see Appendix 11-4), including engine lubricating oils, hydraulic fluids, and gear oils, excluding marine and aviation oils
  - tires, excluding airplane tires
  - reclaimed engine coolants, excluding coolants used in non-vehicular applications.
- construction products:
  - building insulation products, including the following items:
    - loose-fill insulation, including but not limited to cellulose fiber, mineral fibers (fiberglass and rock wool), vermiculite, and perlite
    - blanket and batt insulation, including but not limited to mineral fibers (fiberglass and rock wool)
    - board (sheathing, roof decking, wall panel) insulation, including but not limited to structural fiberboard and laminated paperboard products, perlite composite board, polyurethane, polyisocyanurate, polystyrene, phenolics, and composites



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- spray-in-place insulation, including but not limited to foam-in-place polyurethane and polyisocyanurate, and spray-on cellulose
- structural fiberboard and laminated paperboard products for applications other than building insulation, including building board, sheathing, shingle backer, sound deadening board, roof insulating board, insulating wallboard, acoustical and non-acoustical ceiling tile, acoustical and non-acoustical lay-in panels, floor underlayments, and roof overlay (coverboard)
- cement and concrete, including concrete products such as pipe and block, containing coal fly ash or ground granulated blast furnace (GGBF) slag
- carpet made of polyester fiber for use in low- and medium-wear applications
- floor tiles and patio blocks containing recovered rubber or plastic
- shower and restroom dividers/partitions containing recovered plastic or steel
- consolidated latex paint used for covering graffiti
- reprocessed latex paint used for interior and exterior architectural applications such as wallboard, ceilings, and trim; gutter boards; and concrete, stucco, masonry, wood, and metal surfaces
- transportation products:
  - traffic barricades and traffic cones used in controlling or restricting vehicular traffic
  - parking stops made from concrete or containing recovered plastic or rubber
  - channelizers containing recovered plastic or rubber
  - delineators containing recovered plastic, rubber, or steel
  - flexible delineators containing recovered plastic
- park and recreation products:
  - playground surfaces and running tracks containing recovered rubber or plastic
  - plastic fencing containing recovered plastic for use in controlling snow or sand drifting and as a warning/safety barrier in construction or other applications
  - park benches and picnic tables containing recovered steel, aluminum, plastic, or concrete
  - playground equipment containing recovered plastic, steel, or aluminum.

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- landscaping products:
  - hydraulic mulch products containing recovered paper or recovered wood used for hydroseeding and as an over-spray for straw mulch in landscaping, erosion control, and soil reclamation
  - compost made from yard trimmings, leaves, grass clippings, and/or food waste for use in landscaping, seeding of grass or other plants on roadsides and embankments, as a nutritious mulch under trees
  - shrubs, and in erosion control and soil reclamation, garden and soaker hoses containing recovered plastic or rubber
  - lawn and garden edging containing recovered plastic or rubber
  - plastic lumber landscaping timbers and posts containing recovered materials
- non-paper office products:
  - office recycling containers and office waste receptacles
  - plastic desktop accessories
  - toner cartridges
  - plastic-covered binders containing recovered plastic; chipboard and pressboard binders containing recovered paper; and solid plastic binders containing recovered plastic
  - plastic trash bags
  - printer ribbons
  - plastic envelopes
  - plastic clipboards containing recovered plastic
  - plastic file folders containing recovered plastic
  - plastic clip portfolios containing recovered plastic
  - plastic presentation folders containing recovered plastic
- miscellaneous products:
  - pallets containing recovered wood, plastic, or paperboard
  - sorbents containing recovered materials for use in oil and solvent clean-ups and as animal bedding
  - industrial drums containing recovered steel, plastic, or paper
  - awards and plaques containing recovered glass, wood, paper, or plastic
  - mats containing recovered rubber and/or plastic
  - non-road signs containing recovered plastic or aluminum and road signs containing recovered aluminum
  - sign supports and posts containing recovered plastic or steel
  - manual-grade strapping containing recovered steel or plastic.

(NOTE: The CPG guidelines do not apply to purchases of designated items that are unrelated to or incidental to Federal funding, i.e., not the direct result of a contract or agreement with, or a grant, loan, or funds disbursement to, a procuring agency. The guidelines also do not apply

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Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GR.12.4.</b> Facilities must utilize target products and services to reach goals according to the Strategic Plan For Greening the DOI through <u>Waste Prevention, Recycling, and Federal Acquisition, DOI Green Procurement and Property Management Goals (RP) [Added July 2000]</u>.</p>	<p>to purchases made by private party recipients (e.g., individuals, non-profit organizations) of Federal funds pursuant to grants, loans, cooperative agreements, and other funds disbursements.)</p> <p>(NOTE: Moved from HM.12.4. September 2000.)</p> <p>Verify that DOI facilities reach 100% compliance with the following goals and improve by at least 30% each year until these goals are achieved (FY 2000 becomes baseline):</p> <ul style="list-style-type: none"> <li>- operate all DOI-managed fleet vehicles (including owned and leased) using re-refined oil, retread tires (when replacing tires), and reclaimed engine coolant (NOTE: Certain vehicle types will be targeted for retread use when replacing tires as clarified in forthcoming Department guidance.)</li> <li>- utilize in the operation of all DOI facilities (including owned and leased space) recycled-content bathroom tissue, paper towels, and plastic trash bags</li> <li>- all copy paper used by DOI must contain at least 30% postconsumer material</li> <li>- at all DOI facilities, utilize copy paper, bathroom tissue, and paper towels that have been manufactured without the use of chlorine in deinking and bleaching</li> <li>- utilize either recycled content carpet (face fiber or backing) or factory-refurbishable carpet for all new installations in DOI facilities</li> <li>- on a pilot basis, utilize biobased, biodegradable lubricating and hydraulic oils in equipment where spillage to the environment might occur (e.g., chain saws, marine outboards, lawn mowers, and snow mobiles).</li> </ul> <p>(NOTE: <u>Factors Affecting Goal Achievement</u> include:</p> <ul style="list-style-type: none"> <li>- Resource Availability: funding and other resources will be required for implementation activities, such as guidance-document development, website enhancement, pilot projects, and training</li> <li>- GSA: assistance and cooperation from GSA will be needed to modify the current maintenance practices applied to vehicles that the Department leases through GSA, and to modify the terms of new and existing building-space leases</li> <li>- Commercial Vehicle Services: to streamline operations and as a pollution prevention strategy, many bureaus have turned to private enterprises to obtain vehicle maintenance services, rather than retain mechanics on staff (NOTE: When DOI vehicles are serviced buy a commercial source, it will be necessary to specify or otherwise arrange for the use of re-refined oil and reclaimed engine</li> </ul>

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Fish and Wildlife Service**

**REGULATORY  
REQUIREMENTS:**

**REVIEWER CHECKS:  
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**GR.12.5.** Federal facilities are required to develop a written plan that sets forth the facility's contribution to the goals and requirements established in EO 13148, Sec. 305(b) (RP) [Added September 2000].

coolant. The cooperation of these service providers will be critical in achieving vehicle-product goals.)

- Retread Tires: Departmental guidance is needed regarding which vehicle types are appropriate applications for retread tires.
- Training and Awareness: Consistent with acquisition streamlining, more than twenty-thousand credit cards have been issued to DOI purchasers. Achieving the DOI goals for purchasing green products will require comprehensive initiatives to orient credit-card users to these purchasing preferences and provide resources to help them find the preferable products. It is also particularly important to address misperceptions about recycled-content and environmentally-preferable products that may be based on experiences with products early in their development before adequate quality and performance levels were attained.
- Lack of Product Availability, Timely Delivery, Unreasonable Pricing, and Poor Performance: These are factors external to DOI that may limit DOI's ability to meet established goals.
- Contracting Cycles: Where possible, DOI will approach its contractors and concessioners who operate under existing contracts and request that appropriate modifications be made. This may not always be possible or successful. As these contracts expire, clauses will be added to these contracts, consistent with this Strategic Plan and the mandates of EO 13101.)

Verify that by 31 March 2002, federal facilities develop a written plan that sets forth the facility's contribution to the goals and requirements established in EO 13148.

(NOTE: EO 13148 covers:

- development and implementation of environmental management systems (EMS) (if the agency finds that the facility is "appropriate" for an EMS)
- reduction of reported Toxic Release Inventory (TRI) releases and off-site transfers of toxic chemicals for treatment and disposal
- timely planning and reporting under EPCRA (when applicable)
- reduction of use of selected toxic chemicals, hazardous substances, and pollutants, or its generation of hazardous and radioactive waste types
- phasing out the procurement of Class I ozone-depleting substances for all nonexcepted uses
- promoting the sustainable management of Federal facility lands through the implementation of cost-effective, environmentally sound landscaping practices, and programs to reduce adverse impacts to the natural environment.)

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GREENING  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GR.12.6.</b> Facilities must reduce ozone-depleting substances as specified in EO 13148, Sec. 505 (RP) [Added September 2000].</p>	<p>(NOTE: "Facility" means any building, installation, structure, land, and other property owned or operated by, or constructed or manufactured and leased to, the Federal Government, where the Federal Government is formally accountable for compliance under environmental regulation (e.g., permits, reports/records and/or planning requirements) with requirements pertaining to discharge, emission, release, spill, or management of any waste, contaminant, hazardous chemical, or pollutant. This term includes a group of facilities at a single location managed as an integrated operation, as well as government owned contractor operated facilities (EO 13148, Sec. 1004).)</p> <p>Verify that the plan reflects the size and complexity of the facility.</p> <p>(NOTE: Where pollution prevention plans or other formal environmental planning instruments have been prepared for facilities, an agency may elect to update those plans to meet the requirements and goals of this checklist item.)</p> <p>Verify that, by 22 April 2001, the facility develops a plan to phase out the procurement of Class I ozone-depleting substances for all nonexpected uses by 31 December 2010.</p> <p>Verify that the facility maximizes the use of safe alternatives to ozone-depleting substances as approved by the EPA's Significant New Alternatives Policy (SNAP) program.</p> <p>Verify that the facility has evaluated the present and future uses of ozone-depleting substances, including making assessments of existing and future needs for such materials, and evaluates use of, and plans for recycling refrigerants and halons.</p> <p>Verify that the facility exercises leadership, develops exemplary practices, and disseminates information on successful efforts in phasing out ozone-depleting substances.</p> <p>Verify that plans target cost effective reduction of environmental risk by phasing out Class I ozone-depleting substance applications as the equipment using those substances reaches its expected service life.</p> <p>(NOTE: Exceptions to this requirement include all exceptions found in current or future applicable law, treaty, regulation, or Executive Order.)</p>

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REQUIREMENTS:**

**REVIEWER CHECKS:  
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**GR.12.7.** Facilities must train personnel in procurement of toxic chemicals, hazardous substances, and other pollutants as specified in EO 13148, Sec 701 (RP) [Added September 2000].

Verify that, by 22 April 2001, the facility implements a training program to ensure that procurement officials and acquisition program managers are aware of the requirement to limit procurement of toxic chemicals, hazardous substances, and other pollutants.

Verify that personnel engaged in these activities attend the training.

**COMPLIANCE CATEGORY:  
GREENING  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GR.25</b></p> <p><b>RECYCLING</b></p> <p><b>GR.25.1.</b> Facilities are to participate in any state or local recycling programs and reduce the volume of solid waste materials at the source whenever practical according to 561 FW 15, para 15.4. (RP) [Citation Revised June 1998].</p> <p><b>GR.25.2.</b> All DOI Facilities with offices are required to recover high-grade paper as specified in the Strategic Plan For Greening the DOI through Waste Prevention, Recycling, and Federal Acquisition, <u>DOI Green Procurement and Property Management Goals</u> (RP) [Revised September 2000].</p> <p><b>GR.25.3.</b> Facilities should separate fluorescent bulbs for recycling as specified in EO 13148 (RP) [Revised September 2000].</p>	<p>(NOTE: By calling 1-800 CLEAN-UP (253-2687) you can find out where to take paper, metal cans, glass bottles, and other materials to be recycled for any town or city in the United States.)</p> <p>Verify that a solid waste reduction program exists.</p> <p>Verify that recycling programs are in compliance with applicable state or local requirements.</p> <p>Verify that reusable or marketable materials are collected at regular intervals.</p> <p>(NOTE: Moved from SW.25.1. September 2000.)</p> <p>Verify that high-grade paper is separated at the source of generation.</p> <p>Verify that high-grade paper is separately collected.</p> <p>Verify that high-grade paper is sold for recycling.</p> <p>(NOTE: 40 CFR 246.200-1 required facilities with over 100 office workers to recover high-grade paper.)</p> <p>(NOTE: Moved from SW.25.2. September 2000.)</p> <p>Determine if the State has specific requirements for handling fluorescent bulbs.</p> <p>Verify that fluorescent bulbs are separated for recycling or for proper means of disposal as a universal or hazardous waste.</p> <p>Verify that fluorescent bulbs are not disposed of in dumpsters or shop receptacles.</p> <p>(NOTE: It is recommended that all FWS facilities purchase green fluorescent bulbs for replacement.)</p>

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GREENING  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GR.25.4.</b> It is Service policy that, where practicable, waste source reduction and waste recycling to minimize production of pollutants will be used according to 560 FW 2.2 and Strategic Plan For Greening the DOI through Waste Prevention, Recycling, and Federal Acquisition, <u>Waste Prevention and Recycling Goals (RP)</u> [Citation Revised September 2000].</p> <p><b>GR.25.5.</b> Facilities must divert solid waste from disposal in landfills through recycling as specified in the Strategic Plan For Greening the DOI through Waste Prevention, Recycling, and Federal Acquisition, <u>Waste Prevention and Recycling Goals (RP)</u> [Added July 2000].</p>	<p>(NOTE: See Hazardous Waste Management for proper disposal if recycling is not an option.)</p> <p>(NOTE: Moved from SW.25.3. September 2000.)</p> <p>Verify that the facility has a plan to recycle, reuse material, and substitute less hazardous products to greatest extent possible.</p> <p>(NOTE: Moved from HM.12.2. September 2000.)</p> <p>Verify that facilities are diverting solid waste from disposal in landfills through recycling at the rate of:</p> <ul style="list-style-type: none"> <li>- 40% by the year 2000</li> <li>- 45% by the year 2005</li> <li>- 50% by the year 2010.</li> </ul> <p>Verify that facilities meet applicable state requirements summarized in Appendix 11-2, if higher.</p> <p>Verify that facilities calculate solid waste generated and maintain records (see Appendix 11-3 for calculation form).</p> <p>(NOTE: No base year is required for diversion rate calculations as shown in Appendix 11-3.)</p> <p>Verify that the following commodities are recycled at all facilities unless significant barriers exist (e.g., lack of markets, cost):</p> <ul style="list-style-type: none"> <li>- white paper</li> <li>- mixed paper/newspaper</li> <li>- cardboard</li> <li>- aluminum</li> </ul>



**COMPLIANCE CATEGORY:  
GREENING  
Fish and Wildlife Service**

<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GR.25.6.</b> Facilities must develop waste prevention and recycling programs according to the Strategic Plan For Greening the DOI through Waste Prevention, Recycling, and Federal Acquisition, Waste Prevention and Recycling Goals (RP) [Added September 2000].</p>	<ul style="list-style-type: none"> <li>- plastic (#1 PET and #2 HDPE)</li> <li>- glass</li> <li>- pallets</li> <li>- scrap metal</li> <li>- toner cartridges</li> <li>- consistent with hazardous waste regulations:               <ul style="list-style-type: none"> <li>- fluorescent lamps and ballasts</li> <li>- batteries</li> <li>- used oil (see Appendix 11-4 for recycling instructions)</li> <li>- antifreeze</li> <li>- tires.</li> </ul> </li> </ul> <p>Verify that each facility initiates a program to promote waste prevention and recycling activities at all of their sites.</p> <p>Verify that facilities meet or exceed all applicable state and local guidelines, (found in Appendix 11-2).</p> <p>Verify that the facility waste prevention and recycling programs ensure that all personnel know their responsibilities for recycling:</p> <ul style="list-style-type: none"> <li>- white paper</li> <li>- mixed paper/newspaper</li> <li>- cardboard</li> <li>- aluminum</li> <li>- plastic (#1 PET and #2 HDPE)</li> <li>- glass</li> <li>- shipping pallets</li> <li>- scrap metal</li> <li>- toner cartridges</li> <li>- and consistent with hazardous waste regulations:               <ul style="list-style-type: none"> <li>- fluorescent lamps and ballasts</li> <li>- batteries</li> <li>- used oil</li> <li>- antifreeze</li> <li>- tires.</li> </ul> </li> </ul>

**COMPLIANCE CATEGORY:  
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<b>REGULATORY REQUIREMENTS:</b>	<b>REVIEWER CHECKS: SEPTEMBER 2000</b>
<p><b>GR.25.7.</b> Facilities must designate waste prevention and recycling coordinators according to the Strategic Plan For Greening the DOI through Waste Prevention, Recycling, and Federal Acquisition, <u>Waste Prevention and Recycling Goals</u> (RP) [Added September 2000].</p>	<p>Verify that every facility with more than five permanent, full-time equivalent (FTE) employees designates a Waste Prevention and Recycling Coordinator.</p> <p>Verify that facilities with five or fewer full-time personnel implement the provisions of EO 13101 and achieve Department goals to the extent practicable, with the exception of recordkeeping and formal reporting.</p> <p>(NOTE: The Recycling Coordinator position may be a collateral duty or, as appropriate, assigned to personnel who will be dedicated to this activity.)</p>

## Appendix 11-1

### Recommended Recovered Materials Content Levels for CPG Products

(<http://www.epa.gov/epaoswer/non-hw/procure/products.htm>)

[Added September 2000]

This is a selection of the recommended recovered materials content levels for CPG products. This Appendix does not contain the recommendations for all CPG products. See the above website for more information on product procurement.

#### Selected Non-Paper Office Products

#### USEPA's Recommended Recovered Materials Content Levels for Binders, Clipboards, File Folders, Clip Portfolios, and Presentation Folders <sup>1</sup>

Item	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Binders	Plastic-covered	--	25-50
	Paper-covered	75-100	90-100
	Pressboard	20	50
	Solid plastic	90	90
	HDPE	30-50	30-50
	PE	100	100
	PET	80	80
Plastic clipboards	Misc. plastics		
	HDPE	90	90
	PS	50	50
Plastic file folders	Misc. plastics	15	15-80
	HDPE	90	90
Plastic clip portfolios	HDPE	90	90
Plastic presentation folders	HDPE	90	90

<sup>1</sup> USEPA's recommendations do not preclude a procuring agency from purchasing binders, clipboards, file folders, clip portfolios, or presentation folders made from another material. They simply require that procuring agencies, when purchasing these items made from the materials above, purchase them made from recovered materials when these items meet applicable specifications and performance requirements.

**USEPA's Recommended Recovered Materials Content Levels for Plastic Trash Bags <sup>1</sup>**

<b>Product:</b>	<b>Material (%):</b>	<b>Postconsumer Content (%):</b>
Plastic Trash Bags	Plastic	10-100

<sup>1</sup> USEPA's recommendation does not preclude procuring agencies from purchasing a trash bag manufactured using another material, such as paper. It merely recommends that procuring agencies, when purchasing plastic trash bags, purchase items made from recovered materials.

**USEPA's Recommended Recovered Materials Content Levels for Office Recycling Containers and Office Waste Receptacles <sup>1</sup>**

<b>Materials</b>	<b>Postconsumer Content (%):</b>	<b>Total Recovered Materials Content (%):</b>
Plastic	20 - 100	--
Steel <sup>2</sup>	16	25-30
Paper		
-Corrugated	25-50	25-50
-Solid Fiber Boxes	40	--
-Industrial Paperboard	40-80	100

<sup>1</sup> USEPA's recommendations do not preclude a procuring agency from purchasing containers or receptacles manufactured using another material such as wood. They simply require that procuring agencies, when purchasing office recycling containers or office waste receptacles manufactured from plastic, paper, or steel, purchase such containers made with recovered materials when they meet applicable specifications and performance requirements.

<sup>2</sup> The recommended recovered materials content levels for steel in this table reflect the fact that the designated items are made from steel manufactured in a Basic Oxygen Furnace (BOF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel.

**Selected Paper and Paper Products**

**EPA's Recommended Recovered Fiber Content Levels for Uncoated Printing and Writing Papers<sup>1</sup>**

<b>Item</b>	<b>Postconsumer Fiber (%)</b>	<b>Recovered Fiber (%):</b>
Reprographic Paper (e.g., mimeo and duplicator paper, high-speed copier paper, and bond paper*)	30	30
Offset Paper (e.g., offset printing paper*, book paper*, and bond paper*)	30	30
Tablet Paper (e.g., offset paper such as note pads, stationery*, and other writing* papers)	30	30
Forms Bond (e.g., forms, computer printout paper, and ledger*)	30	30
Envelope Paper Wove Kraft  • White and colored (including manila)  • Unbleached	30 10-20 10	30 10-20 10
Cotton Fiber Paper (e.g. cotton fiber papers, ledger*, stationery* and matching envelopes, and other writing* papers)	30	30
Text & Cover Paper (e.g., cover stock, book paper*, stationery* and matching envelopes, and other writing* paper)	30	30
Supercalendered	10	10
Machine Finish Groundwood	10	10
Papeteries	30	30
Check Safety Paper	10	10

\*These items can be made from a variety of printing and writing papers, depending on the performance characteristics of the item. Some of the papers are a commodity-type and some are specialty papers. EPA recommends that procuring agencies determine the performance characteristics required of the paper prior to establishing minimum content standards. Bond, ledger, or stationery made from cotton fiber paper or a text & cover paper, for example, have different characteristics than similar items made from commodity papers.

**EPA's Recommended Recovered Fiber Content Levels for Coated Printing and Writing Papers**

Item	Postconsumer Fiber (%)	Recovered Fiber (%):
Coated Printing Paper	10	10
Carbonless	30	30

**EPA's Recommended Recovered Fiber Content Levels for Bristols**

Item	Postconsumer Fiber (%)	Recovered Fiber (%):
File Folders (manila and colored)	30	30
Dyed Filing Products	20	20-50
Cards (index, postal, and other, including index sheets)	20	50
Pressboard Report Covers and Binders	20	50
Tags and Tickets	20	20-50

NOTE: The content levels for all EPA recommendations should be read as X% recovered fiber, including Y% postconsumer fiber and not as X% recovered fiber plus Y% postconsumer fiber.

**Selected Parks and Recreation Products**

**EPA's Recommended Recovered Materials Content Levels for Playground Equipment<sup>1</sup>**

Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Plastics <sup>2</sup>	90-100	100
Plastic composites	50-75	95-100
Steel <sup>3</sup>	16 67	25-30 100
Aluminum	25	25

<sup>1</sup> USEPA's recommendations do not preclude a procuring agency from purchasing playground equipment manufactured from other materials. They simply require that a procuring agency, when purchasing playground equipment made from plastic, steel, wood, or aluminum, purchase these items with recovered materials when those items meet applicable specifications and performance requirements.

<sup>2</sup> "Plastics" includes both single and mixed plastic resins. Playground equipment made with recovered plastics may also contain other recovered materials such as wood or fiberglass. The percentage of these materials contained in the product would also count toward the recovered materials content level of the item.

<sup>3</sup> The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

**USEPA's Recommended Recovered Materials Content Levels for Fencing Containing Recovered Plastic <sup>1, 2</sup>**

<b>Material:</b>	<b>Postconsumer Content (%):</b>	<b>Total Recovered Materials Content (%):</b>
Plastic	60-100	90-100

<sup>1</sup> USEPA's recommendation does not preclude a procuring agency from purchasing fencing manufactured from another material, such as wood. It simply requires that a procuring agency, when purchasing plastic fencing, purchase this item made with recovered materials when this item meets applicable specifications and performance requirements.

<sup>2</sup> Designation includes fencing containing recovered plastic for use in controlling snow or sand drifting and as a warning/safety barrier in construction or other applications.

**Selected Landscaping Products**

**USEPA's Recommended Recovered Materials Content Levels for Plastic Lumber Landscaping Timbers and Posts <sup>1</sup>**

<b>Material</b>	<b>Postconsumer Content (%)</b>	<b>Total Recovered Materials Content (%)</b>
HDPE	25-100	75-100
Mixed plastics/Sawdust	50	100
HDPE/Fiberglass	75	95
Other mixed resins	50-100	95-100

<sup>1</sup> USEPA's recommendations do not preclude a procuring agency from purchasing wooden landscaping timbers and posts. They simply require that procuring agencies, when purchasing plastic landscaping timbers and posts, purchase these items made with recovered materials when the items meet applicable specifications and performance requirements.

Selected Construction Products

USEPA's Recommended Recovered Materials Content Levels for Building Insulation <sup>1</sup>

Product	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Rock Wool	Slag	--	75
Fiberglass	Glass Cullet	--	20-25
Cellulose Loose-Fill and Spray-On	Postconsumer Paper	75	75
Perlite Composite Board	Postconsumer Paper	23	23
Plastic Rigid Foam, Polyisocyanurate/ Polyurethane:			
Rigid Foam	--	--	9
Foam-in-Place	--	--	5
Glass Fiber Reinforced	--	--	6
Phenolic Rigid Foam	--	--	5
Plastic, Non-Woven Batt	Recovered and/or Postconsumer Plastics	--	100

<sup>1</sup> The recommended recovered materials content levels are based on the weight (not volume) of materials in the insulating core only.



**USEPA's Recommended Recovered Materials Content Levels for Carpet<sup>1</sup>**

Product	Material	Postconsumer Content	Total Recovered Materials Content (%)
Polyester Carpet Face Fiber	PET	25-100	25-100

<sup>1</sup>EPA recommends that, based on the recovered materials content levels shown in the table above, procuring agencies establish minimum content standards for use in purchasing polyester carpet for light- and moderate-wear applications. This recommendation does not include polyester carpet for use in heavy-wear or severe-wear applications; however, procuring agencies are encouraged to evaluate the suitability of polyester carpet in these applications. These recommendations do not preclude a procuring agency from purchasing carpet made of other materials such as nylon, wool, or polypropylene.

**USEPA's Recommended Recovered Materials Content Levels for Carpet Cushion<sup>1</sup>**

Product	Material	Postconsumer Content (%)	Total Recovered Materials Content (%)
Bonded polyurethane	Old carpet cushion	15-50	15-50
Jute	Burlap	40	40
Synthetic fibers	Carpet fabrication scrap	--	100
Rubber	Tire rubber	60-90	60-90

<sup>1</sup>EPA's recommendations do not preclude a procuring agency from purchasing another type of carpet cushion. They simply require that procuring agencies, when purchasing bonded polyurethane, jute, synthetic fiber, or rubber carpet cushions, purchase these items made with recovered materials when these items meet applicable specifications and performance requirement. Refer to Section C-4 in RMAN I for EPA's recommendations for purchasing polyester carpet containing recovered materials.

**USEPA's Recommended Recovered Materials Content Levels for Reprocessed and Consolidated Latex Paints <sup>1</sup>**

Product	Postconsumer Content (%)	Total Recovered Materials Content (%)
Reprocessed Latex Paint		
• White, Off-White, Pastel Colors	20	20
• Grey, Brown, Earthtones, and Other Dark Colors	50-99	50-99
Consolidated Latex Paint	100	100

<sup>1</sup> USEPA's recommendations apply to reprocessed latex paints used for interior and exterior architectural applications such as wallboard, ceilings, and trim; gutter boards; and concrete, stucco, masonry, wood, and metal surfaces, and to consolidated latex paints used for covering graffiti, where color and consistency of performance are not primary concerns.

**EPA's Recommended Recovered Materials Content Levels for Shower and Restroom Dividers/Partitions Containing Recovered Plastic or Steel <sup>1</sup>**

Material	Postconsumer Content	Total Recovered Materials Content (%)
Steel <sup>2</sup>	16 67	25-30 100
Plastic	20-100	20-100

<sup>1</sup> USEPA's recommendations do not preclude an agency from purchasing shower and restroom dividers/partitions manufactured from another material such as wood. they simply require that procuring agencies, when purchasing shower and restroom dividers/partitions made from plastic or steel, purchase these items made from recovered materials when they meet applicable specifications and performance requirements.

<sup>2</sup>The recommended recovered materials content levels for steel in this table reflect the fact that the designated items can be made from steel manufactured in either a Basic Oxygen Furnace (BOF) or an Electric Arc Furnace (EAF). Steel from the BOF process contains 25-30% total recovered materials, of which 16% is postconsumer steel. Steel from the EAF process contains a total of 100% recovered steel, of which 67% is postconsumer.

Selected Transportation Products

**USEPA's Recommended Recovered Materials Content Levels for Parking Stops Made from Concrete or Containing Recovered Plastic or Rubber <sup>1, 2</sup>**

<b>Material</b>	<b>Postconsumer Content (%)</b>	<b>Total Recovered Materials Content (%)</b>
Plastic and/or Rubber <sup>3</sup>	100	--
Concrete Containing Coal Fly Ash	--	20-40 <sup>4</sup>
Concrete Containing Ground Granulated Blast Furnace Slag (GGBF)	--	25-70

<sup>1</sup> USEPA's recommendation does not preclude a procuring agency from purchasing parking stops manufactured from another material. It simply requires that a procuring agency, when purchasing concrete parking stops or parking stops made with plastic or rubber, purchase these items made with recovered materials when these items meet applicable specifications and performance requirements.

<sup>2</sup> Transportation products containing recovered materials must conform to the *Manual on Uniform Highway Traffic Control Devices* used by the Federal Highway Administration, as well as other applicable federal requirements and specifications.

<sup>3</sup> Parking stops made with recovered plastics may also include other recovered materials such as sawdust, wood, or fiberglass. The percentage of these materials contained in the product would also count toward the recovered materials content level of the parking stops.

<sup>4</sup> Generally, 20 to 30 percent, but could be up to 40 percent. Fifteen percent when used as a partial cement replacement as an admixture in concrete.

**EPA's Recommended Recovered Materials Content Levels for Traffic Cones<sup>1</sup>**

<b>Material</b>	<b>Postconsumer Materials (%):</b>	<b>Total Recovered Materials Content (%)<sup>2</sup></b>
Plastic (PVC and LDPE)	--	50-100
Crumb rubber	--	50-100

<sup>1</sup> Transportation products containing recovered materials must conform to the *Manual on Uniform Traffic Devices* used by the Federal Highway Administration, as well as other applicable federal requirements and specifications.

<sup>2</sup> The recommended recovered materials content levels are based on the dry weight of the raw materials, exclusive of any additives such as adhesives, binders, or coloring agents.

**Selected Vehicular Products**

**Recommended Recovered Materials Content Ranges For Engine Coolant:**

- USEPA recommends that procuring agencies whose vehicles are serviced by a motor pool or vehicle maintenance facility establish a program for engine coolant reclamation and reuse that consists of either reclaiming the spent engine coolants onsite for use in the agencies' vehicles or establishing a service contract for reclamation of the agencies' spent engine coolant for use in the agencies' vehicles.
- USEPA also recommends that procuring agencies request reclaimed engine coolant when having their vehicles serviced at commercial service centers. Additionally, USEPA recommends that agencies purchase reclaimed engine coolant when making direct purchases of this item, such as when necessary to make up for losses due to leakage or spillage.
- USEPA does not recommend one type of engine coolant over another. USEPA recommends, however, that procuring agencies purchase engine coolant containing only one base chemical, typically ethylene glycol or propylene glycol, to prevent the commingling of incompatible types of engine coolant

**Recommended Recovered Materials Content Ranges for Re-refined Lubricating Oils:**

USEPA recommends that procuring agencies set their minimum re-refined oil content standard at the highest level of re-refined oil that they determine meets the statutory requirements of RCRA section 6002(c)(1), but no lower than 25 percent re-refined oil.

USEPA recommends that procuring agencies review their procurement practices and eliminate those which would inhibit or preclude procurement of lubricating oils containing re-refined oil. For example, procuring agencies should review the practices of inviting bids and issuing contracts to do the following:

- Supply a broad range of lubricating oil products on an "all or none" basis.
- Supply lubricating oils for an excessively long period of time.
- Deliver lubricating oils to geographic locations throughout the United States or to an excessively broad geographic area.
- Supply excessively large contract quantities.

Selected Miscellaneous Products

**EPA's Recommended Recovered Materials Content Levels for Awards and Plaques<sup>1</sup>**

<b>Material</b>	<b>Postconsumer Content (%)</b>	<b>Total Recovered Materials Content (%)</b>
Glass	75-100	100
Wood	--	100
Paper	40-100	40-100
Plastic and Plastic/ Wood Composite	50-100	95-100

<sup>1</sup> USEPA's recommendations do not preclude a procuring agency from purchasing awards and plaques manufactured from other materials. They simply require that a procuring agency, when purchasing glass, wood, paper, or plastic awards or plaques, purchase these items containing recovered materials when the item meets applicable specifications and performance requirements.

**USEPA's Recommended Recovered Materials Content Levels for Sorbents Used in Oil and Solvents Cleanups and for Use as Animal Bedding <sup>1</sup>**

<b>Material</b>	<b>Postconsumer Content (%)</b>	<b>Total Recovered Materials Content (%)</b>
Paper	90-100	100
Textiles	95-100	95-100
Plastics	--	25-100
Wood <sup>2</sup>	--	100
Other Organics/Multi-Materials <sup>3</sup>	--	100

<sup>1</sup> USEPA's recommendations do not preclude a procuring agency from purchasing sorbents made from other materials. They simply require that a procuring agency, when purchasing sorbents made from paper, wood, textiles, plastic, or other organic materials, purchase them made with recovered materials when these items meet applicable specifications and performance requirements.

<sup>2</sup> "Wood" includes materials such as sawdust and lumber mill trimmings.

<sup>3</sup> Examples of other organics include, but are not limited to, peanut hulls and corn stover. An example of multimaterial sorbents would include, but not be limited to, a polymer and cellulose fiber combination.



## Appendix 11-2

### Summary of State Waste Diversion Rates

Strategic Plan For Greening the DOI through Waste Prevention, Recycling,  
and Federal Acquisition, Appendix B) (Source: BioCycle Magazine, April 1999)

**[Added July 2000]**

States that are not listed did not have diversion goals as of the date of this summary. As this information is subject to change, facility managers should verify this information with their state's solid waste management office.

STATE	Diversion Goal (%)	Deadline	Mandatory on Local Government?
AL	25	-	
AR	40	2000	NO
CA	50	2000	YES
CT	40	2000	YES
DE	25	2000	NO
DC	45	1994	NO
FL	30	1994	NO
GA	25	1996	NO
HI	50	2000	NO
ID	25	1995	NO
IL	25	2001	YES
IN	50	2000	NO
IA	50	2000	NO
KY	25	1997	NO
LA	25	1992	NO
ME	50	1998	NO
MD	20	1994	YES
MA	46	2000	NO
MI	50	2005	NO
MN	50	1996	NO
MS	25	1996	NO
MO	30	1998	NO
MT	25	1996	NO
NE	40	2000	NO
NV	25	1995	NO
NH	40	2000	NO
NJ	65	2000	NO
NM	50	2000	NO
NY	50	1997	NO
NC	40	2001	NO
ND	40	2000	NO
OH	25	2000	NO
OR	50	2000	YES
PA	35	2003	NO
RI	70	-	NO
SC	30	1997	NO
SD	50	2001	YES
TN	25	1995	NO
TX	40	1994	NO
VT	40	2000	NO
VA	25	1997	NO
WA	50	2000	NO
WV	50	2010	NO





**Appendix 11-3**  
**How to Calculate Solid Waste Generated at an FWS Field Station**  
**(EFC 9/00)**

The Strategic Plan for Greening the Department of the Interior through Waste Prevention, Recycling, and Federal Acquisition lists waste prevention and recycling goals. The document states that each DOI Bureau and office will divert solid waste from disposal in landfills through recycling at the rate of 40% by the year 2000, 45% by the year 2005, and 50% by the year 2010. In order to measure the percentage of solid waste diversion to recycling, the weight of trash and recyclable items will need to be estimated at all DOI sites. The following steps are designed to assist in the process.

Step 1: Waste Generated by a Refuge.

- A. For uncompacted trash, to convert the units of cubic yards into tons, using the standard density of trash value of 250 pounds per cubic yard (lbs/yd<sup>3</sup>):

Using "X" cubic yards, multiply by 250 lbs/yd<sup>3</sup> to obtain your value in pounds.

"X" cubic yards x 250 lbs/yd<sup>3</sup> = \_\_\_\_\_ lbs.

In this case, 1 yd<sup>3</sup> = 250 lbs.

Fill in the blank with the number of cubic yards and multiply by 250 for pounds. Then multiply by the number of times the trash is picked up per year to determine the annual waste generated by the uncompacted trash bin.

\_\_\_\_\_ x 250 lbs/yd<sup>3</sup> = \_\_\_\_\_ lbs/pickup

\_\_\_\_\_ x lbs/pickup x \_\_\_\_\_ annual pickups = \_\_\_\_\_ lbs/year

Use space below for additional uncompacted trash bin calculations. Then sum all trash bins for the annual Refuge total.

- B. To determine your own density value for uncompacted trash (instead of using the standard value of 250 lbs/yd<sup>3</sup>), using a 32 gallon trash can:

- (1) Weigh the trash can both filled and empty (use a full 32 gallon trash can filled with trash roughly level to the top).
- (2) Subtract the empty weight from the filled weight to get the weight of trash (filled weight - empty weight = weight of trash).
- (3) Use the formula, using "Y" your weight of trash (lbs), divided by 0.15 yd<sup>3</sup>/32 gal trash can, to obtain your value in lbs/yd<sup>3</sup>; which equals:

("Y" lbs/32 gal trash can) / (0.15 yd<sup>3</sup>/32 gal trash can) = \_\_\_\_\_ lbs/yd<sup>3</sup>

- (4) Substitute this value for the 250 lbs/yd<sup>3</sup> value in method A above.

This would be the more accurate measure of your Refuge's specific waste.

The attachment to this procedure (Appendix B) is the standard volume-to-weight conversion factors that can be used to assist in determining the estimated weight (lbs) of a recyclable material (of which the volume must be estimated).

Step 2: Actual Recycling by a Refuge.

Using the same method as described in Step 1 above, calculate the estimated weight of items recycled at the Refuge. Use the attached Appendix as an aid in converting standard volume-to-weight. Check what methods, if any, the Refuge is currently using to determine the actual amount recycled.

White Paper	_____
Mixed Paper/Cardboard	_____
Aluminum	_____
Plastic	_____
Glass	_____
Pallets	_____
Scrap Metal	_____
Fluorescent Lamps	_____
Ballasts	_____
Batteries	_____
Toner Cartridges	_____
Antifreeze	_____
Solvents	_____
Oil	_____
Tires	_____
Composting	_____

Step 3: Potential Recycling by a Refuge.

Upon completing the Refuge tour and performing the Pollution Prevention Opportunity Assessment and the Greening Assessment, determine the items that can be recycled but are not. Calculate the estimated weight of these items.

White Paper	_____
Mixed Paper/Cardboard	_____
Aluminum	_____
Plastic	_____
Glass	_____
Pallets	_____
Scrap Metal	_____
Fluorescent Lamps	_____
Ballasts	_____
Batteries	_____
Toner Cartridges	_____
Antifreeze	_____
Solvents	_____
Oil	_____
Tires	_____

Composting \_\_\_\_\_

Step 4: Tracking and Reporting.

The Refuges must report annually on the 40% goal. Reporting will be done over the internet. "Actuals" should be used for recycling.

BUYING RECYCLED ITEMS

Refer to attached "Recycled Content Minimums" Guidelines

- Paper and Paper Products \_\_\_\_\_
- Non-Paper Office Products \_\_\_\_\_
- Miscellaneous Products \_\_\_\_\_
- Construction Products \_\_\_\_\_
- Landscaping Products \_\_\_\_\_
- Park and Recreation Products \_\_\_\_\_
- Transportation Products \_\_\_\_\_
- Vehicular Products \_\_\_\_\_

CHECK ATTACHMENTS FOR DETAILED ITEMS UNDER EACH CATEGORY DESIGNATED BY THE CPG WITH POSTCONSUMER CONTENT (PCC).

**Standard Volume-to-Weight Conversion Factors**

Category	Recyclable Materials (u/c = uncompacted/ compacted & baled)	Volume	Estimated Weight (in pounds)
Food Scraps <sup>A</sup>	Food scraps, solid and liquid fats	55-gal drum	412
Glass	Bottles <sup>B</sup> :		
	Whole bottles	1 yd <sup>3</sup>	500-700
	Semicrushed	1 yd <sup>3</sup>	1000-1800
	Crushed (mechanically)	1 yd <sup>3</sup>	1800-2700
	Uncrushed to manually broken	55-gal drum	300
	Refillable Whole Bottles <sup>C</sup> :		
	Refillable beer bottles	1 case = 24 bottles	10-14
	Refillable soft drink bottles	1 case = 24 bottles	12-22
	8 oz glass container	1 case = 24 bottles	12
Lead-Acid Batteries	Car <sup>D</sup>	1 battery	39.4 lb
	Truck <sup>E</sup>	1 battery	53.3 lb lead and plastic
	Motorcycle <sup>E</sup>	1 battery	9.5 lb lead and plastic
Metals	Aluminum Cans <sup>F</sup> :		
	Whole	1 yd <sup>3</sup>	50-75
	Compacted (manually)	1 yd <sup>3</sup>	250-430
	Uncompacted	1 full grocery bag 1 case = 24 cans	1.5 0.9
	Ferrous (tin coated steel cans) <sup>G</sup> :		

	Whole	1 yd <sup>3</sup>	150
	Flattened	1 yd <sup>3</sup>	850
	Whole	1 case = 6 cans	22
	Major Appliances <sup>E</sup> :		
	Air conditioners (room)	1 unit	64.2
	Dishwashers	1 unit	92
	Dryers (clothes)	1 unit	130
Plastic <sup>1</sup>	PET (Soda Bottles):		
	Whole bottles (uncompacted)	1 yd <sup>3</sup>	30-40
	Whole bottles (compacted)	1 yd <sup>3</sup>	615
	Whole bottles (uncompacted)	Gaylord	40-53
	Baled	30 in. x 62 in.	500-550
	Granulated	semiload	30,000
	Granulated	semiload	700-750
	8 bottles (2 L size)	16 L	1
	HOPE (Dairy):		
	Whole (uncompacted)	1 yd <sup>3</sup>	24
	Whole (compacted)	1 yd <sup>3</sup>	270
	Baled	32 in. x 60 in.	400-500
	HOPE (Mixed):		
	Baled	32 in. x 60 in.	900
	Granulated	Gaylord	800-1000
	Granulated	semiload	42,000
	Other Plastic		
	Uncompacted	1 yd <sup>3</sup>	50
	Compacted/baled	1 yd <sup>3</sup>	400-700
	Mixed PET and HDPE (Dairy)		
	Whole (uncompacted)	1 yd <sup>3</sup>	32
	Film		
	Baled	semiload	44,000
	Baled	30 in x 42 in. x 48 in.	1100
Textiles	Mixed textiles	1 yd <sup>3</sup>	175
Tires	Car Tires:		
	Whole tire <sup>E</sup>	1 tire	21
	Crumb rubber <sup>K</sup>	1 tire	12
	Truck Tires:		
	Whole tire <sup>E</sup>	1 tire	70
	Crumb rubber <sup>K</sup>	1 tire	60
Wood	Wood chips <sup>L</sup>	1 yd <sup>3</sup>	625
	Pallets <sup>F</sup>	--	30-100 (40 avg.)

**Appendix 11-4**  
**USFWS Instructions**  
**Ordering and Recycling Re-Refined Oil**  
**(EFC 9/00)**

Please use the following procedure to order re-refined motor oil through DSCR Closed-Loop program. Once oil is ordered, pickup of used oil is included as part of the service provided by the DSCR contractor. (For 72-hour pickup service, call 1-800-525-5739.) The Closed-Loop program is good throughout the continental United States. Locations outside of the 48-states can still buy re-refined oil from DSCR, but through the Basic program, which does not include pickup of used oil.

Electronic Ordering Procedure (requires Internet access and an IMPAC government credit card) (Call 616-961-7605 for additional step-by-step assistance from DLA personnel.)

1. Type in the following Internet address: <http://www.emall.dla.mil>.
2. Click on "register".
3. Click on "create a new account." (Case sensitive.)
4. Fill in "user registration" information.
5. Login at Main Screen.
6. Click "commodities" corridor.
7. Under "DOD Email News," click "Closed-Loop Re-refined Oil Program."
8. Note NSNs of the respective viscosity of oil you wish to purchase.
9. Click "shop" at top of screen and order your re-refined oil! A small gray box will now appear at the top of your screen that states, "search products by keyword." Within this box, click "search." (Without entering a search item.)
10. On the first line, under Part Number/NSN search, type in the NSN without the dashes, e.g., 9150-01-438-5875 must be entered 9150014385875.
11. Click "search" on the bottom of the "Part Number/NSN search" area.
12. The top of this screen is addressed, "Query Search Results in Table of Contents." Go towards the bottom of this screen. You will see a table of the items you wish to purchase. In the table's first column, entitled "cart," click in the add box. You will then see a green checkmark within this box. Go back to the top of this screen and click "View Cart" within the "Shopping Cart Summary" box.
13. You can now review the items you have on order. Here you can delete items, return to the search page to continue shopping, finalize your order, empty your shopping cart, save these items within a shopping cart, or retrieve another shopping cart. Note: A shopping cart is simply an organized file of selected items. For example, all of your oil selections can be placed and saved in a shopping cart that you name "oil." This will allow you to retrieve your entire "re-refined oil order" later.
14. FINALIZE ORDER. Click "shipments" at the top of the page, then type in the date you want the oil shipped, the "ship to" DODACC or the address you wish your oil to be delivered. Expect your delivery within 10-days of ordering under the Closed-Loop program. Sites located outside of the continental U.S. must order under the Basic program and can expect delivery within 15 days of order.

Telephone Ordering Procedure

If you prefer ordering oil via the telephone, dial 1-800-345-6333.

## How Contractors Can Utilize the Closed-Loop Re-refined Oil Program

Many FWS field stations outsource the maintenance of station vehicles. The DOI Strategic and Action Plans recommends that suppliers use re-refined oil. Below is a procedure to give to suppliers so they can order re-refined oil.

### **How does the contractor order motor oil directly from DSCR?**

The contractor must be in contract with the Federal Government in order to purchase oil through this program. If not, they can still purchase re-refined oil directly from Safety-Kleen or another source.

The contractor must first obtain a Department of Defense Activity Address Code (DODAAC) through the government agency administering the contract. Federal agencies other than DOD refer to this code as a Federal Standard Requisitioning and Issues Procedures (FEDSTRIP) number. This enables the contractor to order through the Department of Defense.

When a contractor orders directly from DSCR, the material is considered government furnished and its title is never transferred to the contractor. However, the contractor would be shipped the material and billed directly. Ordering must be accomplished via Standard Form 344, which would be faxed to DSCR at 1-800-352-1291. (The SF-344 can be obtained by calling 1-800-345-6333.) The government would then reimburse the contractor through means established in the contract.

Your installation may also requisition the material directly from DSCR and provide it to the contractor. The contractor would then be eligible to have used oil pickup for no additional cost. The Closed-Loop program allows 120% of purchased oil to be picked up for no additional cost. Used oil in excess of the 120% can be picked up for \$0.18 per gallon. Totals will be calculated on a yearly basis.

### **How do I get more information?**

DSCR has a brochure on the Closed-Loop re-refined oil program that explains the program in detail. Call 800-345-6333 or 804-279-4908 for a copy of the brochure or more information.