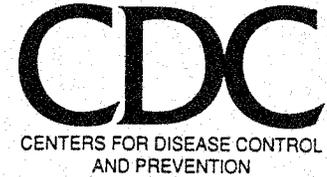




**US Army Corps
of Engineers**

Construction Engineering
Research Laboratories



Environmental Compliance Assessment Protocols-Centers for Disease Control and Prevention (ECAP-CDC)

In response to the growing number of environmental laws and regulations worldwide, the Centers for Disease Control and Prevention (CDC) has adopted an environmental compliance program that identifies compliance problems before they are cited as violations by the U.S. Environmental Protection Agency (USEPA).

In 1992, the CDC developed a program to maintain compliance with all Federal, state, and local environmental regulations. The goal is to protect human health/safety and the environment. The CDC headquarters in Atlanta, GA, with facilities in several other states, developed and implemented a specific environmental assessment and management program tailored to the type and size of their facilities and operations. The resulting system combines Federal environmental regulations, along with good management practices and risk management information, into a series of checklists that show legal requirements and which specific items or operations to review.

The Environmental Compliance Assessment Protocol Centers for Disease Control and Prevention (ECAP-CDC) incorporates existing checklists from USEPA and private industry. The manual is updated continually to address new environmental compliance laws and regulations.

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FOREWORD

The research was performed for the Centers for Disease Control and Prevention (CDC) under CDC Appropriation number 7540943, dated July 1994. The CDC technical monitor was Rebecca L. West.

The research was performed by the Environmental Compliance Modeling and Systems Division (EC) of the U.S. Army Construction Engineering Research Laboratories (USACERL). The Principal Investigator was Donald H. Wiggins, Environmental Protocol Team, CECER-ECP. Dr. Diane K. Mann, CECER-ECP is Team Leader. Dr. John T. Bandy is Chief, CECER-EC, and William D. Goran is Chief, CECER-EL.

LTC David J. Rehbein is Commander and Acting Director, USACERL. Dr. Michael J. O'Conner is Technical Director.

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NOTICE

This guide is intended as general guidance for personnel at CDC facilities. It is not, nor is it intended to be a complete treatise on environmental laws and regulations. Neither the U.S. 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.

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MANUAL OBJECTIVES

The contents of this manual are based on Federal environmental regulations and are to be supplemented with state and local environmental regulations that are applicable to Centers for Disease Control and Prevention (CDC) facilities if more stringent than Federal regulations included in this guide. This manual, with local supplements, is intended to serve as the primary tool in conducting an environmental compliance assessment. Specifically, this manual:

1. compiles applicable Federal with CDC operations and activities
2. synthesizes environmental regulations, CDC regulations and policies, management practices (MPs), and risk management issues into consistent and easy to use checklists
3. serves as an aid in the assessment process and management action development phases of CDC environmental assessment programs.

Any change or suggestion for improving this manual should be forwarded to USACERL/ECP, ATTN: Donna J. Schell, P.O. Box 9005, Champaign, IL 61826-9005, FAX No. 217-373-7222 and the CDC POC.

The information in this manual applies to all CDC facilities in the United States and its territories. The contents of this manual are up-to-date as of 14 September 1994.

ENVIRONMENTAL COMPLIANCE ASSESSMENT PROCESS

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

1. pre-assessment activities
2. site assessment activities
3. post-assessment activities.

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

Pre-assessment Activities - Five key activities should be completed before an assessment team begins the assessment activities.

1. **Previsit Questionnaire.** The purpose of the previsit questionnaire is to collect information that will familiarize the assessment team with the facility and its operations so that they are able to review the applicable regulations and prepare a detailed assessment schedule. The previsit questionnaire is an essential part of pre-assessment activities for an external assessment. It is also an excellent tool for ensuring internal assessment team members are starting from the same base of information. Appendix 1 contains a sample previsit questionnaire (see page number xxix).
2. **Define Assessment Scope and Team Responsibilities.** The facility or CDC may wish to place special emphasis on certain sections or to review additional areas not covered in the manual. These goals must be stated clearly so the assessment can be planned properly. Additionally, the duration of the assessment, appointment of team members, 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. **Review Relevant Regulations.** Once the assessment scope and responsibilities are known, the assessors should undertake a thorough review of relevant Federal, state, and local regulations affecting the facility. The applicable environmental regulations must be determined before the assessment begins. If not already available, checklist items for state and local requirements must be added to the checklists in the assessment manual.
4. **Develop Assessment Schedule.** The team should develop a detailed assessment schedule that includes the activities planned for each day.
5. **Review Assessment Sections.** Each assessor should know the regulatory requirements, schedule, and be familiar with the assessment checklists that will be used.

Site Assessment Activities - Onsite, the assessors will conduct record searches, interviews, and site surveys to determine the compliance status of 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 assessment findings and recommendations. A Finding Summary form is available to assist assessors in compiling needed information during an assessment. A Finding Summary form should be completed for each finding during the assessment. These forms comprise the basis of the assessment report. The format and content for assessment reports will be in a separate supplement. Figure 1 (page ix) shows a blank sample Finding Summary form. Figure 2 (page xi) shows a sample completed Finding Summary form.

All items of the Finding Summary form must be filled in up to Sampling Results for negative findings and up to Criteria for positive findings. 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, CDC, 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 sheet.

For example, a team member assigned to evaluate the facilities' hazardous waste management program, which is a small quantity generator (SQG), visited the accumulation point at building 5000. The assessor 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. Item 4-23 in the CDC manual states that 40 CFR 262.34(d)(2) and 265.171 requires containers to be tightly sealed and not leaking, bulging, rusting, or badly dented. The damaged drums were behind the others, so the accumulation point manager may have overlooked them during his regular inspections. The accumulation point manager immediately put overpack drums on order. The assessor is now ready to fill out a Finding Summary form.

Any findings discovered through the use of this guidance manual by the internal assessment must be validated by the designated CDC representative.

Figure 1

FINDING SUMMARY

Manual Edition Date: _____

INDIVIDUAL FINDING SHEET

(To provide detailed information for use by assessment team only)

MANDATORY ENTRIES

Section (Air, Hazardous Materials, etc.): _____ Question Number: _____

Type of Finding (Positive or Negative): _____

Building number or location: _____

FINDING CATEGORY (circle one): Significant Major Minor Management Practice

Basis of Finding (Citation or Regulation): (Reference applicable Federal, state, and local regulations)

CONDITION (What did you find?)

CRITERIA (What is the actual requirement?)

SAMPLING RESULTS (mandatory only if sampling was used):

Universe: _____ Sample Size: _____
Number of Discrepancies: _____ Percentage of Discrepancies: _____

Is this a repeat finding (NOV, etc)? _____

PREPARED BY:

DATE:

SUGGESTED SOLUTION(s):

OPTIONAL ENTRIES

COMMENTS:

Explanation of Ratings

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.

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

Figure 2

FINDING SUMMARY

Manual Edition Date: November 1994

INDIVIDUAL FINDING SHEET

(To provide detailed information for use by assessment team only)

MANDATORY ENTRIES

Section (Air, Hazardous Materials, etc.): Haz Waste

Question Number: 4-23

Type of Finding (Positive or Negative): Negative

Building number or location: Building 5000

FINDING CATEGORY (circle one): Significant Major Minor Management Practice

Basis of Finding (Citation or Regulation): (Reference applicable Federal, state, and local regulations)

40 CFR 262.34(d)(2) and 265.171

CONDITION (What did you find?)

Five of eight drums of hazardous waste at the accumulation point were rusted and bulging.

CRITERIA (What is the actual requirement?)

Containers used to store hazardous waste at SQGs must be in good condition and not leaking.

SAMPLING RESULTS (mandatory only if sampling was used):

Universe: 8

Sample Size: 8

Number of Discrepancies: 5

Percentage of Discrepancies: 63%

Is this a repeat finding (NOV, etc)? NO

PREPARED BY: John Smith

DATE: 10 November 1994

SUGGESTED SOLUTION(s):

Overpack damaged drums and dispose of as hazardous waste.

OPTIONAL ENTRIES

COMMENTS:

The accumulation point manager immediately put overpack drums on order.

Explanation of Ratings

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.

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

ORGANIZATION OF THE MANUAL

CDC facilities engage in many operations and activities that can cause environmental impacts on public health and the environment if not controlled or properly managed. Many of these activities and operations are regulated by Federal, state, and local regulations, and by CDC regulations/policies. After a review of these activities at CDC facilities it is apparent that there are major categories of environmental compliance into which most environmental regulations and CDC activities could be grouped. This manual is divided into 13 sections that correspond to major compliance categories:

1. Air Emissions Management
2. Aboveground Storage Tank (AST)/Underground Storage Tank (UST) Management
3. Hazardous Materials Management
4. Hazardous Waste Management
5. Natural and Cultural Resources Management
6. Pesticide Management
7. Petroleum, Oil, and Lubricant (POL) Management
8. Solid Waste Management
9. Special Pollutants (includes asbestos, PCBs, radon, and noise)
10. Water Quality Management.

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 Requirement.** This identifies the typical compliance areas normally addressed in state and local regulations. This section does not present individual state/local requirements. An assessment of state and local requirements must be conducted and supplemental questions prepared to cover these requirements. The guide is prepared in loose leaf form to allow state and local requirements to be easily inserted.
- D. **CDC Regulations/Requirements.** This identifies, in summary form, CDC policies and regulations pertaining to the environment.
- 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. **Responsibility for Compliance.** This identifies, in summary form, personnel and offices responsible for specific compliance issues.
- G. **Key Compliance Definitions.** This presents definitions taken from the Code of Federal Regulations (CFRs) for those key terms associated with each compliance category.
- H. **Guidance for Checklist Users.** This is a table of contents for the following checklist.

Records To Review. This lists documents and records that should be review during the assessment process for each section.

Physical Features To Inspect. A list of facilities and activities that should be assessed for compliance with that section.

People To Interview. A list of personnel to interview in order to determine compliance,

Compliance Assessment Checklists. The final portion of each section and its appendices contain checklists 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. Each checklist item is followed by one or more numeric codes which indicate the personnel to be interviewed to ensure the compliance issue in the checklist item. The following is the list of contact/location codes for the CDC:

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (3) Facilities Operations Branch
- (4) Section Chiefs
- (5) Industrial Hygiene Section
- (6) Radiation Protection and Fire Safety Section
- (7) Chemical and Physical Hazards Branch
- (8) Training Activity
- (9) Medical Services
- (10) Biosafety Branch
- (11) Procurement and Grants Office
- (12) Warehouse
- (13) Facilities Design Branch
- (14) Ground Maintenance Section
- (15) Engineering Service Office
- (16) Real Property and Space Management Branch
- (17) Sanitation Maintenance (Facilities Operation Branch)
- (18) Electrical Section (Facilities Operations Branch)
- (19) Asbestos Program Manager (Industrial Hygiene Section)
- (20) Food Service Manager

USING THE CHECKLISTS

Please see Appendices 2 and 3 (see pages xli and xliii) for samples of a portion of a checklist.

- **Explanation of Layout/Content.** The checklist portion of assessment 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 good management practice to maintain compliance, but which is not specifically mandated by regulation.

The second column gives instructions to help conduct the compliance assessment. 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 an installation/CW facility.

- **Standard Checklist Items.** The first four checklist item in each section of the guide are standardized. The first item requires a review of any previous assessment documents and agreements. The second item is a management practice that lists the potentially applicable regulations a facility should have onsite. The third item requires a review of state and local regulations as well as indicating issues commonly regulated at the state and local level. The fourth item provides a place for assessors to write up findings that are based on regulations that have been promulgated since the publication of the guide or regulations not included in the guide. Appendix 2 provides an example of these four checklist items as found in the section titled Solid Waste Management.

- **Worksheet.** At the end of each section is an assessment worksheet. This worksheet should be reproduced and used during the assessment to take notes. It is designed to be inserted between each page of the checklists, allowing the main text to be kept usable for the next assessment. The worksheet is divided into two columns. The first column is a quick check for those items that are in compliance (C), not applicable (N/A) to the installation/CW facility being reviewed, or require management action (RMA).

The second column on the worksheet allows for more detailed notations or comments. These notations will provide a record for use in preparing the final report. These notations should include both situations of substandard operation needing attention and those operations that are above requirements or provide examples of good programs. For future reference and clarity it is essential that the building number (or other reference to location) is noted during the review.

- **Inserting and Deleting Pages.** Each section is structured so that an assessor does not have to carry the whole section while doing the assessment. For example, if the assessor was reviewing compliance at a Small Quantity Generator (SQG) of hazardous waste (see the provided sample checklist items in Appendix 3) and knows that the facility does not generate any restricted wastes, the checklist items pertaining to restricted wastes at SQGs can be pulled out of the manual without deleting any checklist items pertaining to other topics. Pages from state manuals can be inserted in the appropriate chapters.

The assessment procedures are designed as an aid and should not be considered exhaustive. Use of the checklist requires the assessor's judgement 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 installations/CW facilities can be included on the checklists.

Supplemental information to aid the assessor and the installation/CW facility in the assessment process and the compliance process is included in the following pages.

GLOSSARY OF ACRONYMS

AAR	annual application rate
ACHP	Advisory Council on Historic Preservation
ACM	asbestos containing material
ANSI	American National Standards Institute
API	American Petroleum Institute
AQCR	air quality control region
ARI	Air Conditioning and Refrigeration Institute
ARPA	<i>Archeological Resources Protection Act</i>
ASME	American Society of Mechanical Engineers
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
BACT	best available control technology
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
CDC	Centers for Disease Control and Prevention
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
CEQ	Council on Environmental Quality
CFC	chlorofluorocarbons
CFR	Code of Federal Regulations
COD	certificate of disposal
COTP	Captain of the Port
CQA	construction quality assurance
CRP	community relations plan
CT	residual disinfectant concentration (C in CT calculation)

GLOSSARY OF ACRONYMS (continued)

CWA	<i>Clean Water Act</i>
DERP	Defense Environmental Restoration Program
DIY	do-it-yourself
DOI	Department of the Interior
DOT	Department of Transportation
DRE	destruction and removal efficiency
EA	environmental assessment
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>
FOTW	Federally Owned Treatment Works
FNSI	finding of no significant impact
FR	<i>Federal Register</i>
FUDS	Formally Used Defense Sites
FWCA	<i>Fish and Wildlife Conservation Act</i>
FWS	Fish and Wildlife Service
FY	fiscal year
GGTP	gamma glutamyl transpeptidase
GWP	global warming potential
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
IRP	Installation Restoration Program
ISS	interim status standards
LAER	lowest achievable emission rate
LDR	land disposal restriction
LPG	liquid petroleum gas
MBtu	million British thermal units

(continued)

GLOSSARY OF ACRONYMS (continued)

MCL	maximum contaminant level
MCLG	maximum contaminant level goal
MDL	minimum detection level
MOA	memorandum of agreement
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	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NACE	National Association of Corrosion Engineers
NEPA	<i>National Environmental Policy Act</i>
NESHAP	National Emission Standards for Hazardous Air Pollutants
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
NTP	National Toxicology Program
O&M	operations and maintenance
OB/OD	open burning/open detonation
ODA	<i>Ocean Dumping Act</i>
ODP	ozone depleting potential
ODS	ozone depleting substance
OHSPC	Oil and Hazardous Substances Pollution Contingency Plan
OMB	Office of Management and Budget
OPA	<i>Oil Pollution Act</i>

(continued)

GLOSSARY OF ACRONYMS (continued)

OSC	On-Scene Coordinator
OSHA	<i>Occupational Safety and Health Act</i>
PCB	polychlorinated biphenyl
PFC	perfluorocarbons
PL	Public Law
PMN	premanufacture notice
POC	point of contact
POHC	principle organic hazardous constituent
POL	petroleum oil, and lubricant
POTW	publicly owned treatment work
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
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SNAP	Significant New Alternatives Policy
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

(continued)

GLOSSARY OF ACRONYMS (continued)

THM	trihalomethanes
TTHM	total trihalomethanes
TNT	ammonia nitrate explosive
TPQ	threshold planning quantity
TTO	total toxic organics
TSCA	<i>Toxic Substances Control Act</i>
TSDF	treatment, storage, or disposal facility
TU	temporary unit
UIC	underground injection control
UL	Underwriter's Laboratory
USACERL	U.S. Army Construction Engineering Research Laboratories
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	underground storage tank
VHAP	volatile hazardous air pollutant
VOC	volatile organic compound
VOL	volatile organic liquid

COMMONLY USED ABBREVIATIONS

bbbl	barrel	µg	microgram
C	Celsius	µm	micrometer
cm	centimeter	min	minute
cm ²	square centimeter	MJ	Megajoule
F	Fahrenheit	mo	month
ft	foot	mm	millimeter
ft ²	square feet	mrem	millirem
ft ³	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	part per million
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 ³	cubic meter	yd ²	square yard
mg	milligram	yr	year
mi	mile		

Chemicals

CO	carbon monoxide	NO ₂	nitrogen dioxide
CO ₂	carbon dioxide	NO _x	nitrogen oxides
Hg	mercury	SO ₂	sulfur dioxide

USEPA POINTS OF CONTACT

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Philadelphia, PA
(215) 597-9800

Region VIII (CO, MT, ND, SD, UT, WY)

Environmental Protection Agency
999 18th St., Suite 500
Denver, CO 80202
(303) 293-1603

Region IV (AL, FL, GA, KY, MS, MC, SC, TN)

Environmental Protection Agency
345 Courtland St. N.E.
Atlanta, GA, 30365
(404) 347-4727

Region IX (AZ, CA, HI, NV, American Samoa, Guam, Trust Territories of the Pacific)

Environmental Protection Agency
75 Hawthorne St.
San Francisco, CA 94105
(415) 556-6322

Region V (IL, IN, MI, MN, OH, WI)

Environmental Protection Agency
230 S. Dearborn St.
Chicago, IL 60604
(312) 353-2000

Region X (AK, ID, OR, WA)

Environmental Protection Agency
1200 Sixth Ave.
Seattle, WA 98101
(206) 402-5810

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.
- 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, 49 CFR.
- Emergency Plan and Community Right-To-Know Hotline, EPA** 800-535-0202
EPA Title III requirements information.
- Environmental Defense Fund Recycling Hotline** 212-505-2100
Recycling information and locations.
- Environmental Protection Agency** 900-245-4505
Agency for vendors treating groundwater, soil, sludge, sediments, and solid waste.
- Florida Center for Solid & Hazardous Waste Management** 800-348-1239
An electronic bulletin board for recyclers.
- Florida Leak Reporting Hotline** 904-488-3935
For timely reporting of release of petroleum products into the soil (72 h).
- National Pesticide Telecommunications Network Hotline** 800-858-7378
Information regarding all aspects of pesticide handling.
- Plastics Recyclers Information Line** 800-243-5790
Information regarding plastic recycling locations according to area.

ENVIRONMENTAL INFORMATION HOTLINES (continued)

Poison Control Center (National Capital)	202-626-3333
Provides info on exposure to chemicals, poisons, or drugs.	
Public Information Hotline, USEPA	202-260-2080
Will answer inquiries from the public about USEPA and offers a variety of general, nontechnical information materials.	
RCRA/Superfund, USEPA	800-231-3075
Right-to-know information for California, Arizona, Hawaii, and Nevada.	
RCRA/Superfund/UST Hotline	800-424-9346
Answers questions concerning RCRA, Superfund, USTs, and hazardous waste.	
Safe Drinking Water Hotline	800-426-4791
Information on policy and regulations regarding public water supply programs.	
Small Business and Asbestos Ombudsman's Office, USEPA	800-368-5888
Information on pollution prevention and recycling.	
Stratosphere Ozone Hotline, USEPA	800-296-1996
Information on ozone protection regs and requirements under Title VI of the <i>Clean Air Act (CAA)</i> Amendments of 1990 and other general aspects of stratosphere ozone depletion/protection.	
Superfund Site Cleanup	800-533-3508
For questions on status of Superfund sites within Region VI.	
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) Hotline	202-554-1404
Information on TSCA and Asbestos Technical Information and Referral.	
Hazardous Materials and Oil Spills, USEPA	800-424-8802
National Response Center in the advent of hazardous materials spills.	
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.	

Appendix 1 (continued)

Appendix 1: Sample Previsit Environmental Management Questionnaire	OPR DATE		
	YES	NO	N/A
ITEM			
<p>8. Does the facility use air pollution control equipment?</p> <p>If yes, please list and explain:</p> <p>_____</p> <p>_____</p>	—	—	—
<p>9. Does the facility recycle/reclaim CFCs or Halons? Where?</p>	—	—	—
<p>10. Please list any additional activities that generate any form of air pollution:</p> <p>_____</p> <p>_____</p>			
Aboveground/Underground Storage Tanks (AST/UST) Management			
<p>1. Does the facility have any ASTs used to store petroleum products?</p> <p>If yes, where are they located, how many are there, and what size are they?</p> <p>_____</p> <p>_____</p> <p>_____</p>	—	—	—
<p>2. Does the facility have any USTs used to store petroleum products?</p> <p>If yes, where are they located, how many are there, and what size are they?</p> <p>_____</p> <p>_____</p> <p>_____</p>	—	—	—
<p>3. Does the facility have any USTs used for storing heating fuel located at individual buildings?</p> <p>If yes, where are they located, how many are there, and what size are they?</p> <p>_____</p> <p>_____</p> <p>_____</p>	—	—	—

(continued)

Appendix 1 (continued)

Appendix 1: Sample Previsit Environmental Management Questionnaire	OPR	DATE		
ITEM	YES	NO	N/A	
<p>4. Does the facility have any underground tanks out-of-service?</p>	—	—	—	—
<p>If yes, provide locations.</p>				

<p>5. Does the facility have any storage tanks used to store flammable/combustible liquids?</p>	—	—	—	—
<p>If yes, where are they located, how many are there, and what size are they?</p>				

<p>6. Does the facility have any storage tanks used to store hazardous waste?</p>	—	—	—	—
<p>If yes, where are they located, how many are there, and what size are they?</p>				

(continued)

Appendix 1 (continued)

Appendix 1: Sample Previsit Environmental Management Questionnaire	OPR	DATE		
ITEM	YES	NO	N/A	
Hazardous Materials Management				
1. Does the facility store any flammable materials?	—	—	—	
2. Does the facility transport any hazardous materials offsite?	—	—	—	
3. Does the facility have a procedure to ensure the proper labeling, packaging, and spill response for hazardous materials?	—	—	—	
4. Does the facility store:				
a. Acids?	—	—	—	
b. Caustics?	—	—	—	
c. Flammables?	—	—	—	
d. Combustibles?	—	—	—	
e. Compressed gases?	—	—	—	
f. Oxidizers?	—	—	—	
Hazardous Waste Management				
1. Does the facility produce any wastes classified as:				
a. Ignitable?	—	—	—	
b. Corrosive?	—	—	—	
c. Reactive?	—	—	—	
d. Toxic?	—	—	—	
2. Which of the following classifications does the facility fall under?				
Conditionally Exempt Small Quantity Generator (generates less than 100 kg/mo)				
Small Quantity Generator (generates 100 - 1000 kg /mo)				
Generator (generates more than 1000 kg/mo)				
3. Does the facility treat or dispose of hazardous wastes onsite?	—	—	—	
If so, please specify waste type and treatment method:				
4. Does the facility accept wastes from other facilities for treatment, storage, or disposal?	—	—	—	
5. Does the facility engage in the transportation of hazardous wastes:				
a. Onbase?	—	—	—	

(continued)

Appendix 1 (continued)

Appendix 1: Sample Previsit Environmental Management Questionnaire	OPR		DATE		
ITEM	YES	NO	N/A		
b. Offbase?	—	—	—		
c. Central transport (transportation squadron)?	—	—	—		
d. Individual unit transport?	—	—	—		
6. Does the facility have a hazardous waste management (contingency) plan?	—	—	—		
7. Does the facility have a spill prevention and response (contingency) plan?	—	—	—		
8. Does the facility utilize other locations for the treatment, storage, or disposal of hazardous waste?	—	—	—		
Please specify:					

9. Does the facility use any nonhazardous solid waste (including used oil) as a supplemental fuel source?	—	—	—		
10. Does the facility have a contractor dispose of its hazardous waste?	—	—	—		
Which office monitors this contract?					

 Natural and Cultural Resources Management					
1. Does the facility have any construction projects?	—	—	—		
2. Does the facility have any land management responsibilities?	—	—	—		
3. Does the facility have an area which is designated as any of the following? If so, please have maps indicating locations available for team on arrival:					
a. Cultural resource?	—	—	—		
b. Archaeological resource?	—	—	—		
c. Historic structure?	—	—	—		
4. Are there any areas on the facility which have any of the following? If so, please have maps indicating locations available for team on arrival:					
a. Wetlands?	—	—	—		
b. Flood Plains?	—	—	—		
b. Endangered or threatened species?	—	—	—		

(continued)

Appendix 1 (continued)

Appendix 1: Sample Previsit Environmental Management Questionnaire		OPR	DATE	
ITEM		YES	NO	N/A
Pesticide Management				
1. Does the facility use pesticides in regulated quantities?		—	—	—
2. Do facility personnel apply pesticides?		—	—	—
3. Does the facility hire contractors to apply pesticides?		—	—	—
4. Are pesticide wastes disposed of at the facility?		—	—	—
5. Are pesticides stored on the facility?		—	—	—
Please list locations:				

6. Are medical records kept for individuals involved in the management of pesticides?		—	—	—
7. Where are pesticides prepared at the facility?				

Petroleum, Oil, and Lubricant (POL) Management				
1. Does the facility have a current SPCC Plan?		—	—	—
2. Does the facility store oil onsite in containers other than storage tanks?		—	—	—
3. Does the facility conduct spill response training?		—	—	—
4. Does the facility have any used oil?		—	—	—
Solid Waste Management				
1. Does the facility collect or stores solid waste onsite?		—	—	—
2. Does the facility have a solid waste recycling program?			—	—
3. Does the facility have any unofficial landfill sites that are no longer in use?		—	—	—
4. Is waste transported off-facility for disposal:				
a. In landfills?		—	—	—
b. In incinerators?		—	—	—
c. Others (specify): _____		—	—	—
8. Does the facility generate pathological/medical wastes?		—	—	—

(continued)

Appendix 1 (continued)

Appendix 1: Sample Previsit Environmental Management Questionnaire		OPR	DATE		
ITEM		YES	NO	N/A	
9. Does the facility dispose of pathological/medical wastes onbase by incineration?		—	—	—	
Special Pollutants Management					
PCBs					
1. Are PCB (polychlorinated biphenyl) or PCB-contaminated fluids in use or stored on the facility:					
a. Transformers?		—	—	—	
b. Capacitors?		—	—	—	
c. Switch gear?		—	—	—	
d. Circuit Breakers?		—	—	—	
e. Other? _____		—	—	—	
2. Are there any PCB items in storage for disposal?		—	—	—	
Item	Concentration				
_____	_____				
_____	_____				
_____	_____				
_____	_____				
3. Does facility dispose of PCBs or PCB contaminated equipment on or offbase?		—	—	—	
Asbestos					
4. Has the facility conducted a complete asbestos facility survey?		—	—	—	
5. Does the facility operate an in-house asbestos removal team?		—	—	—	
6. Has the facility undergone any asbestos removal projects in the past?		—	—	—	
7. Is there any asbestos on the facility that has been removed and is awaiting disposal at this time?		—	—	—	
8. Will the facility have any demolition, remodeling, or renovation projects underway at the time of the assessment?		—	—	—	
Please identify those projects and buildings:					

(continued)

Appendix 1 (continued)

Appendix 1: Sample Previsit Environmental Management Questionnaire	OPR	DATE		
ITEM	YES	NO	N/A	
9. Does the facility maintain training records for asbestos workers?				
Location of records	—	—	—	

Radon				
14. Is the facility located in a geographic area where high levels of radon are typically found?				
	—	—	—	
15. Has the facility been monitored for radon?				
Location of records	—	—	—	

Water Quality Management				
8. Does the facility have any discharges of the following:				
a. Stormwater runoff from operational or storage area?	—	—	—	
b. Stormwater runoff from undeveloped area?	—	—	—	
c. Dredge and fill solids drainage water?	—	—	—	
d. Wastewater treatment facility effluent?	—	—	—	
e. Process wastewater?	—	—	—	
f. Heat or Power production cooling water?	—	—	—	
g. Other? _____	—	—	—	
9. Does the facility discharge into a publicly owned treatment works (POTW)?				
If yes, please specify types of discharge: (i.e., process wastewater, sanitary wastewater, etc.)				

10. Does the facility make use of an onsite wastewater treatment system prior to effluent discharge?				
	—	—	—	
11. Does the facility conduct any effluent monitoring?				
	—	—	—	
12. Are monitoring samples analyzed by:				
a. Facility personnel?	—	—	—	
b. Offsite contractor?	—	—	—	

(continued)

Appendix 1 (continued)

Appendix 1: Sample Previsit Environmental Management Questionnaire	OPR	DATE		
ITEM	YES	NO	N/A	

13. Does the facility have a separate stormwater runoff system?

— — —

Signature of individual completing this form: _____

Date completed: _____

(continued)

Appendix 1 (continued)

ATTENTION: The following records should be available for review by the assessment team either prior to the assessment or immediately upon arrival at the facility.

(NOTE: Not all facilities will have, or are even required to have, all of the following documents.)

General

1. Detailed maps of the facility indicating street names and building numbers. Enough for one for every member of the assessment team.
2. A phone list.
3. Copies of notices of violation (NOVs) issued to the facility in any of these areas.

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.

AST/UST Management

1. Records of all spills, leaks, and associated site assessment/cleanup activities
2. Official correspondence with state implementing agency
3. Spill Prevention and Response Plan
4. Results of all AST/UST testing, sampling, monitoring, inspection, maintenance, and repair work (for 1 yr)
5. Registration records for all in-service, temporarily out-of-service, and permanently closed tanks
6. Records for AST/UST disposal, closure, and removal from activity and results of excavation area assessments (for 3 yr).

Hazardous Materials Management

1. A list of hazardous material storage/use areas
2. A waste minimization plan
3. MSDSs
4. Documentation of personnel training
5. The OHSPC Plan
6. A copy of any reports of spills
7. Copies of the Tier I or Tier II reports
8. Documentation on contaminated sites.

Hazardous Waste Management

1. The Hazardous Waste Management Plan
2. A list of hazardous wastes generated at the facility
3. A list of waste generation/storage areas
4. USEPA Identification number
5. Manifests
6. Any permits
7. The biennial report
8. Personnel training records.

(continued)

Table 1 (continued)

Natural and Cultural Resources Management

1. The endangered species survey
 2. The Natural Resources Management Plan
 3. Any land management plans
 4. Recent EAs, EISs, FNSIs or NOIs
 5. Any cultural or archeological resources surveys
 6. Management plans for cultural and archeological resources
 7. A list of properties nominated for the National Register.
- ### 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. A list of POL storage areas
3. Upgrading and/or closure plans
4. A list of all USTs and their locations
5. Release detection documentation
6. UST integrity test results
7. Site contamination reports after tank removals.

Solid Waste Management

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

Special Programs Management

1. The PCB inventory
2. The PCB annual report
3. The results of the asbestos survey
4. Noise complaints
5. Radon survey results.

Water Quality Management

1. Copies of reports to the state
2. All NPDES/SPDES permits
3. Maps of the storm, sanitary, and industrial sewers
4. A copy of pretreatment standards imposed on the facility
5. A list of maintenance shops/operations to include wash facilities
6. Locations of holding ponds, sedimentation pits, and open/end-of-pipe discharge points.

**Appendix 2
SOLID WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>8-1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, notices of violation (NOV), 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>8-2. Copies of all relevant Federal, CDC, state, and local regulations and guidance documents on solid waste management should be available at the facility (MP).</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. (1)(2)</p> <p>Verify that copies of the following regulations are available and kept current: (1)(2)</p> <ul style="list-style-type: none"> - EO 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 7 CFR 330, <i>Federal Plant Pest Regulations, General, Plant Pests, Soil, Stone and Quarry Products, Garbage.</i> - 29 CFR 1910.1030, <i>Bloodborne Pathogens.</i> - 40 CFR 241, <i>Guidelines for the Land Disposal of Solid Wastes.</i> - 40 CFR 243, <i>Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste.</i>

Appendix 2
SOLID WASTE MANAGEMENT
Centers for Disease Control and Prevention

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>8-3. Facilities are required to comply with state and local solid waste regulations concerning solid waste management (EO 12088, Section 1-1).</p>	<p>Verify that the facility is complying with state and local solid waste requirements. (1)(2)</p> <p>Verify that the facility is operating according to permits issued by state or local agencies. (1)(2)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - license or permit requirements for existing onsite landfills - requirements for filing a closure plan for onsite landfills specifying monitoring and inspection procedures - design and operation specifications for solid waste receptacles - disposal of solid waste off-site only at licensed or permitted facilities - design and policy procedures of thermal processing of solid waste - 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 - handling and disposal of medical, pathological, and infectious waste - recycling requirements - disposal of household wastes - yard waste - disposal of used tires.)
<p>8-4. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of finding).</p>	<p>Determine if any new regulations have been issued since the finalization of the manual. (1)(2)</p> <p>Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(2)</p> <p>Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(2)</p>

**Appendix 3
HAZARDOUS WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SMALL QUANTITY GENERATORS (SQGs)</p> <p>General</p> <p>4-14. Generators of more than 100 kg [220.46 lb] but less than 1000 kg [2204.62 lb] of hazardous waste per month may qualify as an SQG which 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>4-15. SQGs that generate, transport, or handle hazardous wastes must obtain an USEPA identification number (40 CFR 262.12(a), 262.12(b), and 265.11).</p>	<p>Inspect containers, storage, and records. (1)(2)</p> <p>Verify that no more than 1000 kg [2204.62 lb] of hazardous waste is generated in any month. (1)(2)</p> <p>Verify that the onsite accumulation time does not exceed 180 days. (1)(2)</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 [13,227.73 lb] is allowed to accumulate at the facility. (1)(2)</p> <p>Verify that containers are marked with the date accumulation began and the words HAZARDOUS WASTE. (1)(2)</p> <p>Verify that the containers and the areas where containers are stored meet the requirements outlined in the subsections pertaining to SQGs. (1)(2)</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 the USEPA for the facility's generator identification number. (1)(2)</p> <p>Verify that correct identification number is used on all appropriate documentation (i.e., manifests). (1)(2)</p>

**Appendix 3
HAZARDOUS WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-16. 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>4-17. SQGs of hazardous waste are required to use manifests and keep records of hazardous waste activity (40 CFR 262.20, 262.42(b), and 262.44).</p>	<p>Verify that all transporters of hazardous waste at TSDFs have a USEPA identification number by examining records pertaining to disposal contract awards. (1)(2)</p> <p>Verify that signed copies of returned manifests are kept for 3 yr. (1)(2)</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. (1)(2)</p> <p>Verify that exception reports are kept for at least 3 yr. (1)(2)</p> <p>Verify that records of test results, waste analyses, and determinations are kept for 3 yr. (1)(2)</p> <p>(NOTE: The requirement to prepare a manifest does not apply if:</p> <ul style="list-style-type: none"> - the waste is reclaimed under contractual agreement and: - the type of waste and frequency of shipments are specified in the agreement - 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. - the generator maintains a copy of the reclamation agreement for at least 3 yr after termination of the agreement.) <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>4-18. SQGs are required to keep records of waste analyses, tests, and waste determinations. (40 CFR 262.40(c)).</p>	<p>Verify that appropriate records are kept for at least 3 yr from the date the waste was last sent to an onsite or offsite TSDF. (1)(2)</p> <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>

**Appendix 3
HAZARDOUS WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-19. SQGs are required to have an emergency coordinator and emergency response planning (40 CFR 262.34(d)(5)).</p>	<p>Verify that the facility has an emergency coordinator. (1)(2)</p> <p>Verify that the following emergency information is posted next to the telephone: (1)(2)</p> <ul style="list-style-type: none"> - name and telephone number of emergency coordinator - location of fire extinguishers and spill control materials - location of fire alarms (if present) - telephone number of fire department. <p>Verify that waste handlers are familiar with waste handling and emergency procedures. (1)(2)</p>

**Appendix 3
HAZARDOUS WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Personnel Training</p> <p>4-20. All SQG personnel who handle hazardous waste should meet certain training requirements (MP).</p> <p>4-21. Training records must be maintained for all SQG staff who manage hazardous waste (MP).</p>	<p>Verify that the training program is directed by a person trained in hazardous waste management procedures. (1)(2)(8)</p> <p>Verify that the training program includes the following: (1)(2)(8)</p> <ul style="list-style-type: none"> - contingency plan implementation (emergency procedures, equipment, and systems) - key parameters for automatic waste feed cut-off system - procedures for using, inspecting, and repairing emergency and monitoring equipment - operation of communications and alarm systems - response to fire or explosion - response to leaks or spills - waste turn in procedures - identification of hazardous wastes - container use, marking, labeling, and onbase transportation - manifesting and offbase transportation - accumulation point management - personnel health and safety and fire safety - shutdown procedures. <p>Verify that new employee training is completed within 6 mo of employment. (1)(2)(8)</p> <p>Verify that an annual review of initial training is provided. (1)(2)(8)</p> <p>Verify that employees do not work unsupervised until training is completed. (1)(2)(8)</p> <p>Verify specifically that accumulation point managers and hazardous waste handlers have been trained. (1)(2)(8)</p> <p>Examine training records and verify they include the following: (1)(2)(8)</p> <ul style="list-style-type: none"> - job title and description for each employee by name - written description of how much training each position will obtain - documentation of training received by name. <p>Determine if training records are retained for 3 yr after employment at the facility. (1)(2)(8)</p>

**Appendix 3
HAZARDOUS WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Containers</p> <p>4-22. Empty containers at SQGs 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>4-23. 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>4-24. 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>Verify that for containers or inner liners holding hazardous waste: (1)(2)</p> <ul style="list-style-type: none"> - wastes are removed that can be removed using common practices - no more than 2.5 cm [1 in.] of residue remains - if the container is less than or equal to 110 gal [416.40 L], no more than 3 percent by weight of total container capacity remains - when the container is greater than 110 gal [416.40 L], no more than 0.3 percent by weight of the total container capacity remains. <p>Verify that for containers that held a compressed gas, the pressure in the container approaches atmosphere. (1)(2)</p> <p>Verify that for containers or inner liners that held an acute hazardous waste listed in Appendix 4-5, one of the following is done: (1)(2)</p> <ul style="list-style-type: none"> - it is triple rinsed - it is cleaned by another method identified through the literature or testing as achieving equivalent removal - the inner liner is removed. <p>Verify that containers are not leaking, bulging, rusting, damaged, or dented. (1)(2)</p> <p>Verify that waste is transferred to a new container or managed in another appropriate manner when necessary. (1)(2)</p> <p>Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums. (1)(2)</p>

**Appendix 3
HAZARDOUS WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-25. 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>4-26. 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>4-27. Containers of hazardous waste at SQGs should be managed in accordance with specific management practices (MP).</p>	<p>Verify that containers are closed except when it is necessary to add or remove waste (check bungs on drums, look for funnels). (1)(2)</p> <p>Verify that handling and storage practices do not cause damage to the containers or cause them to leak. (1)(2)</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: (1)(2)</p> <ul style="list-style-type: none"> - generate extreme heat or pressure, fire, explosion, or violent reaction - produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health - produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions - damage the structural integrity of the device or facility - by any other like means threaten human health. <p>(NOTE: Incompatible wastes as listed in Appendix 4-6 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. (1)(2)</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. (1)(2)</p> <p>Determine the following by inspecting containers and storage areas: (1)(2)</p> <ul style="list-style-type: none"> - containers are not stored more than two high and have pallets between them - containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - at least 3 ft [0.91 m] of aisle space is provided between rows of containers.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Satellite Accumulation Points</p> <p>4-28. All SQGs may accumulate as much as 55 gal [208.20 L] of hazardous waste or 1 qt [0.95 L] 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: 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. (1)(2)</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. (1)(2)</p> <p>Verify that the containers are marked HAZARDOUS WASTE or with other appropriate identification. (1)(2)</p> <p>(NOTE: See Appendices 4-1, 4-2, 4-3, 4-4, and 4-5 for a guidance list of hazardous and acute wastes.)</p> <p>Verify that when waste is accumulated in excess of quantity limitations the following actions are taken by interviewing the shop managers: (1)(2)</p> <ul style="list-style-type: none"> - the excess container is marked with the date the excess amount began accumulating - the waste is transferred to a 90 day or permitted storage area within 3 days.

**Appendix 3
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Container Storage Areas</p> <p>4-29. Containers of hazardous waste at SQGs should be kept in storage areas designated in the management plan (MP).</p> <p>4-30. SQG 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 (d)(4) and 265.30 through 265.37).</p>	<p>Verify that all containers are identified and stored in appropriate areas. (1)(2)</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>Determine if the following required equipment is easily accessible and in working condition by inspecting the SQG storage areas: (1)(2)</p> <ul style="list-style-type: none"> - internal communications or alarm system capable of providing immediate emergency instruction to facility personnel - a telephone or hand-held two-way radio - portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals) - spill control equipment - decontamination equipment - 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. <p>Determine if equipment is tested and maintained as necessary to insure proper operation in an emergency. (1)(2)</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. (1)(2)</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. (1)(2)</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. (1)(2)</p>

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**REGULATORY
REQUIREMENTS:**

REVIEWER CHECKS:

4-31. SQGs must conduct weekly inspections of container storage areas (40 CFR 262.34(d)(2) and 265.174).

Verify that inspections are conducted at least weekly to look for leaking containers and signs of deterioration of containers. (1)(2)

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**Appendix 3
HAZARDOUS WASTE MANAGEMENT
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Disposal of Restricted Wastes</p> <p>4-32. SQGs must test their wastes or use process knowledge to determine if they are restricted from land disposal (40 CFR 268.7).</p> <p>4-33. When an SQG is managing a restricted waste a notice must be issued to the TSDF in writing of the appropriate treatment standards and prohibition levels (40 CFR 268.7(a)(1) through 268.7(a)(3) and 268.7(a)(10)).</p>	<p>Determine whether the generator tests for restricted wastes. (1)(2)</p> <p>Determine if the facility generates restricted wastes by reviewing test results (see Appendix- 4-7). (1)(2)</p> <p>Verify that, for restricted waste that does not meet the applicable treatment standards or exceeds the applicable prohibition levels, the notice is issued and includes: (1)(2)</p> <ul style="list-style-type: none"> - the USEPA hazardous waste number - treatment standards - the manifest number associated with the shipment - for hazardous debris, the contaminants subject to treatment and the following statement "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45" - the waste analysis data, when available. <p>Verify that, for restricted waste that can be land disposed without further treatment (this does not include debris that does not contain hazardous waste) the notice includes: (1)(2)</p> <ul style="list-style-type: none"> - the USEPA hazardous waste number - treatment standards - the manifest number associated with the shipment - the waste analysis data, when available - the signature of an authorized representative certifying that the waste complies with the treatment standards of 40 CFR 268. <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: (1)(2)</p> <ul style="list-style-type: none"> - the USEPA hazardous waste number - treatment standards - the manifest number associated with the shipment - the waste analysis data, when available - for hazardous debris, the contaminant subject to treatment - the date the waste is subject to prohibitions.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-33. (continued)</p> <p>4-34. SQGs 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)(4) and 268.7(a)(10)).</p> <p>4-35. SQGs are required to keep specific documents pertaining to restricted wastes onsite (40 CFR 268.7(a)(5) through 268.7(a)(7) and 268.7(a)(10)).</p>	<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.)</p> <p>Verify that the plan describes the procedures that the generator will carry out to comply with treatment standards. (1)(2)</p> <p>(NOTE: SQGs treating hazardous debris under the alternative treatment standards are not required to conduct waste analyses.)</p> <p>Verify that the plan is kept onsite and: (1)(2)</p> <ul style="list-style-type: none"> • the plan is based on a detailed chemical and physical analysis of representative sample of the prohibited waste being treated • 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. <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.)</p> <p>Verify that, if the facility is using generator knowledge to determine whether a waste meets land disposal restriction requirements, the supporting data used in making this determination is retained in the facility operating record. (1)(2)</p> <p>Verify that, if the facility has determined whether a waste is restricted using appropriate test methods, the waste analysis data is retained. (1)(2)</p> <p>Verify that, if the facility has determined that they are managing a restricted 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 facilities files stating that the generated waste is excluded. (1)(2)</p> <p>Verify that a copy of all notices, certifications, demonstrations, waste analysis data and other documentation is kept for at least 5 yr from the date that the waste was last sent to onsite or offsite TSDFs. (1)(2)</p> <p>Verify that SQGs with tolling agreement retain the agreement and copies of notification and certification for at least 3 yr after the agreement expires. (1)(2)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-36. 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 SQG 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. (1)(2)</p> <p>Verify that transporters do not store manifested shipments of land disposal restricted wastes for more than 10 days. (1)(2)</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. (1)(2)</p>

Section 1

Air Emissions Management

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SECTION 1

AIR EMISSIONS MANAGEMENT

A. Applicability

This section includes regulations, responsibilities, and compliance requirements associated with air pollution emissions from equipment and vehicles at Centers for Disease Control and Prevention (CDC) facilities. The major sources of air pollution emissions include:

- Particulates, SO₂, NO_x, 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 operation of degreasers and other processes (paint stripping and metal finishing) that use solvents.
- The emission of CO from vehicles 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.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

- *The Clean Air Act (CAA) Amendments of 1990.* This Act, Public Law (PL) 101-549 (42 U.S. Code (USC) 7401-7671q), is currently the effective, comprehensive Federal legislation regulating the prevention and control of air pollution. It is composed of seven major titles which 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 which have failed to meet the National Ambient Air Quality Standards (NAAQS), otherwise known as nonattainment areas.
 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, hydrocarbons, and NO_x emissions. Manufacturers must also investigate feasibility and oxygenated gasolines will be required in cities with the worst ozone and CO nonattainment.

3. Title III is potentially the most pervasive and costly requirement of the CAA 1990. The major elements of the Title deal with control of routine emissions of hazardous air pollutants, and contingency planning for accidental release of hazardous substances.
4. Title IV addresses acid deposition control and applies only to commercial utilities which produce electricity for sale.
5. Title V outlines the goal of having states issue Federally enforceable operating permits to applicable stationary sources. The permits are designed to enhance the ability of the U.S. Environmental Protection Agency (USEPA), state regulatory agencies, and private citizens to enforce the requirements of the CAA 1990. Permits will also be used to classify operation and control requirements for stationary sources.
6. Title VI limits the emissions of chlorofluorocarbons (CFC), halons, and other halogenated chemicals which contribute to the destruction of stratospheric ozone. These requirements closely follow the control strategies recommended in June 1990 by the 2nd Meeting of Parties to the Montreal Protocol.
7. Title VII describes civil and criminal penalties which may be imposed for violation of new and existing air pollution control requirements.

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, photochemical oxidant (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.

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, and/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. CDC Regulations/Requirements

- This section includes a description of the applicable CDC regulations, policies, and requirements. At this time none have been issued.

E. Key Compliance Requirements

- Beryllium Incinerators - Incinerators for beryllium containing waste beryllium, beryllium oxide, or beryllium alloys cannot emit more than 10 g [0.32 oz] of beryllium over a 24 h period into the atmosphere. Records of emissions tests are required to be kept for 2 yr (40 CFR 60.30 through 60.34).
- Rotogravure Printing Presses - Publication rotogravure printing presses, except for proof presses, that started construction or modification after 28 October, are required to ensure that gases are not being discharged containing VOCs equal to more than 16 percent of the total mass of VOC solvent and water used at that press during any one performance averaging period (40 CFR 60.430 through 60.435).
- CFCs and Halons - To protect the ozone, 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. 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 [9.07 kg] 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 [9.07 kg] 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), and 80.150 through 80.166).

F. Responsibility for Compliance

- Environmental Program Manager. This person is responsible for ensuring that permits are applied for, obtained, and complied with, and for monitoring the use of CFCs and halons. As part of this process, the Environmental Program Manager or the Health and Safety Officer is responsible for maintaining an inventory of air emissions sources at CDC facilities.
- Facilities Operations Branch. This branch is responsible for the operation and maintenance of boilers and incinerators.

G. Key Compliance Definitions

- *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(a)).
- *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(b)).

- *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(c)).
- *Coal Refuse* - any waste products of coal mining, cleaning, and coal preparation operations (e.g. culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material (40 CFR 60.41a).
- *Commercial Refrigeration* - means, 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 [34.02 kg] (40 CFR 82.152(d)).
- *Continuous Emissions Monitoring Systems (CEMS)* - a monitoring system for continuously measuring the emissions of a pollutant from an affected facility (40 CFR 60.51a).
- *Designated Volatility Attainment Area* - an area not designated as being in nonattainment with the National Ambient Air Quality Standard (NAAQS) for ozone (40 CFR 80.2).
- *Designated Volatility Nonattainment Area* - any area designated as being in nonattainment with the NAAQS for ozone pursuant to rule making under Section 107(d)(4)(A)(ii) of the CAA (40 CFR 80.2).
- *Disposal* - the process leading to and including (40 CFR 82.152(e)):
 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.
- *Federally Enforceable* - all limitations and conditions enforceable by the Administrator, including those requirements developed pursuant to 40 CFR Parts 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).
- *Fluidized Bed Incinerator* - an enclosed device in which organic matter and inorganic matter in sewage sludge are combusted in a bed of particles in the combustion chamber gas (40 CFR 503.41(e)).
- *Fossil Fuel* - natural gas, petroleum, coal, and any form of solid liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat (40 CFR 60.41a).
- *Fugitive Emissions* - air pollutants entering into the atmosphere from other than a stack chimney, vent, or other functionally equivalent opening. Example: vapors, dust, fumes (40 CFR 51.301j).
- *Heat Input* - heat derived from combustion of fuel in a steam generating unit and does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust gases from other sources (40 CFR 60.41c).

- *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. [75.946 cm] of mercury). This definition includes but is not limited to appliances using refrigerants -12, -22, -114, -500, or -502 (40 CFR 82.152(f)).
- *Incinerator* - any furnace used in the process of burning solid waste for the purpose of reducing the volume of the waste by removing combustible matter (40 CFR 60.51).
- *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 and ice rinks (40 CFR 82.152(g)).
- *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(h)).
- *Low-Pressure Appliance* - an appliance that uses a refrigerant with a boiling point above 10 °C [50 °F] at atmospheric pressure (29.9 in. [75.946 cm] of Hg). This definition includes but is not limited to equipment utilizing refrigerants -11, -113, and -123 (40 CFR 82.152(i)).
- *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(j)):
 1. compressor
 2. condenser
 3. evaporator
 4. auxiliary heat exchanger coil.
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *Motor Vehicle Air Conditioner (MVAC)* - any appliance that is a motor vehicle air conditioner as defined in 40 CFR 82, subpart B (40 CFR 82.152(k)).
- *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(l)).
- *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(m)).
- *Opening an Appliance* - any service, maintenance, or repair on an appliance that could be reasonably expected to release refrigerant from the appliance to the atmosphere unless the refrigerant were previously recovered from the appliance (40 CFR 82.152(n)).

- *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(p)).
- *Publication Rotogravure Printing* - any number of rotogravure printing units capable of printing simultaneously on the same continuous web or substrate and includes any associated device for continuous cutting and folding the printed web, where the following sellable paper products are printed: catalogues; direct mail advertisements; display advertisements; magazines; miscellaneous advertisements including brochures, pamphlets, catalogue sheets, circular folders, and announcements; newspapers; periodicals; and telephone and other directories (40 CFR 60.431).
- *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 182.52(q)).
- *Recover Refrigerant* - to remove refrigerant in any condition from an appliance without necessarily testing or processing it in any way (40 CFR 182.52(r)).
- *Recovery Efficiency* - the percentage of refrigerant in an appliance that is recovered by a piece of recycling or recovery equipment (40 CFR 82.152(s)).
- *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(t)).
- *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).
- *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(u)).
- *Small Appliance* - any of the following products that are fully manufactured, charged, and hermetically sealed in a factory with 5 lb [11.02 kg] or less of refrigerant (40 CFR 82.152(v)):
 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.

- *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(w)).
- *Technician* - any person who performs maintenance, service, or repair that could reasonably be expected to release Class I or Class II substances from appliances into the atmosphere, including but not limited to installers, contractor employees, in-house service personnel, and in some cases, owners. Technician also means any person disposing of appliances except for small appliances, MVACs, and MVAC-like equipment (40 CFR 82.152(x)).
- *Very High-Pressure Appliance* - an appliance that uses a refrigerant with a boiling point below $-50\text{ }^{\circ}\text{C}$ [$-58\text{ }^{\circ}\text{F}$] at atmospheric pressure (29.9 in. [75.95 cm] of mercury). This definition includes but is not limited to equipment utilizing refrigerants -13 and -503 (40 CFR 82.152(y)).
- *Volatile Organic Compound (VOC)* - any compound of carbon, excluding CO, CO₂, carbonic acid, metallic carbides, or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions (40 CFR 51.100).

AIR EMISSIONS MANAGEMENT
GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS*:	REFER TO PAGE NUMBERS:
All Facilities	1-1 through 1-4	(1)(2)(21)	1-13
Incinerators	1-5	(1)(2)(21)	1-15
Printing Presses	1-6	(1)(2)(21)	1-17
CFCs and Halons			
Purchasing/Procurement	1-7 through 1-11	(1)(21)	1-19
Repair/Recycling	1-12 through 1-27	(1)(21)	1-21
Recordkeeping	1-28 and 1-29	(1)(21)	1-27

* CONTACT/LOCATION CODE

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (21) Health and Safety Officer

AIR EMISSIONS MANAGEMENT

Records To Review

- State and local air pollution control regulations
- Emissions inventory
- All air pollution source permits
- Plans and procedures applicable to air pollution control
- Emission monitoring records
- Opacity records
- Notices of violation (NOVs) from regulatory authorities
- Instrument calibration and maintenance records
- Reports/complaints concerning air quality
- Air Emergency Episode Plan
- State and/or Federal regulatory inspections
- Regulatory inspection reports
- Documentation of preventive measure or action
- Results of air sampling at the conclusion of response action

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

People To Interview

- Environmental Program Manager
- Facility Supervisor/Director
- Health and Safety Officer

**COMPLIANCE CATEGORY:
AIR EMISSIONS MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>1-1. The current status of any ongoing or unresolved Consent Orders, Compliance Agreements, notices of violation (NOV), 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>1-2. Copies of all relevant Federal, CDC, state, and local regulations and guidance documents on air emissions management should be available at the facility (MP).</p> <p>1-3. Facilities are required to comply with state and local air quality regulations (CAA, 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. (1)(2)(21)</p> <p>Verify that copies of the following regulations are available and kept current:(1)(2)(21)</p> <ul style="list-style-type: none"> - Executive Order (EO) 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 40 CFR 60, <i>Standards of Performance for New Stationary Sources.</i> - 40 CFR 61, <i>National Emission Standards for Hazardous Air Pollutants.</i> - 40 CFR 80, <i>Regulation of Fuels and Fuel Additives.</i> - 40 CFR 82, <i>Protection of Stratospheric Ozone.</i> - Applicable state and local regulations. <p>Verify that the facility is complying with state and local air quality requirements. (1)(2)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies. (1)(2)(21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - air pollution episode standby plans - permits for construction and operation of sources of emissions - placement of control devices on fuel burning sources - incinerators with less than 45 metric tons/day (50 tons/day) heat input - incineration of medical, pathological, and infectious waste - open burning and detonation - firefighting training - motor vehicle emissions and inspections - use of vapor control systems at gas dispensing facilities

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>INCINERATORS</p> <p>1-5. Incinerators that process beryllium-containing waste, beryllium, beryllium oxide, or beryllium alloys are required to meet specific standards (40 CFR 61.30 through 61.34).</p>	<p>Verify that emissions to the atmosphere do not exceed 10 g [0.32 troy ounces] of beryllium over a 24 h period unless approval has been received for a larger quantity of emissions. (1)(2)(21)</p> <p>Verify that emissions testing is done within 90 days of the startup of a new source. (1)(2)(21)</p> <p>Verify that monitoring sites are operated continuously. (1)(2)(21)</p> <p>Verify that records of the emissions testing results are kept and made available for 2 yr. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PRINTING PRESSES</p> <p>1-6. Publication rotogravure printing presses, except for proof presses, that started construction, modification, or reconstruction after 28 October 1980 are required to meet specific standards concerning VOC emissions (40 CFR 60.430 through 60.435).</p>	<p>Determine if the facility operates any publication rotogravure printing presses. (1)(2)(21)</p> <p>Verify that gases are not being discharged containing VOC equal to more than 16 percent of the total mass of VOC solvent and water used at that press during any one performance averaging period. (1)(2)(21)</p> <p>(NOTE: Each performance averaging period is 30 consecutive calendar days.)</p> <p>Verify that presses using waterborne ink systems or solvent-borne ink systems with solvent recovery systems record the amount of solvent and water used, solvent recovered, and estimated emission percentage for each calendar month. (1)(2)(21)</p> <p>Verify that these records have been maintained for 2 yr. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>CFCs AND HALONS</p> <p>Purchasing/ Procurement</p> <p>1-7. Facilities which sell Class I or Class II substances suitable for use as a refrigerant in containers of less than 20 lb [9.07 kg] are required to display a specific sign (40 CFR 82.42(c)).</p> <p>1-8. Facilities are required to comply with restrictions concerning the use of CFC and halon substitutes (40 CFR 82.174(b) through 82.174 (d)).</p> <p>1-9. As of 1 January 2015 the use of Class II substances (see Appendix 1-13) is forbidden except in certain situations (42 USC 7671d(a)).</p> <p>1-10. No Class I or Class II substances suitable for use in motor vehicles as a refrigerant (see Appendix 1-13) can be sold or distributed in any container that is less than 20 lb [9.07 kg] to any person unless that person is trained and certified (40 CFR 82.34(b) and 82.42 (b)(3)).</p>	<p>Verify that a sign is displayed stating the following: (1)(21)</p> <p align="center">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.</p> <p>(NOTE: See Appendix 1-13 for a list of Class I and Class II substances.)</p> <p>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.(1)(21)</p> <p>Verify that when a substitute is used, it is an acceptable substitute and is used according to the use restriction outlined in Appendix 1-14.(1)(21)</p> <p>Verify that unacceptable substitutes are not used (see Appendix.1-15). (1)(21)</p> <p>Verify that a program is underway to eliminate the use of Class II substances unless:</p> <ul style="list-style-type: none"> - 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. <p>Determine if the facility carries any of the Class I or Class II substances listed in Appendix 1-13. (1)(21)</p> <p>Verify these substances are only sold or distributed to certified individual by reviewing records of sales and distribution. (1)(21)</p> <p>Verify that distribution and sales records for these substances are kept for 3 yr. (1)(21)</p> <p>(NOTE: Sales of these substances can be made to an uncertified individual if the purchaser is purchasing small containers for resale only.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>1-11. Facilities which sell or offer for sale used refrigerants are required to meet specific parameters (40 CFR 82.154(g) and 82.154(h)).</p>	<p>(NOTE: These requirements apply from 18 October 1994 to 15 May 1995.)</p> <p>Verify that no class I or class II substances is sold or offered for sale as a refrigerant that consists wholly or in part of used refrigerant unless: (1)(21)</p> <ul style="list-style-type: none"> - the substance has been correctly reclaimed - the substance was used only in a MVAC or MVAC like appliance or it is contained in an appliance that is sold or offered for sale together with the substance.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>CFCs AND HALONS</p> <p>Repair/Recycling</p> <p>1-12. In order to protect the ozone, no person repairing or servicing motor vehicles for payment can service an MVAC in any way that affects the refrigerant unless they have been trained and certified and are using approved equipment (40 CFR 82.34(a), 82.42(a), 82.42(b)(1), 82.42(b)(2), and 82.42(b)(4)).</p> <p>1-13. 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>Determine if the facility services MVACs for payment. (1)(21)</p> <p>Verify that the individual who does the repair is certified and that the equipment being used is approved by the USEPA. (1)(21)</p> <p>Verify that the USEPA Administration has been notified that there is an individual onsite who has been trained and certified that is performing MVAC repairs. (1)(21)</p> <p>Verify that the facility keeps records of where the refrigerant is sent and personnel certification for 3 yr. (1)(21)</p> <p>(NOTE: These restrictions do not become effective until 1 January 1993 when less than 100 MVACs were serviced or repaired in calendar year 1990 and the USEPA Administrator was notified of the number of vehicles serviced by 13 August 1992.)</p> <p>(NOTE: Certifications are not transferable.)</p> <p>(NOTE: The term "for payment" is not clearly defined. For CDC facilities the interpretation will be that if the personnel repairing or servicing MVACs is a paid employee of the facility, they must be trained and certified.)</p> <p>Verify that personnel have received technician certification. (1)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>1-14. 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>Determine if the facility is maintaining, servicing, repairing, or disposing of appliances containing refrigerants. (1)(21)</p> <p>Verify that Class I or II substances are not being vented to the atmosphere. (1)(21)</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"> - any person servicing, maintaining, or repairing appliances except for MVACs - persons disposing of appliances, including MVACs - refrigerant reclaimers, appliance owners, recycling, and recovery equipment.)
<p>1-15. No person can open appliances, except MVACs, for maintenance, service, or repair, and no person can dispose of appliances, except for small appliances, MVACs, and MVAC-like appliances unless specific requirements are met (40 CFR 82.154(b) and 82.156(a)(5)).</p>	<p>Verify that the required practices outline in 40 CFR 82.156 (see checklist items 1-74 through 1-83) are met. (1)(21)</p> <p>Verify that equipment is used that is certified for the appliance in question. (1)(21)</p>
<p>1-16. 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. (1)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>1-17. 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. (1)(21)</p>
<p>1-18. 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. (1)(21)</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-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>1-19. System dependent equipment must not be used with appliances normally containing more than 15 lb [6.80 kg] 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 [6.80 kg] of refrigerant unless the system dependent equipment is permanently attached to the appliance as a pump out unit. (1)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>1-20. 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. (1)(21)</p>
<p>1-21. When appliances, except for small appliances, MVACs 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. (1)(21)</p>
<p>1-22. When appliances, except for small appliance, MVACs, 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, 82.156 (a)(1), and 82.156 (a)(2)).</p>	<p>Verify that evacuation is done to the levels in Appendix 1-16 prior to opening the appliance unless one of the following is met: (1)(21)</p> <ul style="list-style-type: none"> - 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 - the evacuation limits in Appendix 1-16 are not possible because of leaks in the equipment, or the refrigerant being recovered would be substantially contaminated - the recycling or recovery equipment is certified. <p>Verify that if evacuation is not to be done after completion of the maintenance, service, or repair and the maintenance, service, or repair is not major, the appliance is: (1)(21)</p> <ul style="list-style-type: none"> - evacuated to a pressure no higher than 0 psig before it is opened if it is a high or very high-pressure appliance - pressurized to 0 psig before it is opened if it is a low pressure appliance.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>1-25. 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> <p>1-26. Facilities recovering refrigerant for the purpose of disposal must meet specific standards (40 CFR 82.156(g) and 82.156(h)).</p> <p>1-27. Leaking appliances must be repaired when specific limits are exceeded (40 CFR 82.156(i)).</p>	<p>(NOTE: This includes but is not limited to scrap recyclers and landfill operators.)</p> <p>Verify that facilities: (1)(21)</p> <ul style="list-style-type: none"> - recovers any remaining refrigerant from the appliance - checks 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. <p>Verify that copies of signed statements are retained for 3 yr. (1)(21)</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 [13.60 kPa] vacuum. (1)(21)</p> <p>Verify that the facility recovering refrigerant from small appliances for the purpose of disposal of the appliance does one of the following: (1)(21)</p> <ul style="list-style-type: none"> - recover 90 percent of the refrigerant when the compressor in the appliance is operating - recover 80 percent of the refrigerant in the appliance when the compressor in the appliance is not operating - evacuate the small appliance to 4 in. of Hg [13.55 kPa] vacuum. <p>Verify that if the facility owns commercial and industrial process refrigeration equipment normally containing more than 50 lbs 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. (1)(21)</p> <p>Verify that other appliances normally containing more than 50 lb [22.68 kg] of refrigerant are repaired if the appliance is leaking at a rate such that the loss of refrigerant will exceed 15 percent of the total charge during a 12-mo period. (1)(21)</p> <p>(NOTE: Leaks are not required to be repaired if, within 30 days, the facility has developed a 1-yr retrofit or retirement plan for the leaking equipment. The plan, or a legible copy, must be kept at the site of the equipment.)</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 facility intentionally shielded themselves from information which would have revealed a leak. (1)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>CFCs AND HALONS</p> <p>Recordkeeping</p> <p>1-28. 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>1-29. Facilities servicing appliances normally containing 50 lb [22.68 kg] 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) and 82.166(k)).</p>	<p>Verify that facilities that 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. (1)(21)</p> <p>Verify that records are retained for 3 yr. (1)(21)</p> <p>Verify that documentation of servicing and amounts of refrigerant added is provided to the appliance owner and retained for 3 yr. (1)(21)</p>

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Appendix 1-1

**Acceptable Substitutes
(40 CFR 82.170 through 82.194)**

SUBSTITUTES ACCEPTABLE SUBJECT TO NARROWED USE LIMITS			
End-use	Substitute	Decision	Comments
Electronics cleaning w/ CFC-113, MCF	Perfluoro-carbons (C5F12, C6F12, C6F14, C7F16, C8F18, C5F11NO, C6F13NO, C7F15NO, and C8F16)	Acceptable for high-performance, precision-engineered applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.	<p>The principle environmental characteristic of concern for perfluorocarbons (PFC) is that they have long atmospheric lifetimes and high global warming potentials. Although actual contributions to global warming depend upon the quantities of PFCs emitted, the effects are for practical purposes irreversible.</p> <p>Users must observe this limitation on PFC acceptability by conducting a reasonable evaluation of other substitutes to determine that PFC use is necessary to meet performance or safety requirements. Documentation of this evaluation must be kept on file.</p> <p>For additional guidance regarding applications in which PFCs may be appropriate, users should consult the Preamble for this rulemaking.</p>
Precision cleaning w/ CFC-113, MCF	Perfluoro-carbons (C5F12, C6F12, C6F14, C7F16, C8F18, C5F11NO, C6F13NO, C7F15NO, and C8F16)	Acceptable for high-performance, precision-engineered applications only where reasonable efforts have been made to ascertain that other alternatives are not technically feasible due to performance or safety requirements.	<p>The principle environmental characteristic of concern for PFCs is that they have long atmospheric lifetimes and high global warming potentials. Although actual contributions to global warming depend upon the quantities of PFCs emitted, the effects are for practical purposes irreversible.</p> <p>Users must observe this limitation on PFC acceptability by conducting a reasonable evaluation of other substitutes to determine that PFC use is necessary to meet performance or safety requirements. Documentation of this evaluation must be kept on file.</p> <p>For additional guidance regarding applications in which PFCs may be appropriate, users should consult the Preamble for this rulemaking.</p>

(continued)

Appendix 1-1 (continued)

FIRE SUPPRESSION AND EXPLOSION PROTECTION STREAMING AGENTS				
End-use	Substitute	Decision	Conditions	Comments
Halon 1211 Stream- ing Agents	[CFC Blend]	Acceptable in nonresi- dential uses only		Use of CFCs are controlled under CAA sec- tion 610 which bans use of CFCs in pressur- ized dispensers, and therefore are not permitted for use in portable for extinguish- ers. EPA will list this agent as proposed unacceptable in the next significant new alternatives policy (SNAP) proposed rule- making. Because CFCs are a Class i substance, produc- tion will be phased out by 1 January 1996. See additional comments 1,2.
	HBFC-22B1		Acceptable in nonresiden- tial uses only.	Proper procedures regarding the operation of the extinguisher and ventilation following dispensing the extinguishant is recom- mended. Worker exposure may be a con- cern in small office areas. HBFC-22B1 is considered an interim substi- tute for Halon 1211. Because the HBFC22B1 has an ozone depleting poten- tial (ODP) of 0.74, production will be phased out (except for essential uses on 1 January 1996. This agent was submitted to the Agency as a Premanufacture Notice (PMN) and is pres- ently subject to requirements contained in a <i>Toxic Substance Control Act</i> (TSCA) Con- sent Order. See additional comments 1,2.
	C ₆ F ₁₄	Acceptable for nonresi- dential uses where other alternatives are not technically feasible due to performance or safety requirements. a. due to the physical or chemical properties of the agent, or		Users must observe the limitations on PFC acceptability by making reasonable effort to undertake the following measures: (i) conduct an evaluation of foreseeable condi- tions of end use (ii) determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use (iii) determine that human exposure to the other alternative extinguishing agents may approach or result in cardiosensitization or other unacceptable toxicity effects under normal operating conditions Documentation of such measures must be available for review upon request.

(continued)

Appendix 1-1 (continued)

FIRE SUPPRESSION AND EXPLOSION PROTECTION STREAMING AGENTS (continued)				
End-use	Substitute	Decision	Conditions	Comments
		b. where human exposure to the extinguishing agent may approach cardiosensitization levels or result in other unacceptable health effects under normal operating conditions.		<p>The principal environmental characteristic of concern for PFCs is that they have high global warming potential (GWP) and long atmospheric lifetimes. Actual contributions to global warming depend upon the quantities of PFCs emitted.</p> <p>For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in the preamble to this rulemaking.</p> <p>See additional comments 1, 2.</p>

Additional Comments:

1. Discharge testing and training should be strictly limited only to that which is essential to meet safety or performance requirements.
2. The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

(continued)

Appendix 1-1 (continued)

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS				
End-use	Substitute	Decision	Conditions	Comments
Halon 1301 Total Flood- ing Agents.	HBFC-22B1	Acceptable	<p>Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 0.3%.</p> <p>Where egress takes longer than 30 s but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 1.0%.</p> <p>HBFC-22B1 concentrations greater than 1.0% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 s. The employer shall assure that no unprotected employees enter the area during agent discharge.</p>	<p>The comparative design concentration based on cup burner values is approximately 5.3%, While its cardiotoxic LOAEL is 1%. Thus, it is unlikely that this agent will be used in normally occupied areas.</p> <p>HBFC-22B1 can be considered only an interim substitute for Halon 1301. HBFC-22B1 has an ODP of 0.74; thus, production will be phased out 1 January 1996.</p> <p>This agent was submitted to the Agency as a Premanufacture Notice (PMN) and is presently subject to requirements contained in a <i>Toxic Substance Control Act</i> (TSCA) Consent Order.</p> <p>See additional comments 1,2,3,4.</p>
	HCFC-22	Acceptable	<p>Until OSHA establishes applicable workplace requirements:</p> <p>Where egress from an area cannot be accomplished within one minute, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 2.5%.</p> <p>Where egress takes longer than 30 s but less than one minute, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 5.0%.</p> <p>HCFC-22 concentrations greater than 5.0% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 s. The employer shall assure that no unprotected employees enter the area during agent discharge.</p>	<p>The comparative design concentration based on cup burner values is approximately 13.9% while its cardiotoxic LOAEL is 5.0%. Thus, it is unlikely that this agent will be used in normally occupied areas.</p> <p>See additional comments 1,2,3,4.</p>

(continued)

Appendix 1-1 (continued)

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS (continued)				
End-use	Substitute	Decision	Conditions	Comments
	HCFC-124	Acceptable	<p>Until OSHA establishes applicable workplace requirements:</p> <p>Where egress from an area cannot be accomplished within 1 min, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 1.0%.</p> <p>Where egress takes longer than 30 s but less than 1 min, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL OF 2.5%.</p> <p>HCFC-123 concentrations greater than 2.5% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 s. The employer shall assure that no unprotected employees enter the area during agent discharge.</p>	<p>The comparative design concentration based on cup burner values is approximately 8.4% while its cardiotoxic LOAEL is 2.5%. Thus, it is unlikely that this agent will be used in normally occupied areas. See additional comments 1,2,3,4.</p>
	[HCFC BLEND] A	Acceptable	<p>Until OSHA establishes applicable workplace requirements:</p> <p>Where egress from an area cannot be accomplished within 1 min, the employer shall not use [HCFC Blend] A in concentrations exceeding its cardiotoxic NOAEL of 10.0%.</p> <p>Where egress takes greater than 30 s but less than 1 min, the employer shall not use [HCFC Blend] A in a concentration greater than its cardiotoxic LOAEL of 10.0%.</p> <p>[HCFC Blend] A concentrations greater than 10% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 s. The employer shall assure that no unprotected employees enter the area during agent discharge.</p>	<p>The comparative design concentration based on full-scale testing is approximately 8.6%.</p> <p>The agent should be recovered from the fire protection system in conjunction with testing or servicing, and should be recycled for later use or destroyed. See additional comments 1,2,3,4.</p>

(continued)

Appendix 1-1 (continued)

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS (continued)				
End-use	Substitute	Decision	Conditions	Comments
	HFC-23	Acceptable	<p>Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within 1 min, the employer shall not use HFC-23 in concentrations exceeding 30%.</p> <p>Where egress takes greater than 30 s but less than 1 min, the employer shall not use HFC-23 in a concentration greater than 50.0%.</p> <p>HFC-23 concentrations greater than 50 percent are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 s. The employer shall assure that no unprotected employees enter the area during agent discharge.</p> <p>The design concentration must result in an oxygen level of at least 16%.</p>	<p>The comparative design concentration based on cup burner values is approximately 14.4% while data indicates that its cardiotoxicity NOAEL is 30% without added oxygen and 50% with added oxygen. Its LOAEL is likely to exceed 50%.</p> <p>See additional comments 1,2, 3, 4.</p>
	HFC-125	Acceptable	<p>Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within 1 min, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 7.5%</p> <p>Where egress takes longer than 30 s but less than 1 min, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 10.0%</p> <p>HFC-125 concentrations greater than 10.0% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 s. The employer shall assure that no unprotected employees enter the area during agent discharge.</p>	<p>The comparative design concentration based on cup burner values is approximately 11.3% while its cardiotoxic LOAEL is 10.0%. Thus, it is unlikely that this agent will be used in normally occupied areas.</p> <p>See additional comments 1, 2, 3, 4.</p>

(continued)

Appendix 1-1 (continued)

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS (continued)				
End-use	Substitute	Decision	Conditions	Comments
	HFC-134a	Acceptable	<p>Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within 1 min, the employer shall not use this agent in concentrations exceeding its cardiotoxic NOAEL of 4.0%.</p> <p>Where egress takes longer than 30 s but less than 1 min, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 8.0%</p> <p>HFC-134a concentrations greater than 8.0% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 s. The employer shall assure that no unprotected employees enter the area during agent discharge.</p>	<p>The comparative design concentration based on cup burner values is approximately 12.6% while its cardiotoxic LOAEL is 8.0%. Thus, it is unlikely that this agent will be used in normally occupied areas.</p> <p>See additional comments 1, 2, 3, 4.</p>
	HFC-227ea	Acceptable	<p>Until OSHA establishes applicable workplace requirements: Where egress from an area cannot be accomplished within 1 min, the employer shall not use HFC-227ea in concentrations exceeding its cardiotoxic NOAEL of 9.0%.</p> <p>Where egress takes longer than 30 s but less than 1 min, the employer shall not use the agent in a concentration greater than its cardiotoxic LOAEL of 10.5%.</p> <p>HFC-227ea concentrations greater than 10.5% are only permitted in areas not normally occupied by employees provided that any employee in the area can escape within 30 s. The employer shall assure that no unprotected employees enter the area during agent discharge.</p>	<p>The comparative design concentration based on cup burner values is approximately 7.0% while data indicate that its cardiotoxicity LOAEL is probably greater than 10.5%. EPA is accepting 10.5% as its LOAEL.</p> <p>This agent was submitted to the Agency as a Premanufacture Notice (PMN) agent and is presently subject to requirements contained in a <i>Toxic Substances Control Act (TSCA) Significant New Use Rule (SNUR)</i>.</p> <p>See additional comments 1, 2, 3, 4.</p>

(continued)

Appendix 1-1 (continued)

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS (continued)				
End-use	Substitute	Decision	Conditions	Comments
	C ₄ F ₁₀	<p>Acceptable</p> <p>where other alternatives are not technically feasible due to performance or safety requirements:</p> <p>a. due to their physical or chemical properties, or</p> <p>b. where human exposure to the extinguishing agents may approach cardiotoxicity levels or result in other unacceptable health effects under normal operating conditions.</p>	<p>Until OSHA establishes applicable workplace requirements:</p> <p>For occupied areas from which personnel cannot be evacuated in 1 min, use is permitted only up to concentrations not exceeding the cardiotoxicity NOAEL of 40%.</p> <p>Although no LOAEL has been established for this product, standard OSHA requirements apply, i.e., for occupied areas from which personnel can be evacuated or egress can occur between 30 and 60 s, use is permitted up to a concentration not exceeding the LOAEL.</p>	<p>The comparative design concentration based on cup burner values is approximately 6.6%.</p> <p>Users must observe the limitations on PFC acceptability by making reasonable efforts to undertake the following measures:</p> <p>(i) conduct an evaluation of foreseeable conditions of end use</p> <p>(ii) determine that human exposure to the other alternative extinguishing agents may approach or result in cardiotoxicity or other unacceptable toxicity effects under normal operating conditions</p> <p>(iii) determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use.</p>

(continued)

Appendix 1-1 (continued)

FIRE SUPPRESSION AND EXPLOSION PROTECTION TOTAL FLOODING AGENTS (continued)				
End-use	Substitute	Decision	Conditions	Comments
	[IG-541]	Acceptable	<p>All personnel must be evacuated before concentration of C₄F₁₀ exceeds 40%.</p> <p>Design concentration must result in oxygen levels of at least 16%.</p> <p>Documentation of such measures must be available for review upon request.</p> <p>Until OSHA establishes applicable workplace requirements:</p> <p>The design concentration must result in at least 10% oxygen and no more than 5% CO₂.</p> <p>If the oxygen concentration of the atmosphere falls below 10%, personnel must be evacuated and egress must occur within 30 s.</p>	<p>The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes. Actual contributions to global warming depend upon the quantities of PFCs emitted.</p> <p>For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in this rulemaking.</p> <p>See additional comments 1, 2, 3, 4.</p> <p>Studies have shown that healthy, young individuals can remain in a 10% to 12% oxygen atmosphere for 30 to 40 min without impairment. However, in a fire emergency, the oxygen level may be reduced below safe levels, and the combustion products formed by the fire are likely to cause harm. Thus, the Agency does not contemplate personnel remaining in the space after system discharge during a fire without Self Contained Breathing Apparatus (SCBA) as required by OSHA.</p> <p>See additional comments 1,2.</p>

Additional Comments:

1. Must conform with OSHA 29 CFR 1910 Subpart L Section 1910.160 of the U.S. Code.
2. Per OSHA requirements, protective gear (SCBA) must be available in the event personnel must reenter the area.
3. Discharge testing should be strictly limited only to that which is essential to meet safety or performance requirements.
4. The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

(continued)

Appendix 1-1 (continued)

Fire Suppression And Explosion Protection Total Flooding Agents Substitutes Acceptable Subject to Narrowed Use Limits				
End-use	Substitute	Decision	Conditions	Comments
Halon 1301 Total Flood- ing Agents.	C_4F_{10}	Acceptable where other alternatives are not technically feasible due to performance or safety requirements: a. Due to their physical or chemical properties, or b. Where human exposure to the extinguishing agents may approach cardio-sensitization levels or result in other unacceptable health effects under normal operating conditions.	Until OSHA establishes applicable workplace requirement: For occupied areas from which personnel cannot be evacuated in 1 min, use is permitted only up to concentrations not exceeding the cardiotoxicity NOAEL of 40%. Although no LOAEL has been established for this product, standard OSHA requirements apply, i.e., for occupied areas from which personnel can be evacuated or egress can occur between 30 and 60 s, use is permitted up to a concentration not exceeding the LOAEL. All personnel must be evacuated before concentration of C_4F_{10} exceeds 40%. Design concentration must result in oxygen levels of at least 16%.	The comparative design concentration based on cup burner values is approximately 6.6%. Users must observe the limitations on PFC approval by undertaking the following measures: Conduct an evaluation of foreseeable conditions of end use, Determine that human exposure to the other alternative extinguishing agents may approach or result in cardio-sensitization or other unacceptable toxicity effects under normal operating conditions, and (iii) Determine that the physical or chemical properties or other technical constraints of the other available agents preclude their use. Documentation of such measures must be available for review upon request. The principal environmental characteristic of concern for PFCs is that they have high GWPs and long atmospheric lifetimes. Actual contributions to global warming depend upon the quantities of PFCs emitted. For additional guidance regarding applications in which PFCs may be appropriate, users should consult the description of potential uses which is included in the preamble to this rulemaking. See additional comments 1, 2, 3, 4.

Additional Comments:

1. Must conform with OSHA 29 CFR 1910 Subpart L Section 1910.160 of the U.S. Code.
2. Per OSHA requirements, protective gear (SCBA) must be available in the event personnel must reenter the area.
3. Discharge testing should be strictly limited only to that which is essential to meet safety or performance requirements.
4. The agent should be recovered from the fire protection system in conjunction with testing or servicing, and recycled for later use or destroyed.

Appendix 1-2

Unacceptable CFC and Halon Substitutes (40 CFR 82.170 through 82.194, Appendix A)

End Use	Substitute	Decision	Comments
Metals cleaning w/CFC-113	HCFC 141b and its blends	Unacceptable	High ODP; other alternatives exist. Effective date: as of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of 1 January 1996 for uses in existing equipment. USEPA will grant, if necessary, narrowed use acceptability listings for CFC-113 past the effective date of the prohibition.
Metals cleaning w/MCF	HCFC 141b and its blends	Unacceptable	High ODP; other alternatives exist. Effective date: as of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of 1 January 1996 for uses in existing equipment.
Electronics cleaning w/CFC-113	HCFC 141b and its blends	Unacceptable	High ODP; other alternatives exist. Effective date: as of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of 1 January 1996 for uses in existing equipment. USEPA will grant, if necessary, narrowed use acceptability listings for CFC-113 past the effective date of the prohibition.
Electronics cleaning w/MCF	HCFC 141b and its blends	Unacceptable	High ODP; other alternatives exist. Effective date: as of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of 1 January 1996 for uses in existing equipment.
Precision cleaning w/CFC-113	HCFC 141b and its blends	Unacceptable	High ODP; other alternatives exist. Effective date: as of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of 1 January 1996 for uses in existing equipment. USEPA will grant, if necessary, narrowed use acceptability listings for CFC-113 past the effective date of the prohibition.
Precision cleaning w/MCF	HCFC 141b and its blends	Unacceptable	High ODP; other alternatives exist. Effective date: as of 30 days after final rule for uses in new equipment (including retrofits made after the effective date); as of 1 January 1996 for uses in existing equipment.

Refrigerants

CFC-11 centrifugal chillers (retrofit).	HCFC-141b	Unacceptable	Has a high ODP relative to other alternatives.
CFC-12 centrifugal chillers (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-11, CFC-12, CFC-113, CFC-114, R-500 centrifugal chillers (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
	HCFC-141b	Unacceptable	Has a high ODP relative to other alternatives.

(continued)

Appendix 1-2 (continued)

End Use	Substitute	Decision	Comments
CFC-12 reciprocating chillers (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12 reciprocating chillers (new equipment/ NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-11, CFC-12, R-502 industrial process refrigeration (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
CFC-11, CFC-12, R-502 industrial process refrigeration (new equipment/ NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
CFC-12, R-502 ice skating rinks (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 ice skating rinks (new equipment/ NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 cold storage warehouses (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 cold storage warehouses (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-500, R-502 refrigerated transport (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-500, R-502 refrigerated transport (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 retail food refrigeration (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 retail food refrigeration (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 commercial ice machines (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.

(continued)

Appendix 1-2 (continued)

End Use	Substitute	Decision	Comments
CFC-12, R-502 commercial ice machines (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12 vending machines (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12 vending machines (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12 water coolers (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12 water coolers (new equipment/NIKs)	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12 household refrigerators (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12 household refrigerators (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 household freezers (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-502 household freezers (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-500 residential dehumidifiers (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12, R-500 residential dehumidifiers (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
CFC-12 motor vehicle air conditioners (retrofit).	HCFC-22/HCF-142b/CFC-12	Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances.
	Hydrocarbon blend A	Unacceptable	Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.

(continued)

Appendix 1-2 (continued)

End Use	Substitute	Decision	Comments
CFC-12 motor vehicle air conditioners (new equipment/NIKs).	HCFC-22/HCF-142b/CFC-12 Hydrocarbon blend A	Unacceptable Unacceptable	As a blend of both Class I and Class II substances, it has a higher ODP than use of Class II substances. Flammability is a serious concern. Data have not been submitted to demonstrate it can be used safely in this end-use.
<i>Foams</i>			
CFC-11 Polyolefin	HCFC-141b (or blends thereof)	Unacceptable	HCFC-141b has an ODP of 0.11, almost equivalent to that of methyl chloroform, a Class I substance. The Agency believes that non-ODP alternatives are sufficiently available to render the use of HCFC-141b unnecessary in polyolefin foams.
<i>Fire Suppression and Explosion Protection Streaming Agents</i>			
Halon 1211 Streaming Agents	[CFC-11]	Unacceptable	This agent has been suggested for use on large outdoor fires for which non-ozone depleting alternatives are currently used.

Appendix 1-3

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

Controlled Substance	Ozone Depletion Weight
<i>Class I</i>	
Group I	
CFC-1 ₃ - Trichlorofluoromethane (CFC-11)	1.0
CF ₂ Cl ₂ - Dichlorodifluoromethane (CFC-12)	1.0
C ₂ F ₃ Cl ₃ - Trichlorotrifluoroethane (CFC-113)	0.8
C ₂ F ₄ Cl ₂ - Dichlorotetrafluoroethane (CFC-114)	1.0
C ₂ F ₅ Cl - (Mono)chloropentafluoroethane (CFC-115)	0.6
All isomers of the above chemicals	
Group II	
CF ₂ ClBr - Bromochlorodifluoromethane (Halon 1211)	3.0
CF ₃ Br - Bromotrifluoromethane (Halon 1301)	10.0
C ₂ F ₄ Br ₂ - Dibromotetrafluoroethane (Halon 2402)	6.0
All isomers of the above chemicals	
Group III	
CF ₃ Cl - Chlorotrifluoromethane (CFC-13)	1.0
C ₂ FCl ₅ - (CFC-111)	1.0
C ₂ F ₂ Cl ₄ - (CFC-112)	1.0
C ₃ FCl ₇ - (CFC-211)	1.0
C ₃ F ₂ Cl ₆ - (CFC-212)	1.0
C ₃ F ₃ Cl ₅ - (CFC-213)	1.0
C ₃ F ₄ Cl ₄ - (CFC-214)	1.0
C ₃ F ₅ Cl ₃ - (CFC-215)	1.0
C ₃ F ₆ Cl ₂ - (CFC-216)	1.0
C ₃ F ₇ Cl - (CFC-217)	1.0
All isomers of the above chemicals	

Appendix 1-3 (continued)

Controlled Substance	Ozone Depletion Weight
Group IV	
CCl ₄ - Carbon Tetrachloride	1.1
Group V	
C ₂ H ₃ Cl ₃ -1,1,1-Trichloroethane (Methyl Chloroform) All isomers of the above chemicals	0.1
Group VI	
CH ₃ Br - Bromomethane (Methyl Bromide)	0.7
Group VII	
CHBr ₂	1.00
CHF ₂ Br (HBFC-22B1)	0.74
CH ₂ FBr	0.73
C ₂ HBr ₄	0.3 - 0.8
C ₂ HF ₂ Br ₃	0.5 - 1.8
C ₂ HF ₃ Br ₂	0.4 - 1.6
C ₂ HF ₄ Br	0.7 - 1.2
C ₂ H ₂ FBr ₃	0.1 - 1.1
C ₂ H ₂ F ₂ Br ₂	0.2 - 1.5
C ₂ H ₂ F ₃ Br	0.7 - 1.6
C ₂ H ₃ FBr ₂	0.1 - 1.7
C ₂ H ₃ F ₂ Br	0.2 - 1.1
C ₂ H ₄ FBr	0.07 - 0.1
C ₃ HBr ₆	0.3 - 1.5
C ₃ HF ₂ Br ₅	0.2 - 1.9
C ₃ HF ₃ Br ₄	0.3 - 1.8
C ₃ HF ₄ Br ₃	0.5 - 2.2
C ₃ HF ₅ Br ₂	0.9 - 2.0
C ₂ HF ₆ Br	0.7 - 3.3
C ₃ H ₂ FBr ₅	0.1 - 1.9
C ₃ H ₂ F ₂ Br ₄	0.2 - 2.1

(continued)

Appendix 1-3 (continued)

Controlled Substance	Ozone Depletion Weight
C ₃ H ₂ F ₃ Br ₃	0.2 - 5.6
C ₃ H ₂ F ₄ Br ₂	0.3 - 7.5
C ₃ H ₂ F ₅ BR	0.9 - 1.4
C ₃ H ₃ FBR ₄	0.06 - 1.9
C ₃ H ₃ F ₂ Br ₃	0.1 - 3.1
C ₃ H ₃ F ₃ Br ₂	0.1 - 2,5
C ₃ H ₃ F ₄ Br	0.3 - 4.4
C ₃ H ₄ FBr ₃	0.03 - 0.3
C ₃ H ₄ F ₂ Br ₂	0.1 - 1.0
C ₃ H ₄ F ₃ Br	0.07 - 0.8
C ₃ H ₅ FBr ₂	0.04 - 0.4
C ₃ H ₅ F ₂ Br	0.07 - 0.8
C ₃ H ₆ FB	0.02 - 0.7
<i>Class II</i>	
CHFCl ₂ - Dichlorofluoromethane (HCFC-21)	*[res.]
CHF ₂ Cl - Chlorodifluoromethane (HCFC-22)	0.05
CH ₂ FCI - Chlorofluoromethane (HCFC-31)	[res.]
C ₂ HFCl ₄ - (HCFC-121)	[res.]
C ₂ HFCl ₂ Cl ₃ - (HCFC-122)	[res.]
C ₂ HF ₃ Cl ₂ - (HCFC-123)	0.02
C ₂ HF ₄ Cl - (HCFC-124)	0.02
C ₂ H ₂ FCI ₃ - (HCFC-131)	[res.]
C ₂ H ₂ F ₂ Cl ₂ - (HCFC-132b)	[res.]
C ₂ H ₂ F ₂ Cl - (HCFC-133a)	[res.]
C ₂ H ₃ FCI ₂ - (HCFC-141b)	0.12
C ₂ H ₃ F ₂ Cl - (HCFC-142b)	0.06
C ₃ HFCl ₆ - (HCFC-221)	[res.]
C ₃ HF ₂ Cl ₅ - (HCFC-222)	[res.]
C ₃ HF ₃ Cl ₄ - (HCFC-223)	[res.]
C ₃ HF ₄ Cl ₃ - (HCFC-224)	[res.]
C ₃ HF ₅ Cl ₂ - (HCFC-225ca)	[res.]

(continued)

Appendix 1-3 (continued)

Controlled Substance	Ozone Depletion Weight
C ₃ HF ₅ Cl ₂ (HCFC-225cb)	[res.]
C ₃ HF ₆ Cl - (HCFC-226)	[res.]
C ₃ H ₂ FCl ₅ - (HCFC-231)	[res.]
C ₃ H ₂ F ₂ Cl ₄ - (HCFC-232)	[res.]
C ₃ H ₂ F ₃ Cl ₃ - (HCFC-233)	[res.]
C ₃ H ₂ F ₄ Cl ₂ - (HCFC-234)	[res.]
C ₃ H ₂ F ₅ Cl - (HCFC-235)	[res.]
C ₃ H ₃ FCl ₄ - (HCFC-241)	[res.]
C ₃ H ₃ F ₂ Cl ₃ - (HCFC-242)	[res.]
C ₃ H ₃ F ₃ Cl ₂ - (HCFC-243)	[res.]
C ₃ H ₃ F ₄ Cl - (HCFC-244)	[res.]
C ₃ H ₄ FCl ₃ - (HCFC-251)	[res.]
C ₃ H ₄ F ₂ Cl ₂ - (HCFC-252)	[res.]
C ₃ H ₄ F ₃ Cl - (HCFC-253)	[res.]
C ₃ H ₅ FCl ₂ - (HCFC-261)	[res.]
C ₃ H ₅ F ₂ Cl - (HCFC-262)	[res.]
C ₃ H ₆ FCl - (HCFC-271)	[res.]
All isomers of the above chemicals	[res.]

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

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	on or after 15 November 1993
HCFC-22 appliance, or isolated component of such appliance, normally containing less than 200 lb [90.6 kg] of refrigerant	0	0
HCFC-22 appliance, or isolated component of such appliance, normally containing less than 200 lb [90.6 kg] of refrigerant	0	0
HCFC-22 appliance, or isolated component of such appliance, normally containing 200 lb [90.6 kg] or more of refrigerant	4	10
Other high-pressure appliance, or isolated component of such appliance, normally containing less than 200 lb [90.6 kg] of refrigerant	4	10
Other high-pressure appliance, or isolated component of such appliance, normally containing 200 lb [90.6 kg] or more of refrigerant	4	15
Very high-pressure appliance	0	0
Low-pressure appliance	25	25 mm Hg absolute

INSTALLATION:	COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Center for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		

Section 2

Aboveground/Underground Storage Tank (AST/UST) Management

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SECTION 2

ABOVEGROUND/UNDERGROUND STORAGE TANK (AST/UST) MANAGEMENT

A. Applicability

This section applies to Center for Disease Control and Prevention (CDC) facilities that utilize storage tanks, whether aboveground or underground, for the storage of hazardous materials, petroleum products, or hazardous waste. The section presents review action items for emissions from tanks, structural concerns, monitoring, and recordkeeping requirements.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

- *The Resource Conservation and Recovery Act (RCRA), Subtitles I and C.* Subtitle I, Public Law (PL) 99-49 (42 U.S. Code (USC) 6991-6991i), established the standards and procedures for underground storage tanks(UST). 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)). Subtitle C, PL 98-616 (42 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 [0.40 km] of an underground source of drinking water.
- *The Clean Air Act (CAA) Amendments of 1990.* This Act, PL 101-549 (42 USC 7401-7671q), is currently the effective, comprehensive Federal legislation that regulates the prevention and control of air pollution. See Section 1 titled Air Emissions Management for further information on the CAA.
- *The Oil Pollution Act of 1990.* This law, PL 301-308 (33 USC 2701-2761, et. al.), as amended, requires the prevention of oil pollution into navigable waters by tank vessels. This includes the preparation of a response plan, construction of oil carriers with double hulls, and inspection of spill response equipment.
- *The Federal Facilities 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.
- *The Occupational Safety and Health Act (OSHA).* This Act, last amended in November 1990, 29 USC 651-678, is a Federal statute which governs the issues related to occupational safety and health. The purpose and policy of this Act are 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)).

- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*. This EO, dated 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.

C. State/Local Requirements

Since the primary mechanisms regulating air pollutant emissions are the state or air quality control region (AQCR) regulations, some states may be regulating emissions from storage vessels.

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.

Aboveground storage tanks (ASTs) are often regulated in the state or local fire code if they are not addressed in environmental regulations.

D. CDC Regulations/Requirements

- This section includes a description of the applicable CDC regulations, policies, and requirements. At this time none have been issued.

E. Key Compliance Requirements

- Aboveground Storage Tanks (ASTs) - 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. 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)).
- Petroleum Storage Vessels - Storage vessels for petroleum liquids with a storage capacity greater than 151,416 L (40,000 gal) but less than 246,052 L (65,000 gal), that started construction or modification after 8 March 1974 but before 19 May 1978, or with a capacity greater than 246,052 L (65,000 gal) that started construction or modification after 11 June 1973 but before 19 May 1978, are required to meet specific standards for emissions and monitoring. These standards vary depending upon whether the true vapor pressure of the petroleum liquid is greater or less than 11.1 psia. Storage vessels with a storage capacity greater than 151,416 L (40,000 gal) constructed after 18

May 1978 are required to ensure that the vessel has an external floating roof, or a fixed roof with an internal floating type cover, and a vapor recovery system (40 CFR 60.110 through 60.113 and 60.110a through 60.115a).

- Substandard USTs - Substandard UST systems must be upgraded, closed, or removed from service by 22 December 1998. If a release detection system is not available for the UST, it must be phased out in 1 to 5 yr (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 for USTs - The filling of a UST must include the prevention of overfilling and spilling of the substance. If a spill does occur, installations/CW 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, 280.53):
 1. spills or overfills of petroleum that resulted in a release to the environment of more than 25 gal [93.89 L] or that caused a sheen on nearby surface water
 2. spills or overfills of hazardous substances that result in a release to the environment in excess of the reportable quantity.
- Corrosion Protection and Repairs for USTs - 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 for USTs - Installations/CW 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:

Deadlines for Release Detection:

UST System Installation Date	Leak Detection Required by 22 December of:
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 may be equipped with an automatic line leak detector and have an annual line tightness test conducted; or pressurized piping may 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 was 22 December 1990.
 2. Suction piping either may have a line tightness test conducted every 3 yr or may 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. the check valve is located directly below and as close as practical to the suction pump
 - e. criteria in paragraphs b through d must be verifiable.
- Reporting and Recordkeeping Requirements for USTs - Installations/CW facilities are required to submit notifications of new USTs, release reports, planned or complete corrective actions, 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:

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 (40 CFR 280.34, 280.45, and 280.74).
- 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 installation/CW facility must notify 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. UST closure must be done by either removing the tank from the ground or leaving it in place with the contents removed and 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. Installations/CW facilities with UST systems closed prior to 22 December 1988 must 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).
 - Hazardous Waste Storage Tanks - Storage tanks are one storage option that installations/CW facilities which produce or store hazardous waste can use. The storage tank requirements are based on whether the installations/CW facility is a small quantity generator (SQG), a Generator, or a treatment, storage, or disposal facility (TSDF). Refer to Section 4 titled Hazardous Waste Management for more details on the definitions of these classifications.
 - Flammable Combustible Liquid Storage Tanks - Storage tanks that hold flammable/combustible liquids must not be below ground or inside buildings. They 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)).

F. Responsibility for Compliance

- Environmental Program Manager. This person, or the Health and Safety Officer, is responsible for ensuring that permits are applied for, obtained, and complied with.
- Facilities Operations Branch (Engineering Services Office). This office is responsible for receiving and utilizing petroleum products in a safe and efficient manner, and for operating and maintaining organizational storage tanks.

G. 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 an UST system and aboveground releases associated with overfills and transfer operations as the regulated substance moves to or from an UST system (40 CFR 280.12).
- *Aboveground Storage Tank (AST)* - in relation to hazardous waste, a device that meets the definition of 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).
- *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).
- *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)).
- *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 an UST system and belowground releases associated with overfills and transfer operations as the regulated substance moves to or from an UST (40 CFR 280.12).
- *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).
- *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).
- *CERCLA - Comprehensive Environmental Response Compensation and Liability Act of 1980* as amended (40 CFR 280.12).
- *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 IIIA 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 IIIB liquids are those having flashpoints at or above 200 °F (93.3 °C).

- *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).
- *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).
- *Consumptive Use* - with respect to heating oil means consumed on the premises (40 CFR 280.12).
- *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 (NACE) 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).
- *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.
- *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).
- *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).
- *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).
- *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*, 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 of 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.
- *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 a tank 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 (40 CFR 279.1).
 - *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):
 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. either a continuous onsite physical construction or installation program has begun, or the owner or operator has entered into any contractual obligations which cannot be canceled or modified without substantial loss for physical construction at the site or installation of the tank system to be completed within a reasonable time.
 - *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).
 - *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 byproducts from the production (40 CFR 280.12).
 - *Free-Product* - a regulated substance that is present as a nonaqueous phase liquid (e.g., liquid not dissolved in water) (40 CFR 280.12).
 - *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).
 - *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 [2204.62 lb/mo]).
 - *Hazardous Substance UST System* - any underground storage tank system that contains a hazardous substance defined in section 101(14) of the *Comprehensive Environmental Compensation and Lia*

bility Act of 1980 (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).

- *Hazardous Waste* - a solid waste identified as a characteristic or listed hazardous waste in 40 CFR 261.3 (40 CFR 160.10).
- *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).
- *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 the external surface of that tank that is in the ground (40 CFR 260.10).
- *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).
- *Low Pressure Tank* - a storage tank which has been designed to operate at a pressure above 0.5 psig but not more than 15 psig (29 CFR 1910.106(a)(21)).
- *Maintenance* - the normal operational upkeep to prevent a UST system from releasing product (40 CFR 280.12).
- *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).
- *New Tank* - in relation to used oil, 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).
- *New Tank System* - for USTs, 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).
- *New Tank System or New Component System* - in relation to hazardous waste, 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 40 CFR 264.193(g)(2) and 265.193(g)(2), a new tank system is one for which construction commenced after 14 July 1986 (40 CFR 260.10).

- *Noncommercial Purposes with Respect to Motor Fuel* - not for resale (40 CFR 280.12).
- *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).
- *Onground Tank* - in relation to hazardous waste, 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).
- *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).
- *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).
- *Petroleum UST System* - an 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 nonferrous materials (40 CFR 280.12).
- *Pipeline Facilities* - (including gathering lines) are new and existing pipe rights-of-way and any associated equipment, facilities, or buildings (40 CFR 280.12).
- *Portable Tank* - a closed container having a liquid capacity over 60 gal [227.12 L] and not intended for fixed installation (29 CFR 1910.106(a)(25)).
- *Pressure Vessel* - a storage tank or container designed to operate at pressures above 15 psig (29 CFR 1910.106(a)(29)).
- *Regulated Substance* - this includes (40 CFR 280.12 and 280.10(b)):
 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 [15.56 °C] 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.)

- *Reid Vapor Pressure* - the absolute vapor pressure of volatile crude oil and volatile nonviscous petroleum liquids except liquified petroleum gases as determined by the ASTM, Part 17, 1973, D-323-72 (reapproved 1977) (40 CFR 60.111a).
- *Release* - any spilling, leaking, emitting, discharging, escaping, leaching, or disposing from an UST into groundwater, surface water, or subsurface soils (40 CFR 280.12).
- *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).
- *Repair* - to restore a tank or UST system component that has caused a release of product from the UST system (40 CFR 280.12).
- *Residential Tank* - a tank located on property used primarily for dwelling purposes (40 CFR 280.12).
- *SARA - Superfund Amendments and Reauthorization Act* (40 CFR 280.12).
- *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).
- *Small Quantity Generator* - a generator who generates less than 1000 kg/mo [2204.62 lb/mo] of hazardous waste in a calendar month but more than 100 kg [220.46 lb] (40 CFR 260.10).
- *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).
- *Surface Impoundment* - a natural topographic depression, manmade excavation, or diked area formed of primarily of earthen materials (although it may be lined with manmade materials) that is not an injection well (40 CFR 280.12).
- *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).
- *Tank* - in relation to hazardous waste, 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).

- *Tank* - in relation to used oil, 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).
- *Tank System* - a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system (40 CFR 260.10).
- *True Vapor Pressure* - the equilibrium partial pressure exerted by a petroleum liquid as determined in accordance with methods described in American Petroleum Institute (API) Bulletin 2517, *Evaporation Loss From Floating Roof Plants*, 1962 (40 CFR 60.111a).
- *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).
- *Underground Release* - any below ground release (40 CFR 280.12).
- *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. storm water 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 [106.21 L] or less, or
 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.)

- *Underground Tank* - in relation to hazardous waste, 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).
- *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).
- *Upgrade* - the addition or retrofit of some systems such as cathodic protection, lining, or spill and overfill controls to improve the ability of an UST system to prevent the release of product (40 CFR 280.12).

- *UST System or Tank System* - UST, connected underground piping, underground ancillary equipment, and containment system, if any (40 CFR 280.12).
- *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 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 [208.20 L]. Used oil aggregation points may also accept used oil from household DIYs (40 CFR 279.1).
- *Used Oil Burner* - a facility where used oil not meeting the specification requirements is burned for energy recovery (40 CFR 279.1).
- *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 [208.20 L]. Used oil collection centers may accept used oil from household DIYs (40 CFR 279.1).
- *Used Oil Fuel Marketer* - any person who conducts either of the following activities (40 CFR 279.1):
 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).
- *Used Oil Processor/Re-refiner* - a facility that processes used oil (40 CFR 279.1).
- *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).
- *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).
- *Wastewater Treatment Tank* - a tank that is designed to receive and treat influent wastewater through physical, chemical, or biological methods (40 CFR 280.12).

AST/UST MANAGEMENT
GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS*:	REFER TO PAGE NUMBERS:
All Facilities	2-1 through 2-5	(1)(2)(3)(21)	2-19
Aboveground Storage Tanks (ASTs)	2-6 through 2-9	(1)(3)(21)	2-21
Emissions From POL Storage Vessels	2-10 and 2-11	(1)(3)(21)	2-25
Substandard USTs	2-12	(1)(3)(21)	2-27
New or Upgraded USTs	2-13 through 2-17	(1)(3)(21)	2-29
Metallic USTs	2-18	(1)(3)(21)	2-31
Heating Oil USTs	2-19	(1)(3)(21)	2-33
UST Filling	2-20 and 2-21	(1)(3)(21)	2-35
UST Corrosion Protection and Repairs	2-22 and 2-23	(1)(3)(21)	2-37
Release Detection for USTs			
General	2-24	(1)(3)(21)	2-39
Petroleum USTs	2-25	(1)(3)(21)	2-41
Hazardous Substance USTs	2-26 and 2-27	(1)(3)(21)	2-43
USTs Connected to Emergency Generators	2-28	(1)(3)(21)	2-45
UST Releases	2-29 through 2-35	(1)(3)(21)	2-47
Deferred UST Systems	2-36	(1)(3)(21)	2-51
UST Documentation	2-37 and 2-38	(1)(3)(21)	2-53

GUIDANCE FOR AST/UST MANAGEMENT CHECKLIST USERS (continued)

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS*:	REFER TO PAGE NUMBERS:
Changes-In-Service or Closure of USTs	2-39 through 2-45	(1)(3)(21)	2-55
Hazardous Waste Storage Tanks			
Small Quantity Generators (SQGs)	2-46 through 2-48	(1)(3)(6)(21)	2-59
Generators	2-49 through 2-59	(1)(3)(6)(21)	2-61
Flammable/Combustible Liquid Storage Tanks	2-60 through 2-64	(1)(3)(4)(6)(21)	2-67
Used Oil Storage Tanks			
Generators	2-65	(1)(3)(21)	2-71
Collection Centers and Aggregation Points	2-66	(1)(3)(21)	2-73
Used Oil Burners	2-67	(1)(3)(21)	2-75

***CONTACT/LOCATION CODE:**

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (3) Facilities Operation Branch
- (4) Section Chiefs
- (6) Radiation Protection and Fire Safety Section
- (21) Health and Safety Officer

ABOVEGROUND STORAGE TANK (AST)/UNDERGROUND STORAGE TANK (UST) MANAGEMENT

Records To Review

- Records of all spills, leaks, and associated site assessment/cleanup activities (for 3 yr)
- Official correspondence with state implementing agency
- Spill Prevention and Response Plan
- Results of all AST/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 of all spills, leaks, and associated site assessment/cleanup activities (for 3 yr)
- Records for AST/UST disposal, closure, and removal from activity and results of excavation area assessment (for 3 yr)

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
- Fuel farms
- Transfer terminals

People To Interview

- Environmental Program Manager
- Facility Supervisor/Director
- Facilities Operation Branch
- Section Chiefs
- Radiation Protection and Fire Safety Section
- Health and Safety Officer



**COMPLIANCE CATEGORY:
AST/UST MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>2-1. 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>2-2. Copies of all relevant Federal, CDC, state, and local regulations and guidance documents on air emissions management should be available at the facility (MP).</p> <p>2-3. Facilities are required to comply with state and local regulations concerning storage tank management (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. (1)(21)</p> <p>Verify that copies of the following regulations are available and kept current: (1)(2)(21)</p> <ul style="list-style-type: none"> - Executive Order (EO) 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 29 CFR 1910, <i>Occupational Safety and Health Standards.</i> - 40 CFR 60, <i>Standards of Performance for New Stationary Sources.</i> - 40 CFR 112, <i>Oil Pollution Prevention.</i> - 40 CFR 262, <i>Standards applicable to Generators of Hazardous Waste.</i> - 40 CFR 279, <i>Standards for the Management of Used Oil.</i> - 40 CFR 280, <i>Technical Standards and Corrective Action Requirements for Owners and Operators of USTs.</i> - Applicable state and local regulations. <p>Verify that the facility is abiding by state and local requirements. (1)(2)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies. (1)(2)(21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - need for secondary containment - operational standards - permitting requirements - replacement and removal schedules - cathodic protection requirements - alarm system requirements.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-4. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of finding).</p> <p>2-5. All organizational fuels tanks should be inspected annually (MP).</p>	<p>Determine if any new regulations have been issued since the finalization of the guide. (1)(2)(21)</p> <p>Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(2)(21)</p> <p>Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(2)(21)</p> <p>Verify that following by inspection forms: (1)(3)(21)</p> <ul style="list-style-type: none"> - certified tank calibration charts to measure fuels volumes are present on all tanks of 661 gal [2505.2 L] and over - condition of tanks, piping, and dikes is noted. <p>Verify that any confirmed leaking tanks were repaired or replaced. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ABOVEGROUND STORAGE TANKS (ASTs)</p> <p>2-6. All bulk storage tanks (over 660 gal [2498.37 L]) 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 (40 CFR 112.7(e)(2)(ii)).</p> <p>2-7. 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)).</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. (1)(3)(21)</p> <p>Verify that diked areas are impervious enough to contain spilled oil. (1)(3)(21)</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: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)). <p>Verify that valves are closed when not in use by inspecting drainage valves at diked areas. (1)(3)(21)</p> <p>Verify that drainage valves are attended when opened to drain diked/bermed area by interviewing personnel. (1)(3)(21)</p> <p>Determine if operating personnel understand the meaning of a harmful discharge as described in 40 CFR 110.6. (1)(3)(21)</p> <p>Inspect records for any drainage water which was inspected to determine if it would represent a harmful discharge. (1)(3)(21)</p>

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
2-9. (continued)	<p>Verify that a written log of integrity testing has been maintained. (1)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).

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**COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>EMISSIONS FROM POL STORAGE VESSELS</p> <p>2-10. Storage vessels for petroleum liquids are required to meet specific standards for emissions and monitoring (40 CFR 60.110 through 60.113).</p>	<p>(NOTE: These requirements only apply to storage vessels for petroleum liquids with a storage capacity greater than 151,416 L (40,000 gal), but less than 246,052 L (65,000 gal), that started construction or modification after 8 March 1974 but before 19 May 1978, or with a capacity greater than 246,052 L (65,000 gal) and started construction or modification after 11 June 1973 but before 19 May 1978.)</p> <p>Determine if the facility has any petroleum storage tanks meeting these parameters. (1)(3)(21)</p> <p>Determine what the vapor pressure is of the petroleum liquids being stored. (1)(3)(21)</p> <p>Verify that, if the true vapor pressure of the petroleum stored is equal to or greater than 78 mm Hg (1.5 psia) but not greater than 570 mm Hg (11.1 psia), the storage vessel is equipped with a floating roof and a vapor recovery system or their equivalents. (1)(3)(21)</p> <p>Verify that, if the true vapor pressure of the petroleum liquid being stored is greater than 570 mm Hg (11.1 psia), the storage vessel is equipped with a vapor pressure recovery system or its equivalent. (1)(3)(21)</p> <p>Verify that, if proper vapor recovery and return or disposal systems are not in place, a record is maintained of the petroleum liquid stored, the period of storage, and the maximum true vapor pressure of the liquid during the storage period. (1)(3)(21)</p> <p>(NOTE: Facilities storing petroleum liquids with a Reid vapor pressure of less than 6.9 kPa (1.0 psia) are not required to keep records.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-11. Storage vessels for petroleum liquids with a storage capacity greater than 151,416 L (40,000 gal) constructed after 18 May 1978 are required to meet specific standards (40 CFR 60.110a through 60.115a).</p>	<p>Determine if the facility has any liquid petroleum storage vessels meeting these parameters. (1)(3)(21)</p> <p>Determine the true vapor pressure of the liquids stored. (1)(3)(21)</p> <p>Verify that vessels storing petroleum liquid with a true vapor pressure equal to or greater than 10.3 kPa (1.5 psia) but less than 76.6 kPa (11.1 psia) are equipped with one of the following: (1)(3)(21)</p> <ul style="list-style-type: none"> - an external floating roof meeting design requirements outlined in 40 CFR 60.112a - a fixed roof with an internal floating type cover equipped with a continuous closure device between the tank wall and edges - a vapor recovery system that collects all VOC vapors and gases discharged from the storage vessel and a vapor return or disposal system to process the VOC vapors and gases to reduce emissions by at least 95 percent by weight - an equivalent, approved system. <p>Verify that vessels storing petroleum liquids with a vapor pressure greater than 76.6 kPa (11.1 psia) are equipped with a vapor recovery system that collects all VOC vapors and gases and a vapor return or disposal system that is designed to process the VOC vapors to reduce emissions by at least 95 percent by weight. (1)(3)(21)</p> <p>Verify that the following testing is done: (1)(3)(21)</p> <ul style="list-style-type: none"> - gap measurement for primary seals of external floating roofs are measured at least once every 5 yr - gap measurement for secondary seals of external floating roofs are measured at least once every year. <p>Verify that the following records are kept: (1)(3)(21)</p> <ul style="list-style-type: none"> - records of gap measurement are to be kept for at least 2 yr following the date of measurement - the petroleum liquid stored, the period of storage, and the maximum true vapor pressure during the storage unless the storage vessel has a vapor recovery and return or disposal system.

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**COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SUBSTANDARD USTs</p> <p>2-12. Substandard UST systems are required to be upgraded, closed, or removed from service by 22 December 1998 (40 CFR 280.21(a) through 280.21(c)).</p>	<p>(NOTE: See Appendix 2-1 for guidance on applicability of checklist items.)</p> <p>(NOTE: If a release detection system is not available for the UST, it must be phased out in 1 to 5 yr.)</p> <p>Determine if there are currently any plans for upgrading or decommissioning of a substandard UST. (1)(3)(21)</p> <p>Verify that upgrading of steel USTs includes one of the following methods: (1)(3)(21)</p> <ul style="list-style-type: none"> - internal lining according to the following requirements: <ul style="list-style-type: none"> - lining is installed so that it prevents releases due to structural failure or corrosion and meets a recognized code of practice - within 10 yr after installation of 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 - cathodic protection with field-installed systems designed by an expert, impressed current systems, or an approved equivalent system and the integrity is assured by one of the following: <ul style="list-style-type: none"> - tank is internally inspected and assessed to ensure that the tank is structurally sound and free of corrosion - the tank has been installed for less than 10 yr and is monitored monthly for releases - 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 installation of the cathodic protection system - tank is assessed for corrosion holes by a method that is determined to be equally protective by the implementing agency - lining combined with cathodic protection: <ul style="list-style-type: none"> - if lining is installed according to requirements - if cathodic protection system meets requirements. <p>Verify that when spill and overfill equipment is added, the tank meets the same standards as new USTs. (1)(3)(21)</p> <p>Verify that piping that routinely contains regulated substances and is in contact with the ground is cathodically protected. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>NEW OR UPGRADED USTs</p> <p>2-13. New or upgraded USTs are required to be fitted with spill and overfill prevention equipment (40 CFR 280.20(c) and 280.21(d)).</p> <p>2-14. Notice must be given within 30 days when a UST system is brought into service after 8 May 1986 (40 CFR 280.22).</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. (1)(3)(21)</p> <p>Verify that overfill prevention equipment does one of the following: (1)(3)(21)</p> <ul style="list-style-type: none"> - automatically shuts off flow into the tank when the tank is no more than 95 percent full - 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 - 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. <p>(NOTE: This equipment is not required if approved equivalent equipment is used or the UST system is filled by transfers of no more than 25 gal [94.64 L] at one time.)</p> <p>(NOTE: All existing tanks must be upgraded by 1998.)</p> <p>Determine if the facility has brought any USTs into service after 8 May 1986. (1)(3)(21)</p> <p>Verify that the appropriate notification was issued. (1)(3)(21)</p> <p>(NOTE: State forms may be used for notification in lieu of an USEPA form 7530. These notices must be sent to the appropriate agency.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-15. 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 280.20(a) and 280.20(b)).</p>	<p>Verify that USTs conform to industry standards by reviewing records. (1)(3)(21)</p> <p>Verify that USTs meet the following: (1)(3)(21)</p> <ul style="list-style-type: none"> - they have leak/spill prevention protection - the tank is constructed of one of the following materials: <ul style="list-style-type: none"> - fiberglass-reinforced plastic - steel which has one of the following types of cathodic protection: <ul style="list-style-type: none"> - coated with a suitable dielectric material - field installed cathodic protection (expert installed) - impressed current systems which allow determination of current operating status - steel fiberglass reinforced plastic composite - metal without additional corrosion protection provided that: <ul style="list-style-type: none"> - the site has been determined not to cause corrosion to the tank by a corrosion expert - records are maintained for the life of the tank that it is in a corrosion free environment - construction is in a manner that is deemed to prevent release of the regulated substance. <p>(NOTE: Piping must also meet these criteria with the exception of not being constructed of steel fiberglass reinforced plastic composite.)</p>
<p>2-16. Installation of UST must be done by a certified installer and according to standard practices (40 CFR 280.20(d) and 280.20(e)).</p>	<p>Determine if new UST systems have been properly installed by reviewing records for certification. (1)(3)(21)</p> <p>Verify that, if the facility does its own installation of USTs, the installation is done according to standard practices. (1)(3)(21)</p> <p>Verify that the installer was certified by manufacturer or implementing agencies. (1)(3)(21)</p>
<p>2-17. Facilities are required to use UST systems made of or lined with materials compatible with the substance stored (40 CFR 280.32).</p>	<p>Verify that the substances stored in UST systems are compatible with the system. (1)(3)(21)</p> <p>Determine which USTs are being used to store a substance other than that for which it was originally intended. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>METALLIC USTs</p> <p>2-18. 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. (1)(3)(21)</p> <p>Verify that the tanks are pressure tested regularly. (1)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT. - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [158,987.3 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>HEATING OIL USTs</p> <p>2-19. USTs used to store heating oil for consumptive use on the premises should meet the requirements outlined in 40 CFR 280 (MP).</p>	<p>Determine if the facility uses USTs for storing heating oil for consumptive use on the premises. (1)(3)(21)</p> <p>Verify that these tanks meet release detection requirements, spill and overfill protection requirements, corrosion control requirements, and release reporting requirements applicable to tanks that meet the definition of a UST. (1)(3)(21)</p> <p>(NOTE: Under 40 CFR 280.12, USTs storing heating oil for consumptive use on the premises are exempt from the regulatory definition of UST.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>UST FILLING</p> <p>2-20. The filling of a UST must include the prevention of overfilling and spilling of the substance (40 CFR 280.30(a)).</p> <p>2-21. 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 280.30(b) and 280.53).</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. (1)(3)(21)</p> <p>Determine if 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. (1)(3)(21)</p> <p>Verify that fill-lines are capped and locked. (1)(3)(21)</p> <p>Verify that the transfer is monitored constantly. (1)(3)(21)</p> <p>Determine if the facility has reported, contained, and cleaned up any and all spills or overfills which met the following criteria: (1)(3)(21)</p> <ul style="list-style-type: none"> - spills or overfills of petroleum that resulted in a release to the environment of more than 25 gal [94.64 L] or that caused a sheen on nearby surface water - 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). <p>(NOTE: Spills or overfills of hazardous substances 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 [94.64 L] and a spill or overflow of a hazardous substance that is less than the reportable quantity. (1)(3)(21)</p> <p>Verify that if these lesser quantities cannot be accomplished within 24 h, or another reasonable time period established by the implementing agency, the implementing agency is notified. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>UST CORROSION PROTECTION AND REPAIRS</p> <p>2-22. UST systems with corrosion protection must meet specific requirements (40 CFR 280.31).</p> <p>2-23. Repairs to USTs must be performed according to industry code (40 CFR 280.33, 280.43, and 280.44).</p>	<p>Determine which UST systems have corrosion protection. (1)(3)(21)</p> <p>Verify that the corrosion protection systems operate continuously to provide corrosion protection to the metal components that routinely contain regulated substances and are in contact with the ground. (1)(3)(21)</p> <p>Verify that all cathodic protection systems are tested within 6 mo after installation and every 3 yr thereafter. (1)(3)(21)</p> <p>Verify that UST systems with impressed current cathodic protection are inspected every 60 days. (1)(3)(21)</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. (1)(3)(21)</p> <p>Verify that inspections are carried out by a qualified cathodic protection tester. (1)(3)(21)</p> <p>Determine if there have been any repairs by reviewing the records and interviewing personnel. (1)(3)(21)</p> <p>Determine who does repairs to USTs and that the following procedures are used to repair USTs: (1)(3)(21)</p> <ul style="list-style-type: none"> - fiberglass reinforced tanks are repaired by the manufacturer's authorized representative or according to industry standards - metal pipe fittings and sections that have leaked due to corrosion are replaced, whereas fiberglass may be repaired according to manufacturer's specifications. <p>Verify that tanks and piping that have been replaced or repaired are tested for tightness within 30 days. (1)(3)(21)</p> <p>(NOTE: Tanks and piping need not be tested if:</p> <ul style="list-style-type: none"> - repairs are internally inspected - the repaired portion is already monitored monthly - an equally protective test is used.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-23. (continued)</p>	<p>Verify that within 6 mo of repair, tanks with cathodic protection systems are tested as follows: (1)(3)(21)</p> <ul style="list-style-type: none"> - every 3 yr thereafter for all cathodic protection systems - every 60 days for impressed current cathodic protection systems. <p>Verify that records of repairs are maintained for the life of the tank. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RELEASE DETECTION FOR USTs</p> <p>General</p> <p>2-24. Facilities with new and existing USTs are required to provide a method, or combination of methods of release detection (40 CFR 280.10(d), 280.40, and 280.45).</p>	<p>Verify that the installed release detection system can detect a release from any portion of the tank and the connected underground piping. (1)(3)(21)</p> <p>Verify that the appropriate schedule has been complied with (see Appendix 2-2). (1)(3)(21)</p> <p>(NOTE: Any pressurized delivery lines must be retrofitted by 22 December 1990.)</p> <p>(NOTE: 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.)</p> <p>Verify that records are kept as follows: (1)(3)(21)</p> <ul style="list-style-type: none"> - all written performance claims pertaining to any release detection system used for 5 yr from the date of installation - the results of any sampling, testing, or monitoring for 1 yr except the tank tightness results are kept until the next tank tightness test - the results of tank tightness testing until the next test is done - written documentation of calibration, maintenance, repair of release detection equipment permanently located onsite at least 1 yr after the servicing is done - schedules of required calibration and maintenance provided by the release detection equipment manufacturer for 5 yr after the date of installation.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RELEASE DETECTION FOR USTs</p> <p>Petroleum USTs</p> <p>2-25. UST systems containing petroleum must meet specific release detection system requirements (40 CFR 280.41, 280.43, and 280.44).</p>	<p>Verify that tanks are monitored every 30 days using one of the following methods (details of methods are provided in Appendix 2-3): (1)(3)(21)</p> <ul style="list-style-type: none"> - tank automatic gauging - vapor monitoring - groundwater monitoring - interstitial monitoring - other acceptable methods. <p>(NOTE: The following are exceptions:</p> <ul style="list-style-type: none"> - 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 - 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 - tanks which hold less than 550 gal [2081.98 L] may use weekly tank gauging.) <p>Verify that underground piping which routinely contains a regulated substance has the following release detection done as described in Appendix 2-3: (1)(3)(21)</p> <ul style="list-style-type: none"> - pressurized piping: <ul style="list-style-type: none"> - equipped with automatic line leak detector - annual tightness testing or monthly monitoring. - suction piping: <ul style="list-style-type: none"> - line tightness testing every 3 yr or monthly monitoring - no release detection system is needed for suction piping which is below grade and: <ul style="list-style-type: none"> - operates at less than atmospheric pressure - is sloped so that contents of pipe will roll back to tank when suction is released - only one check valve is included in each suction line - the check valve is located directly below and as close as practical to the suction pump.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
2-25. (continued)	(NOTE: 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.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RELEASE DETECTION FOR USTs</p> <p>Hazardous Substance USTs</p> <p>2-26. Hazardous substance USTs must meet specific release detection standards (40 CFR 280.42(a), 280.43, and 280.44).</p>	<p>Verify that tanks are monitored every 30 days using one of the following methods (details of methods are provided in Appendix 2-3): (1)(3)(21)</p> <ul style="list-style-type: none"> - tank automatic gauging - vapor monitoring - groundwater monitoring - interstitial monitoring - other acceptable methods. <p>(NOTE: The following are exceptions:</p> <ul style="list-style-type: none"> - 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 - 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 - tanks which hold less than 550 gal [2081.98 L] may use weekly tank gauging.) <p>Verify that underground piping which routinely contains a regulated substance has the following release detection done as described in Appendix 2-3: (1)(3)(21)</p> <ul style="list-style-type: none"> - pressurized piping: <ul style="list-style-type: none"> - equipped with automatic line leak detector - annual tightness testing or monthly monitoring. - suction piping: <ul style="list-style-type: none"> - line tightness testing every 3 yr or monthly monitoring - no release detection system is needed for suction piping which is below grade and: <ul style="list-style-type: none"> - operates at less than atmospheric pressure - is sloped so that contents of pipe will roll back to tank when suction is released - only one check valve is included in each suction line - the check valve is located directly below and as close as practical to the suction pump.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-27. Hazardous substance USTs must meet specific release detection standards by 22 December 1998 (40 CFR 280.42(b), 280.43, and 280.44).</p>	<p>Verify that existing hazardous substance USTs meet the requirements for new hazardous substance USTs by 22 December 1998 as stated below: (1)(3)(21)</p> <ul style="list-style-type: none"> - secondary containment is checked for evidence of a release at least every 30 days and is designed and constructed to: <ul style="list-style-type: none"> - contain regulated substances released until they are detected and removed - prevent releases of regulated substances to the environment at any time during the operational life of the UST - double-walled tanks are designed, constructed, and installed to: <ul style="list-style-type: none"> - contain releases from any portion of the inner tank within the outer-wall - detect failure of the inner wall - external liners, including vaults, are designed, constructed, and installed in such a manner that: <ul style="list-style-type: none"> - 100 percent of the capacity of the largest tank is contained within its boundary - the interference of precipitation or groundwater intrusion is prevented with the ability to contain or detect release of regulated substances - the tank is completely surrounded. <p>Verify that underground piping is equipped with secondary containment which satisfies the requirements for UST secondary containment. (1)(3)(21)</p> <p>Verify that piping which delivers regulated substances under pressure is equipped with an automatic line leak detector. (1)(3)(21)</p> <p>Verify that when other release detection methods are used, they are approved by the implementing agency. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RELEASE DETECTION FOR USTs</p> <p>USTs Connected to Emergency Generators</p> <p>2-28. UST systems containing fuel used solely for emergency generators should meet specific release detection system requirements (MP).</p>	<p>Verify that tanks are monitored every 30 days using the method in Appendix 2-3 except for: (1)(3)(21)</p> <ul style="list-style-type: none"> - 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 - 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 - tanks which hold less than 550 gal [2089.98 L] may use weekly tank gauging. <p>Verify that underground piping which routinely contains a regulated substance has the following release detection done according to the methods in Appendix 2-3: (1)(3)(21)</p> <ul style="list-style-type: none"> - pressurized piping: <ul style="list-style-type: none"> - equipped with automatic line leak detector - annual tightness testing or monthly monitoring - suction piping: <ul style="list-style-type: none"> - line tightness testing every 3 yr or monthly monitoring - no release detection system is needed for suction piping which is below grade and: <ul style="list-style-type: none"> - operates at less than atmospheric pressure - is sloped so that contents of pipe will roll back to tank when suction is released - only one check valve is included in each suction line - the check valve is located directly below and as close as practical to the suction pump.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>UST RELEASES</p> <p>2-29. Facilities with UST systems are required to report releases under specific conditions (40 CFR 280.50).</p> <p>2-30. Installations must investigate and confirm all suspected releases of a regulated substances requiring reporting within 7 days unless a corrective action is started immediately as detailed in 40 CFR 280.60 through 280.67 (40 CFR 280.52).</p> <p>2-31. Facilities with a confirmed release from petroleum or hazardous substance USTs are required to perform specific initial response actions within 24 h of a release (40 CFR 280.60 and 280.61).</p>	<p>Determine if the facility reported any and all releases which met the following criteria: (1)(3)(21)</p> <ul style="list-style-type: none"> - 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 - 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 - monitoring results indicate a possible release. <p>Verify that the implementing agency was notified within 24 h (or time period specified by the implementing agency) of the release. (1)(3)(21)</p> <p>Verify that tightness testing is done within 7 days of a suspected release to determine whether a leak is in the tank or the delivery piping. (1)(3)(21)</p> <p>Verify that if environmental contamination is the basis for suspecting a leak, and the tightness test does not indicate that a leak exists, a site check is done that measures for the presence of a release in the areas where contamination is most likely to be present. (1)(3)(21)</p> <p>(NOTE: If the results indicate that a leak has occurred corrective actions must be started.)</p> <p>(NOTE: If the tightness test does not indicate a leak and environmental contamination is not the basis for suspecting a release, no further investigation is needed.)</p> <p>Verify that facility personnel are aware of the following initial response actions: (1)(3)(21)</p> <ul style="list-style-type: none"> - the release is reported - immediate action is taken to prevent further release of the regulated substance into the environment - fire, explosion, and vapor hazards are identified and mitigated. <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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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-31. (continued)</p> <p>2-32. Facilities with a confirmed release from petroleum or hazardous substance USTs are required to perform specific initial abatement measures and site checks unless directed to do otherwise by the implementing agency (40 CFR 280.60 and 280.62).</p> <p>2-33. Facilities with a confirmed release from petroleum or hazardous substance USTs are required to assemble information about the site and nature of the release unless exempted by the implementing agency (40 CFR 280.60 and 280.63).</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 the following actions are performed: (1)(3)(21)</p> <ul style="list-style-type: none"> - as much of the substance as is necessary to prevent further release is removed from the UST system - 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 - monitoring and mitigation of any fire and safety hazards caused by vapors or free product is done - hazards from contaminated soils that are excavated or exposed are remedied - 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 - an investigation is done for the presence of free product and the removal of free product is done as soon as possible. <p>Verify that within 20 days after release confirmation a report is submitted to the implementing agency summarizing the initial abatement measures, site checks, and the resulting information and data collected. (1)(3)(21)</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 the following information is collected: (1)(3)(21)</p> <ul style="list-style-type: none"> - data on the nature and estimated quantities of the release - data from available sources and/or site investigations concerning surrounding population, water quality, use and approximate locations of wells potentially affected, subsurface soil conditions, locations of subsurface sewers, climatological conditions, and land use - results of site check - results of free product investigation. <p>Verify that within 45 days of the release confirmation this information is submitted to the implementing agency in a manner that demonstrates the applicability and technical adequacy or according to a format required by the implementing agency. (1)(3)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-35. Facilities with a confirmed release from petroleum or hazardous substance USTs are required to perform an investigation for soil and groundwater contamination (40 CFR 280.60 and 280.65).</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: (1)(3)(21)</p> <ul style="list-style-type: none"> - evidence that groundwater wells have been affected - free product is evident - evidence that contaminated soil is in contact with groundwater - the implementing agency requests an investigation. <p>Verify that the results of the investigation are submitted to the implementing agency according to a time schedule defined by the implementing agency. (1)(3)(21)</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:
<p>DEFERRED UST SYSTEMS</p> <p>2-36. Deferred UST systems (see definition) are required to meet specific standards (40 CFR 280.10(c) and 280.11).</p>	<p>Verify that deferred UST systems (whether single or double-walled) are not installed to store regulated substances unless: (1)(3)(21)</p> <ul style="list-style-type: none"> - releases due to corrosion or structural failure will be prevented for the operational life of the system - they are cathodically protected against corrosion, constructed of noncorrodible materials, steel clad with a noncorroding material, or designed to prevent release - they are constructed or lined with material that is compatible with the stored substance. <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 2-30 through 2-35). (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>UST DOCUMENTATION</p> <p>2-37. Facilities with USTs are required to meet specific reporting requirements (40 CFR 280.34 (a)).</p> <p>2-38. Facilities with USTs are required to meet specific recordkeeping requirements (40 CFR 280.34(b), 280.34(c), and 280.74).</p>	<p>Verify that the facility has submitted the following when applicable: (1)(3)(21)</p> <ul style="list-style-type: none"> - notifications of new USTs - release reports - planned or complete corrective actions - notice of closure or change-in-service. <p>Verify that records are kept of the following: (1)(3)(21)</p> <ul style="list-style-type: none"> - 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 repairs - closure records - results of any site investigations. <p>Verify that records are available at one of the following:(21)</p> <ul style="list-style-type: none"> - at the UST site and immediately available for inspection - at a readily available alternative site and provided for inspection.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>CHANGES-IN-SERVICE OR CLOSURE OF USTs</p> <p>2-39. USTs which are put out of service temporarily, must have continued maintenance (40 CFR 280.70).</p> <p>2-40. 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 280.71 (a)).</p>	<p>Determine if the facility has any out-of-service USTs. (1)(3)</p> <p>Verify that proper maintenance is being performed for the following: (1)(3)(21)</p> <ul style="list-style-type: none"> - corrosion protection - release detection. <p>Verify that if the UST has been out-of-service for near or over 1 yr, plans have been made for permanent closure. (1)(3)(21)</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 closed for 3 mo or more, the vent lines are open and functioning and all other lines, pumps, manways, and ancillary equipment is capped and secured. (1)(3)(21)</p> <p>Verify that if the UST has been out of service for more than 12 mo and does not meet the standards for new or upgraded USTs, it is permanently closed unless the implementing agency has provided an extension. (1)(3)(21)</p> <p>Determine if the facility is planning to close or change any USTs. (1)(3)(21)</p> <p>Verify that notification of changes were given within 30 days. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-41. UST closure must be done in one of the following methods:</p> <ul style="list-style-type: none"> - it is removed from ground - it is left in place with the contents removed, and filled with an inert solid material and closing it to all future outside access (40 CFR 280.71(b)). <p>2-42. Prior to a change-in-service, tanks must be emptied and cleaned and a site assessment conducted (40 CFR 280.71(c)).</p> <p>2-43. 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 280.72).</p> <p>2-44. Facilities with UST systems closed prior to 22 December 1988 must 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 280.73).</p>	<p>Determine if there are any closed USTs or USTs in the process of being closed at the facility. (1)(3)(21)</p> <p>Verify that tanks being permanently closed are emptied and cleaned by removing all liquids and accumulated sludges. (1)(3)(21)</p> <p>Determine if there are any possible abandoned USTs and if there are plans to close the UST off in an appropriate manner. (1)(3)(21)</p> <p>Determine if a site assessment was made to ensure that no releases to the environment have occurred by reviewing records. (1)(3)(21)</p> <p>Determine if there are any tanks which the facility has continued to use to store a nonregulated substance (a change-in-service). (1)(3)(21)</p> <p>Verify that prior to the change, the tank was emptied and cleaned. (1)(3)(21)</p> <p>Verify that prior to the change a site assessment was done. (1)(3)(21)</p> <p>Verify that measurements for the presence of a release have been done. (1)(3)(21)</p> <p>(NOTE: These requirements are met if one of the leak detection methods outlined in 40 CFR 280.43(e) and 280.43(f) have been met (see checklist items 2-23, 2-25 through 2-27).)</p> <p>Determine if the facility has any USTs which were closed prior to 22 December 1988. (1)(3)(21)</p> <p>Verify that the excavation zone of these USTs has been assessed and cleanup done as needed. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-45. Excavation zone assessment records shall be maintained for 3 yr (40 CFR 280.74).</p>	<p>Verify that excavation zone assessment records are maintained for 3 yr in one of the following ways: (1)(3)(21)</p> <ul style="list-style-type: none"> - by the facility - at the implementing agency if they cannot be maintained at the closed facility.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>HAZARDOUS WASTE STORAGE TANKS</p> <p>Small Quantity Generators (SQGs)</p> <p>2-46. SQGs must comply with certain storage tank requirements (40 CFR 262.34(d)(3) and 265.201(a) through 265.201(c)).</p>	<p>Determine if the facility is an SQG that stores or treats wastes in tanks.(21)</p> <p>Verify that: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - the tank prevents: <ul style="list-style-type: none"> - generation of extreme heat or pressure, fire or explosions, or violent reactions - production of uncontrolled toxic mists, fumes, dusts, or gases in quantities that would threaten human health or the environment - production of uncontrolled flammable fumes or gases in quantities that would pose a risk of fire or explosion - damage to structural integrity of the device or facility - threats to human health or the environment through other means - 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 - 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 - continuous feed tanks have a wastefeed cutoff or other stop/bypass system. <p>Verify that the following are inspected at the indicated times: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - discharge control equipment at least once each operating day - monitoring equipment (pressure and temperature gauges) at least once each operating day - waste level in tank at least once each operating day - construction material of the tank for corrosion or leakage weekly - surrounding area for leakage and/or contamination at least weekly.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>HAZARDOUS WASTE STORAGE TANKS</p> <p>Generators</p> <p>2-49. 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>2-50. Secondary containment on tank systems at generators must meet specific requirements (40 CFR 262.34(a)(1)(ii), 265.190(a), and 265.193(b) through 265.193(d)).</p>	<p>Verify that the following types of tanks used to store or treat hazardous waste have secondary containment: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - all new tank systems or components - all existing tank systems used to store or treat USEPA Hazardous Waste Numbers F020, F021, F022, F023, F026 and F027 - existing tank systems of known documented age that are 15 yr of age. <p>Verify that existing tank systems for which the age cannot be determined within 8 yr of 12 January 1987 and are at a facility that is older than 7 yr old are provided with secondary containment by time the facility reaches 15 yr of age or 12 January 1989, whichever comes later. (1)(3)(6)(21)</p> <p>(NOTE: The following are exempt from these requirements:</p> <ul style="list-style-type: none"> - 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 - tank systems, including sumps, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes.) <p>Verify that secondary containment meets the following criteria: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - it is designed, installed, and operated to prevent the migration of liquid out of the system - it is capable of detecting and collecting releases and accumulated liquids until removal is possible - it is constructed of or lined with materials compatible with the wastes - it is placed on a foundation or base that can provide appropriate support and prevent failure due to settlement, compression, or upset - 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 - it is sloped or designed to drain and remove liquids from leaks, spills, or precipitation. <p>Verify that spilled or leaked wastes are removed from secondary containment within 24 h or as timely as possible. (1)(3)(6)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-50. (continued)</p>	<p>Verify that secondary containment for tanks includes one or more of the following: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - a liner (external to the tank) - a vault - a double-walled tank - an equivalent approved device. <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>2-51. 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 external liner systems meet the following requirements: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - they are designed and operated so that 100 percent of the capacity of the largest tank within the boundary would be contained - they prevent run-on and infiltration of precipitation into the secondary containment unless the collection system has sufficient capacity to handle run-on or infiltration - it is free of cracks or gaps - it surrounds the tank completely and covers all surrounding earth likely to come into contact with the waste if there is a release - capacity is sufficient to contain precipitation from a 25 yr, 24 h rainfall event. <p>Verify that vault systems meet the following criteria: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - it will contain 100 percent of the capacity of the largest tank within its boundary - it prevents run-on and infiltration of precipitation unless there is sufficient excess capacity - it is constructed with chemical-resistant water stops at all joints - it has an impermeable interior coating that is compatible with the wastes it contains - has a means to protect against the formation and ignition of vapors within the vault if the waste is ignitable or reactive - it has an exterior moisture barrier or otherwise operated to prevent migration of moisture into the vault. <p>Verify that double-walled tanks meet the following criteria: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - it is designed as an integral structure so that any release is contained by the outer shell - it is protected from both corrosion of the primary tank and the external surface of the outer shell if constructed of metal - it has a built-in continuous leak detection system capable of detecting a release within 24 h.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-51. (continued)</p> <p>2-52. 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>2-53. Tank systems that are required to have secondary containment at generators 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 (i)).</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>Verify that ancillary equipment, except for the following, has secondary containment: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - aboveground piping that is visually inspected for leaks on a daily basis - welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis - sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis - pressurized aboveground piping systems with automatic shutoff valves that are visually inspected for leaks on a daily basis. <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 tank systems without secondary containment meet the following: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - for nonenterable underground tanks a leak test is conducted annually - 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. <p>Verify that the facility maintains a record of the results of testing and assessments. (1)(3)(6)(21)</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. (1)(3)(6)(21)</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>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-54. 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 was installed according to specific standards (40 CFR 262.34(a)(1)(ii) and 265.192).</p>	<p>Determine if the facility has any new tank systems. (1)(3)(6)(21)</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. (1)(3)(6)(21)</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. (1)(3)(6)(21)</p>
<p>2-55. 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>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. (1)(3)(6)(21)</p> <p>Verify that appropriate measures are taken to prevent overfill, including: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - spill prevention controls - overfill prevention controls - maintenance of sufficient freeboard to prevent overtopping by wave, wind action or precipitation for uncovered tanks.
<p>2-56. 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>Verify that ignitable or reactive wastes are not placed in a tank system, unless one of the following is met: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - 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 - 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 - the tank system is used solely for emergencies. <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 NFPA's <i>Flammable and Combustible Liquids Code</i> are maintained. (1)(3)(6)(21)</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. (1)(3)(6)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-56. (continued)</p> <p>2-57. Generators must conduct inspections of tank systems and associated equipment (40 CFR 262.34(a)(1)(ii) and 265.195).</p> <p>2-58. 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).</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. (1)(3)(6)(21)</p> <p>Verify that a schedule and procedure has been developed and is followed to inspect overfill controls at permitted sites. (1)(3)(6)(21)</p> <p>Determine if the following inspections are conducted at least once a day: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - data gathered from monitoring and detection equipment - overfill/spill control equipment at interim state facilities to ensure it is in good working order - aboveground portions of the tank to detect corrosion or releases - tank monitoring equipment (e.g., pressure and temperature gauges) - area surrounding tank including the secondary containment system for signs of leakage (wet spots, dead vegetation). <p>Verify that the proper operation of cathodic protection systems are inspected within 6 mo after initial installation and annually thereafter. (1)(3)(6)(21)</p> <p>Verify that all sources of impressed current are inspected and/or tested every other month. (1)(3)(6)(21)</p> <p>Verify that inspections are documented. (1)(3)(6)(21)</p> <p>Verify that the following steps are taken: (1)(3)(6)(21)</p> <ul style="list-style-type: none"> - the flow or addition of hazardous wastes to the tank is stopped - the hazardous waste is removed from the tank: <ul style="list-style-type: none"> - within 24 h of 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 - 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 - a visual inspection of the release is done and: <ul style="list-style-type: none"> - action is taken to prevent further migration to soils or surface or groundwater - any visible contamination of soil and surface water is removed and disposed. <p>Verify that notification is made within 24 h for any release to the environment to the Regional Administrator. (1)(3)(6)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>FLAMMABLE/ COMBUSTIBLE LIQUID STORAGE TANKS</p> <p>2-60. 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>2-61. Outside above-ground 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 tanks are built of steel unless: (1)(3)(4)(6)(21)</p> <ul style="list-style-type: none"> - the tank is installed underground - the properties of the liquid being stored requires materials other than steel be used - the tank is designed according to specifications embodying principles recognized as good engineering design for the materials used - it is an unlined concrete tank that stores flammable or combustible liquids having a gravity of 40 degrees API or heavier. <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 aboveground or inside buildings are of noncombustible construction. (1)(3)(4)(6)(21)</p> <p>(NOTE: Tanks designed for underground service not exceeding 2500 gal [9463.53 L] capacity may be used aboveground 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. (1)(3)(4)(6)(21)</p> <p>Verify that the normal operating pressure of a low pressure tank does not exceed the design pressure of the tank. (1)(3)(4)(6)(21)</p> <p>Verify that there is a minimum distance of 3 ft [0.91 m] between any two tanks. (1)(3)(4)(6)(21)</p> <p>Verify that the distance between any two adjacent tanks is not less than one-sixth the sum of their diameters. (1)(3)(4)(6)(21)</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 is not 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. (1)(3)(4)(6)(21)</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. (1)(3)(4)(6)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>2-63. 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>2-64. 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 sources of ignition such as open flames, smoking, welding and cutting, hot surfaces, sparks, and radiant heat are avoided. (1)(4)(6)(21)</p> <p>Verify that the tank is marked with a American Society of Mechanical Engineers (ASME) code stamp, API monogram, or the label of the Underwriters Laboratory as evidence of having had a strength test. (1)(3)(4)(6)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL STORAGE TANKS</p> <p>Generators</p> <p>2-65. The label USED OIL must be clearly marked on ASTs used to store used oil and fill pipes used to transfer used oil into underground storage facilities (40 CFR 279.22(c)).</p>	<p>(NOTE: See Section 7, Petroleum, Oil, and Lubricant (POL) Management for additional guidance on used oil.)</p> <p>(NOTE: The requirements for used oil generators do not apply to the following:</p> <ul style="list-style-type: none"> - household DIY used oil generators - vessels at sea or at port (in these cases generation occurs when it is transported ashore) - mixtures of used oil and diesel fuel mixed by the generators for use in the generators own vehicles - farmers who generate an average of 25 gal/mo [94.64 L/mo] or less of used oil from vehicles or machinery used on the farm in a calendar year.) <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 ASTs and fill pipes used to transfer used oil are clearly marked with the phrase USED OIL. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL STORAGE TANKS</p> <p>Collection Centers and Aggregation Points</p> <p>2-66. Do-It-Yourself (DIY) used oil collection centers are required to meet the same storage tank standards as used oil generators (40 CFR 279.30).</p>	<p>Verify that DIY used oil collection centers meet the requirements for storage tanks as used oil generators. (1)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL STORAGE TANKS</p> <p>Used Oil Burners</p> <p>2-67. Used oil burners are required to store used oil in containers that meet specific requirements (40 CFR 279.60(a) and 279.64(a) through 279.64(f)).</p>	<p>Verify that the containers at used oil burners meet the requirements outlined in the section titled Used Oil Storage Tanks - Generators. (1)(3)(21)</p> <p>Verify that containers used to store used oil have secondary containment that meets the following minimum requirements: (1)(3)(21)</p> <ul style="list-style-type: none"> - dikes, berms, or retaining walls - a floor that covers the entire area within the dikes, berms, or retaining walls - the system is impervious. <p>Verify that containers are labeled with the phrase USED OIL. (1)(3)(21)</p> <p>(NOTE: The following are exempt from meeting these requirements:</p> <ul style="list-style-type: none"> - the burning of used oil by a generator in an onsite space heater - the burning of used oil by a processor/re-refiner for purposes of processing.)

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Appendix 2-1
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	2-12 through 2-45
Excluded USTs (see definitions)	none	none
Deferred USTs (see definitions)	40 CFR 280.11	2-36
USTs storing fuel for emergency generators	40 CFR 280.20 through 280.22	2-12 through 2-16
	280.30 through 280.34	2-17, 2-20 through 2-23, and 2-37 through 2-38
	280.50 through 280.53	2-21, 2-29, 2-30
	280.60 through 280.67	2-31 through 2-35
	280.70 through 270.74	2-38 through 2-45
	Management Practices	2-28

Appendix 2-2

Schedule for Phase-In of Release Detection (40 CFR 280.40(c))

Year system was installed	Year when release detection is required (by 22 December 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 280.41(b)(1).

RD = must begin release detection for tanks and suction piping.

Appendix 2-3

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 1/8 in.
- 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 1 ft 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 1/8 in. 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 1/8 in.
- iv. a leak is suspected and subject to the requirements of subpart E 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

(continued)

Appendix 2-3 (continued)

- 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 ground water, 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 ground water 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 ground water 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 1/8 in. of free product on top of the ground water in the monitoring wells

(continued)

Appendix 2-3 (continued)

- 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 ground water 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.

(continued)

Appendix 2-3 (continued)

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 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)
2. USTs that do not meet the standards of 40 CFR 280.20 or 280.21 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 which 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.² 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 A2 through A4 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 below-grade piping operates at less than atmospheric pressure
 - b. the below-grade 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.

INSTALLATION:	COMPLIANCE CATEGORY: AST/UST MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		

Section 3

Hazardous Materials Management

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SECTION 3

HAZARDOUS MATERIALS MANAGEMENT

A. Applicability

This section primarily addresses the proper storage and handling of chemicals and the spill contingency and response requirements related to hazardous materials at Centers for Disease Control and Prevention (CDC) facilities. Oil, pesticides and asbestos are hazardous materials which require special management practices at CDC 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 (MP) associated with minimizing impacts on the environment due to spills or releases of hazardous materials because of improper storage and handling.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

- *The Occupational Safety and Health Act (OSHA)*. 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 are 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.

- *The Oil Pollution Act 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. This includes the preparation of a response plan, construction of oil carriers with double hulls, and inspection of spill response equipment.
- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*. This EO, dated 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.
- EO 12856, *Federal Compliance With Right-To-Know Laws and Pollution Prevention Requirements*. This EO, dated 3 August 1993, requires the heads of Federal agencies to develop a written pollution prevention strategy for their agencies. The head of each agency shall ensure that each of its covered facilities develops a written pollution prevention plan no later than the end of 1995. Federal agencies are required to conduct assessments of their facilities as necessary to ensure development of these plans and of the facilities pollution prevention program. Each Federal agency will also develop voluntary goals to reduce the agency's total releases of toxic chemicals to the environment, and offsite transfers of such chemicals for treatment and disposal are publicly reported.
- The National Fire Code, *Flammable and Combustible Liquids Code NFPA 30*, prohibits the storage of Class I and Class II liquids in plastic containers in general-purpose warehousing.

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 National Fire Protection Association (NFPA) *Fire Protection Guide on Hazardous Materials* (Pamphlets 325A, 325M, 49, 491F and 704M).

D. CDC Regulations/Requirements

This section includes a description of the applicable CDC regulations, policies, and requirements. None are currently available.

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).

- **Hazardous Substance Release Reporting** - Facilities are required to notify the National Response Center (NRC) immediately if it releases hazardous substances in excess of or equal to reportable quantities. Facilities with continuous and stable releases have limited notification requirements. If an 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** - An facility with extremely hazardous substances in amounts equal or greater than the limits found in Appendix 3-1 are required to notify the emergency response commission and designate a representative to participate in local emergency planning (40 CFR 355.10 through 355.30 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 sheets to the emergency commission and fire department with jurisdiction over the facility. MSDSs will be updated 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 1910.1200(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 [227.12 L] of Class I or Class II liquids and no more than 120 gal [454.23 L] 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 [0.91 m] 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 [4163.95 L] of liquid are stored adjacent to a building. More than 1100 gal [4163.95 L] can be stored if there are 10 ft [3.05 m] 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 include 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)).
- 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).
- Radioactive Materials - Personnel working with radioactive materials are required to receive training in addition to the standards hazardous communications training. There are also additional release reporting requirements and sign posting requirements depending on the level of the radioactive materials being stored and used. Containers of radioactive materials are required to be labeled with the radiation caution symbol and the words CAUTION: RADIOACTIVE MATERIALS. If radioactive materials are stored in a nonradiation area, they must be secured against unauthorized removal (29 CFR 1910.96).
- 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, according to this representative, Subchapter C does not apply when government personnel are transporting hazardous materials in government vehicles.

F. Responsibility for Compliance

- Occupational Health and Safety Committees. Each center has its own Occupational Health and Safety Committee that is responsible for reviewing safety issues, including the handling and storage of hazardous materials, and setting policy within its center. Each committee sends out one representative to a central committee. The central Occupational Health and Safety Committee is an information-sharing body only, has no authority over the individual centers.
- Radiation Protection and fire Safety Section. This section, a part of the Chemical and Physical Hazards Branch of the Office of Health and Safety, has responsibility for ensuring that flammable/combustible materials are stored in a safe manner.

- **Industrial Hygiene Section.** This section, a part of the Chemical and Physical Hazards Branch of the Office of Health and Safety, has responsibility for ensuring that hazardous materials (except for flammable/combustible materials) are stored in a safe manner.

G. Key Compliance Definitions

- **Aerosol** - a material which is dispensed from its container as a mist, spray, or foam by a propellant under pressure (29 CFR 1910.106(a)(1)).
- **Airborne Radioactivity Area** - This includes (29 CFR 1910.96(e)(4)(i):
 1. any room, enclosure, or operating area in which airborne radioactive materials, composed wholly or partly of radioactive material, exist in concentration in excess of the amounts specified in column 1 of Table 1 of Appendix B of 10 CFR 20
 2. any room, enclosure, or operating area in which airborne radioactive materials exist in concentrations that, averaged over the number of hours in any week during which individuals are in the area, exceeds 25 percent of the amounts specified in column 1 of Table 1 of Appendix B to 10 CFR 20.
- **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)).
- **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)).
- **Boiling Point** - the temperature at which a liquid starts to boil when at atmospheric pressure (14.7 psia [760 mm]), as determined by ASTM test D-86-72) (29 CFR 1910.106(a)(5)).
- **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)).
- **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 IIIA 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 IIIB liquids are those having flashpoints at or above 200 °F (93.3 °C).
- *Extremely Hazardous Substance* - all substances listed in Appendices A and B of 40 CFR 355 [see the column titled *Extremely Hazardous Substances* 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 2 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 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)).
 - *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 RQ* in Appendix 3-1] (40 CFR 302.3).
 - *High Radiation Area* - any area accessible to personnel in which there exists radiation at such levels that a major portion of the body could receive in any 1 h a dose in excess of 100 mrem (29 CFR 1910.96(d)(3)(iii)).
 - *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)).

- *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 1910.106(a)(17)):
 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.
- *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)).
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *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 1200(c)).
- *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)).
- *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)).
- *Radiation* - includes alpha rays, beta rays, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles, but does not include sound or radio waves, visible light, or infrared or ultraviolet (29 CFR 1910.96(a)(1)).
- *Radiation Area* - any area accessible to personnel in which there exists radiation, originating in whole or in part with licensed material, at such levels that a major portion of the body could receive in any 1 h a dose in excess of 5 mrems, or in any 5 consecutive days a dose in excess of 100 mrems (29 CFR 1910.96(d)(3)(ii)).
- *Radioactive Material* - any material that emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations (29 CFR 1910.96(a)(2)).
- *Safety Can* - an approved flammable liquid container having a spring-closing lid, spout cover and other features designed to safely relieve internal pressure and to provide safe storage for the liquid (29 CFR 1910.106(a)(29)).

- *Select Carcinogens* - any substance which meets one of the following criteria (29 CFR 1910.106(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.

- *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).

- *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

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PEOPLE OR GROUPS*:	REFER TO PAGE NUMBER:
All Facilities	3-1 through 3-12	(1)(2)(4)(5)(6)(21)	3-13
Personnel Training	3-13 and 3-14	(1)(4)(8)(21)	3-19
Hazardous Materials in Laboratories	3-15 through 3-18	(1)(2)(4)(5)(8)(9)(21)	3-23
Releases	3-19 through 3-22	(1)(2)(4)(5)(21)	3-27
Emergency Planning	3-23	(1)(2)(4)(5)(21)	3-31
Right-To-Know	3-24 through 3-26	(1)(4)(5)(6)(21)	3-33
Flammable/Combustible Liquids Storage			
General	3-27 through 3-35	(1)(3)(4)(5)(6)(21)	3-35
Industrial Areas	3-36 through 3-38	(1)(4)(6)(21)	3-41
Compressed Gases Storage	3-39	(1)(4)(5)(21)	3-43
Radioactive Materials	3-40 through 3-45	(1)(2)(6)(21)	3-45
Transportation	3-46 through 3-57	(1)(2)(3)(4)(21)	3-49

*CONTACT/LOCATION CODE:

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (3) Facilities Operations Branch
- (4) Section Chiefs
- (5) Industrial Hygiene Section
- (6) Radiation Protection and Fire Safety Section
- (8) Training Activity
- (9) Medical Services
- (21) Health and Safety Officer



HAZARDOUS MATERIALS MANAGEMENT

Records To Review

- Hazardous Substance Spill Control and Contingency Plan
- Spill records
- Emergency plan documents
- MSDSs
- Inventory records
- Hazardous substance release reports
- Shipping papers
- Training records
- Placarding of hazardous materials

Physical Features To Inspect

- Hazardous material storage areas
- Shop activities
- Shipping and receiving area
- Hazardous material transfer areas

People To Interview

- Environmental Program Manager
- Facility Supervisor/Director
- Facilities Operations Branch
- Section Chiefs
- Industrial Hygiene Section
- Radiation Protection and Fire Safety Section
- Training Activity
- Medical Services
- Health and Safety Officer

**COMPLIANCE CATEGORY:
HAZARDOUS MATERIALS MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>3-1. 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>3-2. Copies of all relevant Federal, Agency, state, and local regulations and guidance documents on hazardous materials should be available at the facility (MP).</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. (1)(21)</p> <p>Verify that copies of the following regulations are available and kept current: (1)(2)(21)</p> <ul style="list-style-type: none"> - EO 12088, <i>Federal Compliance with Pollution Control Standards.</i> - EO 12856, <i>Federal Compliance with Right-To-Know Laws and Pollution Prevention Requirements,</i> - 29 CFR 1910, <i>Occupational Safety and Health Standards.</i> - 40 CFR 300, <i>National Oil and Hazardous Substances Pollution Contingency Plan.</i> - 40 CFR 302, <i>Reportable Quantities of Hazardous Materials (Table 302.4).</i> - 40 CFR 355, <i>Emergency Planning and Notification.</i> - 40 CFR 370, <i>Hazardous Chemical Reporting: Community Right-To-Know.</i> - 40 CFR 372, <i>Toxic Chemical Release Reporting and Community Right-To-Know.</i> - 49 CFR 171, <i>General Information, Regulations, and Definitions.</i> - 49 CFR 172, <i>Hazardous Materials Tables, Hazardous Materials Communications Requirements and Emergency Response Information Requirements.</i> - 49 CFR 173, <i>Shippers, General Requirements for shipments and Packaging.</i> - 49 CFR 178, <i>Specifications by Packaging.</i> - 49 CFR 179, <i>Specifications for Tank Cars.</i> - NFPA, <i>Fire Protection Guide of Hazardous Materials.</i> - Applicable state and local regulations.

(1) Environmental Program Manager (2) Facility Supervisor/Director (3) Facility Operations Branch (4) Section Chiefs (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety (8) Training Activity (9) Medical Services (11) Procurement and Grants Office (12) Warehouse (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
HAZARDOUS MATERIALS MANAGEMENT
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-3. Facilities are required to abide by state and local regulations concerning hazardous materials (EO 12088, Section 1-1).</p>	<p>Verify that the facility is abiding by state and local requirements. (1)(2)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies. (21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - transportation of hazardous materials - notification requirements - response plan requirements - spill response requirements.)
<p>3-4. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of finding).</p>	<p>Determine if any new regulations have been issued since the finalization of the manual.(1)(2)(21)</p> <p>Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(2)(21)</p> <p>Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(2)(21)</p>
<p>3-5. 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. (1)(2)(4)(5)(6)(21)</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 items in Hazardous Waste Management.)</p>
<p>3-6. CDC should maintain inventory control over the procurement, distribution, storage, and disposal of hazardous materials (MP).</p>	<p>Verify that each laboratory documents hazardous materials requirements. (1)(2)(21)</p> <p>Verify that each laborers inventories hazardous materials on hand and assesses hazardous materials management. (1)(2)(21)</p> <p>Verify that centralized inventory and management records are maintained. (1)(2)(21)</p>
<p>3-7. Hazardous materials storage sites should be inspected by safety personnel (MP).</p>	<p>Determine if safety personnel inspects hazardous material storage sites and which sites are inspected. (1)(5)(6)(21)</p> <p>Verify that corrective actions have been made when needed as noted in the safety inspection records. (1)(5)(6)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-8. 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>3-9. Specific persons should be designated responsible for hazardous materials storage areas, and the precise nature of their responsibilities should be specified (MP).</p> <p>3-10. 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>Determine if the facility has coordinated efforts with the local fire department. (1)(2)(6)(21)</p> <p>Determine if the department is aware of areas that are at high risk for chemical incidents. (1)(2)(6)(21)</p> <p>Verify that specific individuals have been designated responsible for hazardous materials storage areas. (1)(2)(4)(21)</p> <p>Verify that the individuals designated responsible for hazardous materials storage areas are aware of the precise nature of their responsibilities. (1)(2)(4)(21)</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. (1)(2)(5)(21)</p> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> - hazardous waste - tobacco or tobacco products - wood or wood products - 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"> - is formed to a specific shape or design during manufacture - has end use functions dependent in whole or in part upon its shape or design during end use - food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel - 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 - cosmetics which are packaged for sale or intended for personal use - 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

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-11. (continued)</p>	<ul style="list-style-type: none"> - has end use functions dependent in whole or in part upon its shape or design during end use - food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel - 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 - cosmetics which are packaged for sale or intended for personal use - 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 - ionizing and nonionizing radiation - biological hazards.) <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>3-12. Specific house-keeping requirements must be met in areas where hazardous materials are stored (29 CFR 1910.176(c)).</p>	<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. (1)(2)(5)(21)</p> <p>(NOTE: The following are suggested housekeeping practices:</p> <ul style="list-style-type: none"> - drums/containers are not leaking and are tightly sealed - drip pans and/or absorbent material are placed under containers - dispensing areas are located away from catch basins and storm drains.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PERSONNEL TRAINING</p> <p>3-13. Facilities are required to have a written hazard communication program which is designed to provide all employees with information about the hazardous chemicals to which they are exposed (29 CFR 1910.1200(b)(6) and 1910.1200(e)(1)).</p>	<p>Verify that there is a written hazard communication program that contains the following: (1)(4)(8)(21)</p> <ul style="list-style-type: none"> - how general training will be done to inform employees of issues such as MSDSs and hazardous materials labels and other warning signs - a list of the hazardous chemicals known to be present (can be done for the entire workplace or individual work areas) - how training will be done - 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. <p>(NOTE: This requirement also applies to laboratories. It also applies to work operations where employees only handle chemicals in sealed containers which are not opened under normal conditions of use.)</p> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> - hazardous waste - tobacco or tobacco products - wood or wood products - 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"> - is formed to a specific shape or design during manufacture - has end use functions dependent in whole or in part upon its shape or design during end use - food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel - 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 - cosmetics that are packaged for sale or intended for personal use - 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 - ionizing and nonionizing radiation - biological hazards.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-14. Personnel working with hazardous materials are required to be trained in their use and the potential hazards of such materials (29 CFR 1910.1200(b)(3)(iii), 1910.1200(b)(4)(iii), 1910.1200(b)(6), and 1910.1200(h)).</p>	<p>Verify that employees are provided with information and trained on hazardous chemicals in their workplace at the time of initial assignment and whenever a new hazard is introduced into the workplace. (1)(4)(8)(21)</p> <p>Verify that employees are informed of the following: (1)(4)(8)(21)</p> <ul style="list-style-type: none"> - any operations in their work areas where hazardous chemicals are present - the location and availability of the written hazard communication program, including the required lists of hazardous chemicals and MSDSs. <p>Verify that training includes: (1)(4)(8)(21)</p> <ul style="list-style-type: none"> - methods and observations to use to detect a release - the physical and health hazards of the chemicals in the work areas - protective measures and procedures to use - 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>(NOTE: These requirements also apply to laboratories. They 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> <p>(NOTE: These requirements do not apply to:</p> <ul style="list-style-type: none"> - hazardous waste - tobacco or tobacco products - wood or wood products - 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"> - is formed to a specific shape or design during manufacture - has end use functions dependent in whole or in part upon its shape or design during end use - food or alcoholic beverages which are sold, used, or prepared in a retail establishment and foods intended for consumption by personnel - 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 - cosmetics that are packaged for sale or intended for personal use - 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

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
3-14. (continued)	- ionizing and nonionizing radiation - biological hazards.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>HAZARDOUS MATERIALS IN LABORATORIES</p> <p>3-15. 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"> - uses of hazardous chemicals that do not meet the definition of laboratory use - laboratory uses of hazardous chemicals which provide no potential for exposure such as: <ul style="list-style-type: none"> - commercially prepared kits such as pregnancy tests in which all the reagents needed to conduct the test are contained in the kit - procedures using chemically-impregnated test media such as Dip-and Read tests.) <p>Verify that a written Chemical Hygiene Plan exists and is: (1)(2)(4)(5)(21)</p> <ul style="list-style-type: none"> - capable of protecting employees from health hazards associated with hazardous chemicals in the laboratory - capable of keeping exposure to regulated substances below required limits. <p>Verify that the plan is readily available to employees and employee representatives. (1)(2)(4)(5)(21)</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: (1)(2)(4)(5)(21)</p> <ul style="list-style-type: none"> - standard operating procedures relevant to safety and health considerations to be followed - 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 - 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 - provisions for employee information and training - circumstances and situations which require prior approval from a designated individual - provisions for medical consultations and medical exams - designation of individuals responsible for the implementation of the plan - assignment of a Chemical Hygiene Officer and, if appropriate, establishment of a Chemical Hygiene Committee - 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"> - establishment of a designated area - use of containment devices such as fume hoods or glove boxes - procedures for safe removal of contaminated waste - decontamination procedures.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
3-15. (continued)	<p>Verify that the plan is reviewed annually and updated as needed. (1)(2)(4)(5)(21)</p>
3-16. 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>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. (1)(4)(5)(8)(21)</p> <p>(NOTE: The frequency of refresher training is to be determined by the facility.)</p> <p>Verify that employees are informed of: (1)(4)(5)(8)(21)</p> <ul style="list-style-type: none"> - the requirements to be trained and informed - the location and availability of the Chemical Hygiene Plan - the permissible exposure limits for OSHA regulated substances or recommended exposure levels for other hazardous chemicals where there is no OSHA limit - signs and symptoms associated with exposure - the location and known availability of known reference material such as MSDSs. <p>Verify that training includes: (1)(4)(5)(8)(21)</p> <ul style="list-style-type: none"> - methods and observations that may be used to detect the presence of or release of a hazardous chemical - the physical and health hazards of chemicals in the work area - the measures employees can take to protect themselves - applicable details of the Chemical Hygiene Plan.
3-17. 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>Verify that labels on incoming containers of hazardous chemicals are not removed or defaced. (1)(4)(5)(21)</p> <p>Verify that MSDSs are maintained and readily accessible to lab employees. (1)(4)(5)(21)</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. (1)(4)(5)(21)</p> <p>Verify that if the facility is developing a chemical substance as a byproduct and the composition is not known, it is assumed to be hazardous. (1)(4)(5)(21)</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 (see checklist items 3-10, 3-11, 3-13, and 3-14). (1)(4)(5)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-18. 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. (1)(4)(5)(9)(21)</p>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RELEASES</p> <p>3-19. Absorbent materials should be available for spill and/or release cleanup in areas where hazardous materials are used or stored (MP).</p> <p>3-20. Releases in excess or equal to reportable quantities of hazardous substances shall be reported to the NRC immediately (40 CFR 302.1 through 302.6).</p> <p>3-21. Facilities with releases that are continuous and stable in quantity and rate are required to meet limited notification requirements (40 CFR 302.8).</p>	<p>Verify that absorbent materials are available for spill cleanup. (1)(2)(4)(21)</p> <p>Verify that spills in excess of the reportable quantities listed in Appendix 3-1 have been reported. (1)(2)(4)(5)(21)</p> <p>Verify that a procedure is in place for the notification of the NRC immediately after becoming aware of the release. (1)(2)(4)(5)(21)</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: (1)(2)(4)(5)(21)</p> <ul style="list-style-type: none"> - 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 - 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. <p>(NOTE: Notification requirements for radionuclide releases are not included in this guide.)</p> <p>Determine if the facility has any releases that are continuous and stable in quantity and rate. (1)(2)(4)(5)(21)</p> <p>Verify that the following notifications have been given: (1)(2)(4)(5)(21)</p> <ul style="list-style-type: none"> - initial telephone notification - initial written notification within 30 days of the initial telephone notification - followup notification within 30 days of the first anniversary date of the initial written notification - notification of changes in: <ul style="list-style-type: none"> - the composition or source of the release - information submitted in the initial written notification - the follow-up notification required on the first anniversary date of the initial written - 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.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-22. (continued)</p>	<ul style="list-style-type: none"> - any known or anticipated acute or chronic health risks associated with the emergency, and, where appropriate, advice regarding medical attention necessary for exposed individuals - 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) - the names and telephone numbers of the person or persons to be contacted for further information. <p>Verify that after the immediate verbal notification, a followup written emergency notification is produced which contains the same information detailed in the verbal notice plus: (1)(2)(4)(5)(21)</p> <ul style="list-style-type: none"> - actions taken to respond to an contain the release - any known or anticipated acute or chronic health risks associated with the risk - advice regarding medical attention necessary for exposed individuals as necessary. <p>(NOTE: These release notification requirements do not apply to the following:</p> <ul style="list-style-type: none"> - any release which results in exposure to persons solely within the boundary of the facility - any release which is a federally permitted release as defined in CERCLA - any release that is continuous and stable in quantity and rate - any release of a pesticide product exempt from CERCLA reporting - any release not meeting the definition of a release - any radionuclide release which occurs: <ul style="list-style-type: none"> - naturally in the soil from land holdings such as parks, golf courses, or other large tracts of land - naturally from the disturbance of the land for purposes other than mining, such as for agricultural or construction activities - from the dumping of coal and coal ash at utility and industrial facilities with coal-fired boilers - from coal and coal ash piles at utility and industrial facilities with coal-fired boilers.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>EMERGENCY PLANNING</p> <p>3-23. Facilities where there are extremely hazardous substances present in amounts equal to or greater than the threshold limits found in Appendix 3-1 are required to follow specific emergency planning procedures (EO 12856; 40 CFR 355.30 and 355 Appendix A).</p>	<p>Determine if the facility has any of the items listed in Appendix 3-1 as extremely hazardous substances in amounts equal to or greater than those listed in Appendix 3-1. (1)(2)(4)(5)(21)</p> <p>Verify that the facility has notified the state emergency response commission, or Governor if there is not emergency response commission, that the facility is subject to emergency planning requirements within 60 days after the facility first becomes subject to these requirements. (1)(2)(4)(5)(21)</p> <p>Determine whether the facility has representatives for contact by internal and external parties. (1)(2)(4)(5)(21)</p> <p>Verify that the facility has notified the local emergency planning committee, or Governor if there is no committee, of the facility representative on or before 3 March 1994. (1)(2)(4)(5)(21)</p> <p>Verify that the facility is actively participating in offsite planning by interviewing the facility point of contact and reviewing the files. (1)(2)(4)(5)(21)</p> <p>Verify that a procedure is in place to notify the local emergency planning committee of changes at the facility that are relevant to emergency planning. (1)(2)(4)(5)(21)</p>



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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RIGHT-TO-KNOW</p> <p>3-24. Facilities which are required to prepare or have available a MSDS for a hazardous chemical under OSHA are required to meet specific MSDS reporting requirements for planning purposes (EO 12856; 40 CFR 370.20, 370.21, and 370.28).</p>	<p>Verify that MSDSs are submitted to the emergency commission and the fire department with jurisdictions over the facility for each hazardous chemical present at the facility according to the following thresholds by 3 August 1994: (1)(4)(5)(6)(21)</p> <ul style="list-style-type: none"> - for all hazardous chemicals present at the facility 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) - for all extremely hazardous substances present at the facility in amounts greater than or equal to 500 lb (227 kg) or the threshold planning quantity (see Appendix 3-1). <p>(NOTE: Commonly overlooked substances requiring an MSDS are propane and petroleum based fuels.)</p> <p>Verify that if the facility has not submitted MSDSs, the following have been submitted: (1)(4)(5)(6)(21)</p> <ul style="list-style-type: none"> - a list of hazardous chemicals for which the MSDS is required, grouped by hazard category - the chemical or common name of each hazardous chemical - any hazardous component of each hazardous chemical except when reporting mixture. <p>Verify that revised MSDSs are provided within 3 mo after the discovery of significant new information concerning the hazardous chemical. (1)(4)(5)(6)(21)</p> <p>(NOTE: The facility may fulfill these reporting requirements for a hazardous chemical that is a mixture of hazardous chemicals by doing one of the following:</p> <ul style="list-style-type: none"> - providing the required information on each component in the mixture which is a hazardous chemical - providing the required information on the mixture itself.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-25. Facilities which are required to prepare or have available an MSDS for a hazardous chemical under OSHA are required to meet specific inventory reporting requirements for planning purposes (EO 12856; 40 CFR 370.20, 370.25 and 370.28).</p>	<p>Verify that the Tier I (or Tier II) forms are submitted to the emergency commission and the fire department with jurisdictions over the facility for each hazardous chemical present at the facility according to the following thresholds by 1 March 1995 and annually thereafter: (1)(4)(5)(6)(21)</p> <ul style="list-style-type: none"> - for all hazardous chemicals present at the facility 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) - for all extremely hazardous substances present at the facility in amounts greater than or equal to 500 lb (227 kg) or the threshold planning quantity (see Appendix 3-1). <p>(NOTE: Commonly overlooked substances requiring an MSDS are propane and petroleum based fuels.)</p> <p>(NOTE: The facility may fulfill these reporting requirements for a hazardous chemical that is a mixture of hazardous chemicals by doing one of the following:</p> <ul style="list-style-type: none"> - providing the required information on each component in the mixture which is a hazardous chemical - providing the required information on the mixture itself.)
<p>3-26. As of 1 July 1995 facilities 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 record keeping requirements (EO 12856; 40 CFR 372.22 through 372.30).</p>	<p>Determine if facilities meeting the listed criteria exceed the following threshold levels: (1)(4)(5)(6)(21)</p> <ul style="list-style-type: none"> - has manufactured or processed 25,000 lb/yr [11,337.31 kg/yr] of toxic chemicals - has used 10,000 lb [4540 kg] of toxic chemicals in other ways during the year. <p>(NOTE: Articles containing toxic chemicals are not included in calculations of total toxic chemical present at the facility. See 40 CFR 372.30(b)(3) for procedure to determine whether an excess has occurred.)</p> <p>Verify that facility annually submits a completed USEPA Form R to the USEPA and state on or before 1 July of the next year. (1)(4)(5)(6)(21)</p> <p>Verify that facilities retain the following records for 3 yr: (1)(4)(5)(6)(21)</p> <ul style="list-style-type: none"> - a copy of each report submitted - all supporting materials and documentation used to make the compliance determination.

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**COMPLIANCE CATEGORY:
HAZARDOUS MATERIALS MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>FLAMMABLE/ COMBUSTIBLE LIQUIDS STORAGE</p> <p>General</p> <p>3-27. Specific management practices should be considered when storing and handling flammable/combustible materials (MP).</p>	<p>(NOTE: The requirements pertaining to the handling, storage and use of flammable/combustible liquids with a flashpoint below 200 °F [93.33 °C] outlined through 29 CFR 1910.106 (checklist items 3-28 through 3-38) do not apply to the following (29 CFR 1910.106(j)):</p> <ul style="list-style-type: none"> - bulk transportation of flammable/combustible liquids - storage, handling, and use of fuel oil tanks and containers connected with oil burning equipment - storage of flammable and combustible liquids on farms - liquids without a flashpoint that may be flammable under some conditions, such as halogenated hydrocarbons and mixtures containing halogenated hydrocarbons - mists, sprays, or foams, except in flammable aerosols - the following facilities when they meet NFPA Standards: <ul style="list-style-type: none"> - drycleaning plants - manufacture of organic coatings - solvent extraction plants - stationary combustion engines and gas turbines.) <p>Verify that the following management practices are followed: (1)(3)(4)(5)(6)(21)</p> <ul style="list-style-type: none"> - items are not stored against pipes or coils producing heat - there are no positive sources of ignition (open flames, welding, radial heat, mechanical sparks) in the immediate area - paint drums that are stored horizontally are rolled a half turn every 90 days - containers of paint are palletized prior to storage - aerosol containers are stored in well-ventilated areas. <p>Verify that containers are stored and handled such that: (1)(3)(4)(5)(6)(21)</p> <ul style="list-style-type: none"> - open flame devices are not in use in the storage area - combustible materials, other than wood pallets used in the storage of flammable/combustibles, are not stored in the storage facility - handling is done so as to avoid damaging the label - materials received without a date of manufacture label are marked with the shipping document date - leaking containers are removed from the storage area immediately - 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 - there are no open containers.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-28. Drums and other containers of less than 60 gal [227.12 L] individual capacity and portable tanks less than 660 gal [2498.37 L] 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>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 [3.79 L] capacity may be used for a Class IA or IB flammable liquid if: (1)(3)(4)(5)(6)(21)</p> <ul style="list-style-type: none"> - the liquid would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container - the user's process either would require more than 1 pt [0.47 L] of a Class IA liquid or more than 1 qt [0.95 L] 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. <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. (1)(3)(4)(5)(6)(21)</p> <p>(NOTE: These standards do not apply to:</p> <ul style="list-style-type: none"> - storage of containers in service stations, - Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine - 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.)
<p>3-29. 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>	<p>Verify that exits or common traffic routes are not blocked. (1)(4)(6)(21)</p> <p>(NOTE: These standards do not apply to:</p> <ul style="list-style-type: none"> - storage of containers in service stations - Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine - 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.)
<p>3-30. 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: (1)(4)(6)(21)</p> <ul style="list-style-type: none"> - no more than 60 gal [227.12 L] of Class I or Class II liquids nor any more than 120 gal [454.23 L] of Class III liquids are stored in the cabinet - the cabinets are fire-resistant - cabinets are constantly closed and are conspicuously labeled FLAMMABLE--KEEP FIRE AWAY.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-31. Storage cabinets used for the storage of flammable/combustible liquids should meet specific requirements (MP).</p> <p>3-32. Flammable/combustible storage rooms inside of buildings must meet certain specifications (29 CFR 1910.106 (d)(4)).</p>	<p>Verify that storage cabinets meet the following: (1)(4)(6)(21)</p> <ul style="list-style-type: none"> - materials within the cabinet are segregated - there are no open containers within the cabinet - all containers in the cabinet are labeled. <p>Verify that the facility's flammable/combustible storage rooms meet the following: (1)(4)(6)(21)</p> <ul style="list-style-type: none"> - the walls meet fire resistance test NFPA 251-1969 - a 4 in [10.16 cm] raised sill or ramp is provided to adjacent rooms or buildings, or the floor of the storage area is 4 in. [10.16 cm] lower than the surrounding floors - an open grated trench that drains to a safe area is in the building if a sill or ramp is not present - liquid tight wall/ floor joints exist - self-closing fire doors exist (NFPA 80) - the electrical wiring and equipment meet NFPA 70 requirements - the storage in the rooms meet the requirements in Appendix 3-3 - there is either gravity or mechanical exhaust ventilation system - the exhaust system provides for six changes of air in the room per hour - mechanical exhaust systems are controlled by a switch outside the door and have exhaust outlets on exterior walls - for gravity ventilation, the fresh air intake is on exterior walls - there is one clear aisle at least 3 ft [0.91 m] wide - containers over 30 gal [113.56 L] capacity are not stacked one upon the other - dispensing is done by an approved pump or self-closing faucet.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-33. 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>3-34. Flammable/combustible materials stored outside of buildings must meet certain storage and handling criteria (29 CFR 1910.106 (d)(6)).</p>	<p>Verify that the following requirements are met: (1)(4)(6)(21)</p> <ul style="list-style-type: none"> - if the storage area is located 50 ft [15.24 m] 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 - the storage arrangements outlined in Appendix 3-4 are met - containers are separated by pallets or dunnage when necessary to provide stability and prevent excess stress on container walls - portable tanks which are stored over one tier high are designed to nest securely - no pile is closer than 3 ft [0.91 m] to the nearest beam, chord, girder, or other obstruction - piles are 3 ft [0.91 m] below sprinkler deflectors or discharge points of water spray - all wood shelving is at least 1 in. [2.54 cm] thick - aisles are at least 3 ft [0.91 m] wide when necessary for access to doors, windows, or standpipe connections. <p>Verify that outdoor flammable/combustible storage meets the following: (1)(4)(6)(21)</p> <ul style="list-style-type: none"> - no more than 1100 gal [4163.95 L] of flammable/ combustible liquids is stored adjacent to buildings located on the same premises unless 10 ft [3.05 m] or more exists between buildings and the nearest flammable container - the storage area is graded to divert spills or is surrounded by a curb at least 6 in. [15.24 cm] high - drains terminate in a safe location - the storage area is protected against tampering and kept free of waste and other combustible materials - all containers bear contents, labels, and hazard markings - total quantity and arrangement of liquids outside a building complies with the requirements in Appendix 3-4. <p>(NOTE: These standards do not apply to:</p> <ul style="list-style-type: none"> - storage of containers in service stations - Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine - 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.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-35. Areas where flammable/combustibles are stored must meet certain fire protection standards (29 CFR 1910.106 (d)(7)).</p>	<p>Verify that all flammable/combustible storage locations meet the following: (1)(4)(6)(21)</p> <ul style="list-style-type: none"> - there is at least one 12-B rated portable fire extinguisher located outside and within 10 ft [3.05 m] of a door opening into any room for storage - there is at least one 12-B rated portable fire extinguisher located within 10 to 25 ft [3.05 to 7.62 m] of any Class I or Class II liquid storage area outside of a storage room, but inside a building - fire extinguishing sprinklers or systems meet the standards in 29 CFR 1910.159 - no smoking or open flame is permitted within 50 ft [15.24 m] and signs are posted - incompatible materials are not stored together (see Appendix 3-5) - no water reactive materials are stored in the same room with flammable/ combustible liquids. <p>(NOTE: These standards do not apply to:</p> <ul style="list-style-type: none"> - storage of containers in service stations - Class I or Class II liquids in the fuel tanks of a motor vehicles, aircraft, boat, or portable or stationary engine - 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.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>FLAMMABLE/ COMBUSTIBLE LIQUIDS STORAGE</p> <p>Industrial Areas</p> <p>3-36. Areas where flammable/combustible materials are stored, dispensed, or used in industrial plants shall meet specific guidelines (29 CFR 1910.106(e)(4) through 1910.106(e)(9)).</p> <p>3-37. Incidental storage of flammable/combustible liquids in industrial areas must conform to certain requirements (29 CFR 1910.106 (e)(2)).</p>	<p>(NOTE: Checklist items 3-36 through 3-38 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: (1)(4)(6)(21)</p> <ul style="list-style-type: none"> - portable fire extinguishers and fire control equipment are in place in quantity and type as needed for the hazards of operation and storage at the site - adequate precautions are taken to prevent sources of ignition at the site - Class I liquids are not dispensed into containers unless nozzles and containers are electrically interconnected - operations such as welding and cutting for repairs to equipment are done under the supervision of an individual in responsible charge - maintenance and operating practices control leakage and prevent the accidental escape of flammable or combustible liquids: <ul style="list-style-type: none"> - adequate aisles shall be maintained - combustible waste material and residues are kept to a minimum, stored in covered metal containers, and disposed of daily - the grounds area around the buildings and unit operating areas are kept free of weeds, trash or other unnecessary combustibles - 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 [7.62 m] for Class I liquids and 15 ft [4.57 m] for Class II and III liquids. <p>Verify that flammable and combustible liquids are stored in closed containers. (1)(4)(6)(21)</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 3-30 and 3-32 except that: (1)(4)(6)(21)</p> <ul style="list-style-type: none"> - the quantity of liquid that is located outside of an inside storage room or storage cabinet in a building or in any one fire area of a building does not exceed: <ul style="list-style-type: none"> - 25 gal [94.64 L] of Class IA liquids in containers - 120 gal [454.25 L] of Class IB, IC, II, or III liquids in containers - 660 gal [2498.37 L] of Class IB, IB, II, or III liquids in a single portable tank - where large quantities of flammable or combustible liquids are needed, storage may be in tanks.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>COMPRESSED GASES STORAGE</p> <p>3-39. 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 (29 CFR 1910.101).</p>	<p>Verify that compressed gas cylinders and tanks have safety relief devices. (1)(4)(5)(21)</p> <p>Verify that the markings on the container are legible and none removed or defaced. Verify that no part of the cylinder has been modified, tampered with, obstructed, removed, or repaired by the user. (1)(4)(5)(21)</p> <p>Verify that the color of the container is not the only means of identifying the contents of the container. (1)(4)(5)(21)</p> <p>Verify that containers are not: (1)(4)(5)(21)</p> <ul style="list-style-type: none"> - placed anywhere that they might become part of an electrical current - grounded or used for grounding - exposed to temperature extremes - rolled in the horizontal position or dragged. <p>Verify that compressed gas storage areas meet the following: (1)(4)(5)(21)</p> <ul style="list-style-type: none"> - they are posted NO SMOKING - there is adequate spacing or segregation by partition so that containers are grouped together by the hazard class of the gas - it is designed so that temperatures will not exceed 125 °F (51.7 °C) - cylinders are secured to prevent falling. <p>Verify that storage areas for flammable compressed gases meet the following: (1)(4)(5)(21)</p> <ul style="list-style-type: none"> - acetylene containers are stored valve end up (the container may be stored as much as 45 degrees from the vertical) - portable fire extinguishers are available that are either of the CO₂ type or dry chemical type - the area is well ventilated - heat is by indirect means such as steam or hot water. <p>Verify that when flammable compressed gases are stored in a separate room without other occupancy: (1)(4)(5)(21)</p> <ul style="list-style-type: none"> - the walls, partitions, and ceiling are continuous from floor to ceiling and securely anchored - at least one wall is an exterior wall - windows in partitions are wired glass in metal frames with a fixed sash - openings to other parts of the building are protected by a self closing fire door with a resistance of at least 1 h.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-39. (continued)</p>	<p>Verify that flammable compressed gas cylinders stored inside a building with other occupancy are kept at least 20 ft [6.08 m] from flammable liquids, highly combustible materials, and oxidizers. (1)(4)(5)(21)</p> <p>(NOTE: 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 [6.08 m], the facility can use a noncombustible barrier at least 5 ft [1.52 m] high having a fire resistance rating of at least one half hour.)</p> <p>(NOTE: Flammable compressed gases include the following: acetylene; allene; butadiene; butane; 1-butene; 2-butene; 1-chloro-1, 1-difluoroethane; chlorotrifluoroethylene; chloropropane; deuterium; 1,1-difluoroethane; dimethylether; ethane; ethylacetylene; ethylene; hydrogen; liquid hydrogen; isobutane; isbutylene; liquified petroleum gas; methane; methy acetylene; methyl acetylene-propadiene mix (MAPP); methyl chloride; methy 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>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RADIOACTIVE MATERIALS</p> <p>3-40. Personnel working around radioactive materials are required to be notified of specific information and trained (29 CFR 1910.96(i)).</p> <p>3-41. Specific notification requirements must be met for radioactive material incidents (29 CFR 1910.96(l) and 1910.96(m)).</p>	<p>Verify that all individuals working in or frequenting any portion of a radiation area are: (1)(2)(6)(21)</p> <ul style="list-style-type: none"> - informed of the existence of radioactive materials - instructed in the safety problems associated with exposure to such materials and radiation, and in precautions or devices to minimize exposure - advised of reports that must be made concerning exposure. <p>Verify that the facility has conspicuously posted a current copy of its provisions and operating procedures in locations where radioactive materials are found or keeps the documents in a place where they are available on request. (1)(2)(6)(21)</p> <p>Verify that the facility notifies the Assistant Secretary of Labor or his duly appointed representative by telephone or telegraph of any incident that may have caused or threatened to cause: (1)(2)(6)(21)</p> <ul style="list-style-type: none"> - exposure of the whole body or any individual to 25 rems or more of radiation - exposure of the skin of the whole body of any individual to 150 rems or more of radiation - exposure of the feet, ankles, hands, or forearms of any individual to 375 rems or more of radiation. <p>Verify that the facility notifies the Assistant Secretary of Labor or his duly appointed representative by telephone or telegraph of any incident that may have caused or threatens to cause the release of radioactive material in concentrations which, if averaged over a period of 24 h, would exceed 5000 times the limits specified in Table II of Appendix B of 10 CFR 20. (1)(2)(6)(21)</p> <p>Verify that the notification is made within 24 h of the following: (1)(2)(6)(21)</p> <ul style="list-style-type: none"> - exposure of the whole body or any individual to 5 rems or more of radiation - exposure of the skin of the whole body of any individual to 30 rems or more of radiation - exposure of the feet, ankles, hand, or forearms to 75 rems or more of radiation. <p>Verify that a written report of overexposure is made within 30 days. (1)(2)(6)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-43. (continued)</p> <p>3-44. High radiation areas are required to be equipped with specific control devices (29 CFR 1910.96(e)(3)(ii)).</p> <p>3-45. Radioactive materials stored in a nonradiation area must be secured against unauthorized removal from the place of storage (29 CFR 1910.96(j)).</p>	<p>(NOTE: Radioactive materials packaged and labeled according to DOT rules do not have to be labeled according to these requirements if the inside containers are labeled according to these requirements.)</p> <p>Verify that each high radiation area is equipped with a control device that either causes the level of radiation to be reduced below the level at which an individual might receive a dose of 100 mrem in 1 h upon entry into the area or energizes a conspicuous visible or audible alarm signal so that the individual entering and the supervisor of the activity are aware of the entry. (1)(2)(6)(21)</p> <p>(NOTE: This requirement does not apply to high radiation areas established for a period of 30 days or less.)</p> <p>Verify that radioactive materials are stored in a manner that they are secured against unauthorized removal. (1)(2)(6)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>TRANSPORTATION</p> <p>3-46. Shipping papers for hazardous materials are required to indicate the proper shipping name, hazard class, identification number, and quantities of materials (49 CFR 172.202).</p> <p>3-47. Each package or container, shall be marked in accordance with specific marking requirements (49 CFR 171.3).</p> <p>3-48. The facility is responsible for providing proper placarding to vehicles transporting hazardous materials off the facility (49 CFR 172.500).</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 DOT, 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. (1)(2)(3)(4)(21)</p> <p>Verify that the commodity description (proper shipping name) is on the container as well as the following information: (1)(2)(3)(4)(21)</p> <ul style="list-style-type: none"> - exemption numbers for containers shipped under DOT exemptions - the name and address of consignee (or consignor) on the container. <p>Determine if facility vehicles are used to transport hazardous materials off the facility. (1)(2)(3)(4)(21)</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. (1)(2)(3)(4)(21)</p> <p>Determine if transportation has proper DOT placards for vehicles which are being used for transport of hazardous materials. (1)(2)(3)(4)(21)</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>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-49. The facility should ensure that transportation of hazardous materials between buildings is accomplished in accordance with good management practices to help ensure against spills, releases, and accidents (MP).</p> <p>3-50. 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>3-51. Spills, leaks, and other incidents occurring during hazardous material transportation require immediate notification in specific circumstances (49 CFR 171.15).</p>	<p>Determine if procedures exist to manage movement of hazardous materials throughout the facility. (1)(2)(3)(4)(21)</p> <p>Determine if drivers are trained in spill control procedures. (1)(2)(3)(4)(21)</p> <p>Determine if provisions have been made for securing hazardous materials in vehicles when transporting. (1)(2)(3)(4)(21)</p> <p>Verify that emergency response information includes: (1)(2)(3)(4)(21)</p> <ul style="list-style-type: none"> - the description of the hazardous material required by 49 CFR 172.202-203 - immediate hazards to health - risks of fire or explosion - immediate precautions to take in the event of an accident or incident - immediate methods for handling small or large fires - immediate methods for handling spills or leaks in the absence of fire - preliminary first aid measures. <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 operators maintain this emergency response information. (1)(2)(3)(4)(21)</p> <p>Verify that immediate notification is done for those incidents in which, as a direct result of hazardous materials: (1)(2)(3)(4)(21)</p> <ul style="list-style-type: none"> - a person is killed - a person is injured and requires hospitalization - estimated carrier or other property damage exceeds \$50,000 - an evacuation of the general public occurs lasting 1 or more hours - one or more major transportation arteries or facilities are closed or shut down for 1 or more hours - the operational flight pattern of an aircraft is altered - fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive materials - fire, breakage, spillage, or suspected contamination occurs involving shipment of ethiologic agents - the carrier feels the situation merits reporting, even though it does not meet the above requirements.

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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>3-51. (continued)</p> <p>3-52. 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).</p> <p>3-53. 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 the immediate notification is given to the DOT by telephone. (1)(2)(3)(4)</p> <p>(NOTE: If the notice involves etiologic agents, it may be given to the Center for Disease Control and Prevention (CDC).)</p> <p>Verify that detailed hazardous materials incident reports are submitted to the DOT within 30 days if: (1)(2)(3)(4)(21)</p> <ul style="list-style-type: none"> - any of the circumstances of 49 CFR 171.15 are met - there has been an unintentional release of hazardous materials from a package - any quantity of hazardous materials has been discharged during transportation. <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> <p>Verify that a copy of the report is retained onsite for 2 yr (unless written permission has been obtained from the DOT to maintain records elsewhere). (1)(2)(3)(4)(21)</p> <p>(NOTE: Training conducted by facilities to comply with the hazard communication programs required by 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: (1)(2)(3)(4)(21)</p> <ul style="list-style-type: none"> - provide familiarity with the requirements of 49 CFR 171 through 177 - enable each employee to recognize and identify hazardous materials consistent with the hazard communication standards of 49 CFR 171 through 177. <p>Verify that each employee is provided with function-specific training concerning those requirements of 49 CFR 171 through 49 CFR 177 that are specifically applicable to the functions the employee performs. (1)(2)(3)(4)(21)</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>

(1) Environmental Program Manager (2) Facility Supervisor/Director (3) Facility Operations Branch (4) Section Chiefs (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety (8) Training Activity (9) Medical Services (11) Procurement and Grants Office (12) Warehouse (21) Health and Safety Officer

Appendix 3-1

Consolidated List of Chemicals Covered in Title III of SARA

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 reportable quantities (RQ), 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 the Section 302 and CERCLA columns precedes the list. An "X" in the column for Section 313 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.

(continued)

Appendix 3-1 (continued)

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.

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-Chloro-1,1-difluoro- ethane (HCFC- 142(b))			x		75-68-3
1-Chloro-1,1,2,2-tet- rafluoroethane (HCFC-124a)			x		354-25-6
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
(1,1'-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

(continued)

Appendix 3-1 (continued)

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-Dichloro-1-fluoroethane (HCFC-141b)			x		1717-80-6
1,1-Dichloro-1,2,2-trifluoroethane (HCFC-123b)			x		812-04-4
1,1-Dichloroethane		1000		U076	75-34-3
1,1-Dichloroethylene		100	x	U078	75-35-4
1,1,1,2-Tetrachloroethane			x		630-20-6
1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)]ester		100	x	U028	117-81-7
1,2-Benzenedicarboxylic acid, diethyl ester (diethyl phthlate)		1000	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-Benzphenanthrene		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-1,1,2-trifluoroethane (HCFC-123a)			x		354-23-4
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-Oxathiolane, 2,2-dioxide		10	x	U193	1120-71-4

(continued)

Appendix 3-1 (continued)

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.
1,2-trans-Dichloroeth- ylene		1000		U079	156-60-5
1,3-Benzenediol		5000		U201	108-46-3
1,3-Benzodioxole, 5- propyl		10		U090	94-58-6
1,3-Benzodioxole,5-)1- 1 propenyl		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-Dichloropropylene		100	x	U084	542-75-6
1,3-Isobenzofurandione		5000	x	U190	85-44-9
1,4-Dichloro-2-butene			x		764-41-0
1,4-Diethylene dioxide (1,4-Dioxane)		100	x	U108	123-91-1
1,4-Naphthalenedione		5000		U166	130-15-4
2-Acetylaminofluorene		1	x	U005	53-96-3
2-Aminoanthraquinone			x		117-79-3
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-1,1,2,2-tet- rafluoroet- hane(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-Furancarboxaldehyde		5000		U125	98-01-1
2-Methoxyethanol			x		109-86-4

(continued)

Appendix 3-1 (continued)

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-Methylpyridine			x		109-06-8
2-Naphthylamine		10	x	U168	91-59-8
2-Nitropropane		10	x	U171	79-46-9
2-Phenylphenol			x		90-43-7
2-Picoline		5000		U191	109-06-8
2,2-Dichloro-1,1,1-trifluoroethane (HCFC-123)			x		306-83-2
2,2-Dichloropropionic acid		5000			75-99-0
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
2,3,6-Trichlorophenol		10			933-75-5
2,3,7,8-Tetrachlorodibenzo p-dioxin (TCDD)		1			1746-01-6
2,4-D acid		100	x	U240	94-75-7
2,4-D esters		100			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-Diaminoanisole sulfate			x		39156-41-7
2,4-Diaminosole			x		615-41-7
2,4-Diaminotoluene		10		U221	823-40-5

(continued)

Appendix 3-1 (continued)

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-Dichlorophenol		100	x	U081	120-83-2
2,4-Dimethylphenol		100	x	U101	105-67-9
2,4-Dinitrophenol		10	x	P048	51-28-5
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
2,5-Furandione		5000	x	U147	108-31-6
2,6-Dichlorophenol		100		U082	87-65-0
2,6-Xylidine			x		87-62-7
3,3-Dichlorobenzidine			x		91-94-1
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-propynyl) benzamide		5000		U192	23950-58-5
4-Aminoazobenzene			x		60-09-3
4-Aminobiphenyl			x		92-67-1
4-Chloro-m-cresol		5000		U039	59-50-7
4-Chlorophenyl phenyl ether		5000			7005-72-3

(continued)

Appendix 3-1 (continued)

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-Nitrobiphenyl			x		92-93-3
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'-Methylenedi- aniline			x		101-77-9
4,4'-Thiodianiline 6- dinitrophenoll			x		139-65-1
5-Nitro-o-anisidine			x		99-59-2
5-Nitro-o-toluidine			x		99-55-6
Acenaphthene		100			83-32-9
Acenaphthylene		5000			208-96-8
Acetaldehyde		1000	x	U001	75-07-0
Acetaldehyde, trichloro-		5000		U034	75-87-6
Acetamide			x		60-35-5
Acetamide-N-(4-ethox- yphenyl)-		100		U187	62-44-2
Acetamide,N-(ami- nothi-oxomethyl)-		1000		P002	591-08-2
Acetic acid		5000			64-19-7
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, thal- lium(1+) salt		100		U214	563-68-8
Acetic anhydride		5000			108-24-7
Acetone		5000	x	U002	67-64-1

(continued)

Appendix 3-1 (continued)

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.
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
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				111-69-3
Aldicarb	100/10,000	1		P070	116-06-3
Aldrin	500/10,000	1	x	P004	309-00-2
Allyl alcohol	1000	100	x	P005	107-18-6
Allyl chloride		1000	x		107-05-1
Allylamine	500				107-11-9
alpha,alpha-Dimethyl phenethylamine		5000		P046	122-09-8
alpha-Endosulfan		1			959-98-8
alpha-BHC		10			319-84-6
Aluminum (fume or dust)			x		7429-90-5
Aluminum oxide (fibrous forms)			x		1344-28-1
Aluminum phosphide	500	100		P006	20859-73-8
Aluminum sulfate		5000			10043-01-3
Aminopterin	500/10,000				54-62-6
Amiton	500				78-53-5

(continued)

Appendix 3-1 (continued)

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.
Amiton oxalate	100/10,000				3734-97-2
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
Ammonium hydroxide		1000			336-21-6
Ammonium nitrate (solution)			x		6484-52-2
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 sulfate (solution)			x		7783-20-2
Ammonium sulfide		100			12135-76-1
Ammonium sulfite		5000			10196-04-0

(continued)

Appendix 3-1 (continued)

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.
Ammonium tartrate		5000			14307-43-8
Ammonium tartrate		5000			3164-29-2
Ammonium thiocyanate		5000			1762-95-4
Ammonium vanadate		1000		P119	7803-55-6
Amphetamine	1000				300-62-9
Amyl acetate		5000			628-63-7
Aniline,2,4,6-trimethyl-	500				88-05-1
Aniline	1000	5000	x	U012	62-53-3
Anthracene		5000	x		120-12-7
Antimony		5000	x		7440-36-0
Antimony pentachloride		1000			7647-18-9
Antimony pentafluoride	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				1397-94-0
Antu	500/10,000				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

(continued)

Appendix 3-1 (continued)

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.
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 trichloride	500	1			7784-34-1
Arsine	100				7784-42-1
Arsine, diethyl-		1		P038	692-42-2
Asbestos		1	x		1332-21-4
Azaserine		1		U015	115-02-6
Azinophos-ethyl	100/10,000				2642-71-9
Azinophos-methyl	10/10,000				86-50-0
Barium and compounds (except barium sul- fate, (CAS No. 7727-43-7)			x		
Barium cyanide		10		P013	542-62-1
Benzal chloride	500	5000	x	U017	98-87-3
Benzamide			x		55-21-0
Benz[a]anthracene		10		U018	56-55-3
Benzanthracene,7,12- dimethyl-		1		U094	57-97-6
Benz[c]acridine		100		U016	225-51-4
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				98-16-8
Benzenamine-4-chloro		1000		P024	106-47-8

(continued)

Appendix 3-1 (continued)

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.
Benzenamine,4-chloro- 2-methyl-hydrochloro- 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				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
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, dimethyl-		1000	x	U239	1330-20-7
Benzene, hexachloro-		10	x	U127	118-74-1
Benzene, hexahydro- (cyclohexane)		1000	x	U056	110-82-7

(continued)

Appendix 3-1 (continued)

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.
Benzene, m-dimethyl-		1000	x		108-38-3
Benzene, methyl-(tou- lene)		1000	x	U220	108-88-3
Benzene, o-dimethyl-		1000	x		95-47-6
Benzene, p-dimethyl-		1000	x		106-42-3
Benzene, pentachloro-		10		U183	608-93-5
Benzene, pentachloron- itro-		100	x	U185	82-68-8
Benzeneearsonic acid	10/10,000				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				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			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
Benzotrichloride	500	10	x	U023	98-07-7
Benzoyl chloride		1000	x		98-88-4
Benzoyl peroxide			x		94-36-0
Benzyl chloride	500	100	x	P028	100-44-7
Benzyl cyanide	500				140-29-4
Beryllium chloride		1			7787-47-5

(continued)

Appendix 3-1 (continued)

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.
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-Chloronaphthalene		5000		U047	91-58-7
Bicyclo[2.2.1]heptane-2-carbonitrile, 5-chloro-6-(methyla)	500/10,000				15271-41-7
Biphenyl			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)adipate			x		103-23-1
Bis(chloromethyl)ketone	10/10,000				534-07-6
Bitoscanate	500/10,000				4044-65-9
Boron trichloride	500				10294-34-5
Boron trifluoride compound with methyl ether (1:1)	1000				353-42-4
Boron trifluoride	500				7637-07-2
Bromadiolone	100/10,000				18772-56-7
Bromine	500				7726-95-6
Bromoacetone		1000		P017	598-31-2
Bromochlorodifluoromethan (Halon 1211)			x		353-59-3
Bromoform		100	x	U225	75-25-2

(continued)

Appendix 3-1 (continued)

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.
Bromotrifluoromethane (Halon 1311)			x		75-63-8
Brucine		100		P018	357-57-3
Butanoic acid,4-[bis(2-chloroethyl)amino] benzene-		10		U035	305-03-3
Butyl benzyl Phthalate		100	x		85-68-7
Butyl acetate		5000			123-86-4
Butyl acrylate			x		141-32-2
Butylamine		1000			109-73-9
Butyraldehyde			x		123-72-8
Butyric acid		5000			107-92-6
CI Acid Green 3			x		4680-78-8
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 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

(continued)

Appendix 3-1 (continued)

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.
Cadmium chloride		10			10108-64-2
Cadmium oxide	100/10,000				1306-19-0
Cadmium stearate	1000/ 10,000				2223-93-0
Calcium arsenate	500/10,000	1			7778-44-1
Calcium arsenite		1			52740-16-6
Calcium carbide		10			75-20-7
Calcium chromate		10		U032	13765-19-0
Calcium cyanamide			x		156-62-7
Calcium cyanide		10		P021	592-01-8
Calcium dodecylbenzene sulfonate		1000			26264-06-2
Calcium hypochlorite		10			7778-54-3
Cantharidin	100/10,000				56-25-7
Captan		10	x		133-06-2
Carbachol chloride	500/10,000				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				26419-73-8
Carbamic chloride, dimethyl-		1	x	U097	79-44-7
Carbaryl		100	x		63-25-2
Carbofuran	10/10,000	10			1563-66-2
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
Carbonyl sulfide			x		463-58-1
Carbophenothion	500				786-19-6

(continued)

Appendix 3-1 (continued)

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.
Catechol			x		120-80-9
Chloramben			x		133-90-4
Chlordane	1000	1	x	U036	57-74-9
Chlorfenvinfos	500				470-90-6
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				24934-91-6
Chlormequat chloride	100/10,000				999-81-5
Chlornaphazine		100		U026	494-03-1
Chloroacetaldehyde		1000	P023		107-20-0
Chloroacetic acid	100/10,000		x		79-11-8
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				107-07-3
Chloroethyl chloroformate	1000				627-11-2
Chloroform	10,000	10	x	U044	67-66-3
Chloromethyl methyl ether	100	10	x	U046	107-30-2
Chlorophacinone	100/10,000				3691-35-8
Chloroprene			x		126-99-8
Chlorotetrafluoroethane			x		63938-10-3
Chlorothalonil			x		1897-45-6
Chloroxuron	500/10,000				1982-47-4
Chlorpyrifos		1			2921-88-2

(continued)

Appendix 3-1 (continued)

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.
Chlorsulfonic acid		1000			7790-94-5
Chlorthiophos	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				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-ethanediylbis (ni-trilomethyldyne))bis(6)	100/10,000				62207-76-5
Cobalt carbonyl	10/10,000				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				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				5836-29-3
Cresol(s) (mixed isomers)		1000	x	U052	1319-77-3
Cresol,o-	1000/ 10,000	1000	x	U052	95-48-7
Creosote		1	x	U051	8001-58-9
Crimidine	100/10,000				535-89-7
Crotonaldehyde,(E)-	1000	100		U053	123-73-9
Crotonaldehyde	1000	100		U053	4170-30-3
Cumene hyperoxide			x		80-15-9

(continued)

Appendix 3-1 (continued)

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.
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- ated		100			10380-29-7
Cupric tartrate		100			815-82-7
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				506-78-5
Cyanophos	1000				2636-26-2
Cyanuric fluoride	100				675-14-9
Cyclohexanone		5000		U057	108-94-1
Cycloheximide	100/10,000				66-81-9
Cyclohexylamine	10,000				108-91-8
Cyclophosphamide		10		U058	50-18-0
D-Glucopyranose,2- deoxy-2-(3-methyl- 3-ni-trosoureido)-		1		U206	18883-66-4
Daunomycin		10		U059	20830-81-3
DDD		1		U060	72-54-8
DDE		1			72-55-9
DDT		1		U061	50-29-3
Decaborane(14)	500/10,000				17702-41-9
Decabromodiphenyl oxide			x		1163-19-5
Delta-BHC		1			319-86-8

(continued)

Appendix 3-1 (continued)

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.
Demeton	500				8065-48-3
Demeton-S-methyl	500				919-86-8
Di-(2-ethylhexyl)phthalate (DEHP)			x		177-81-7
Di-n-octyl phthalate		5000	x	U107	117-84-0
Di-n-propylnitrosamine(N-Nitrosodipropylamine)		10	x	U111	621-64-7
Dialifor	100/10,000				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			333-41-5
Diazomethane			x		334-88-3
Dibenz(a)lpyrene		10		U064	189-55-9
Dibenz[a,h] anthracene		1		U063	53-70-3
Dibenzofuran			x		132-64-9
Diborane	100				19287-45-7
Dibromotetrafluoroethane (Halon 2402)			x		124-73-2
Dibutyl phthalate		10	x	U069	84-74-2
Dicamba		1000			1918-00-9
Dichlone		1			117-80-6
Dichloro-1,1,2-trifluoroethane			x		90454-18-5
Dichlorobenzene (mixed isomers)		100	x		25321-22-6
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

(continued)

Appendix 3-1 (continued)

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.
Dichloromethyl ether	100	10	x	P016	542-88-1
Dichloromethyl- phenylsilane	1000				149-74-6
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				141-66-2
Dieldrin		1		P037	60-57-1
Diepoxybutane	500	10	x	U085	1464-53-5
Diethanolamine			x		111-42-2
Diethyl chlorophosphate	500				814-49-3
Diethyl-p-nitrophenylphosphate		100		P041	311-45-5
Diethyl sulfate			x		64-67-5
Diethylamine		100			109-89-7
Diethylcarbamazine citrate	100/10,000				1642-54-2
Diethylstilbestrol		1		U089	56-53-1
Digitoxin	100/10,000				71-63-6
Diglycidyl ether	1000				2238-07-5
Digoxin	10/10,000				20830-75-5
Dihydrosafrole			x		94-58-6
Diisopropylfluorophosphate	100	100		P043	55-91-4
Dimefox	500				115-26-4

(continued)

Appendix 3-1 (continued)

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.
Dimethoate	500/10,000	10		P044	60-51-5
Dimethyl-p-phenyl- enediamine	10/10,000				99-98-9
Dimethyl phosphoro- chloridothioate	500				2524-03-0
Dimethyl phthalate		5000	x	U102	131-11-3
Dimethyl sulfate	500	100	x	U103	77-78-1
Dimethylamine		1000		U092	124-40-3
Dimethyldichlorosilane	500				75-78-5
Dimethylhydrazine	1000	10	x	U098	57-14-7
Dimetilan	500/10,000				644-64-4
Dinitrobenzene (mixed)		100			25154-54-5
Dinitrophenol		10			25550-58-7
Dinitrotoulene	10/10,000	10	x	P047	534-52-1
Dinitrotoluene (mixed isomers)		10	x		25321-14-6
Dinoseb	100/10,000	1000		P020	88-85-7
Dinoterb	500/10,000				1420-07-1
Dioxathion	500				78-34-2
Diphacinone	10/10,000				82-66-6
Diphosphoramidate, octamethyl-	100	100		P085	152-16-9
Dipropylamine		5000		U110	142-84-7
Diquat		1000			85-00-7
Diquat		1000			2764-72-9
Disulfoton	500	1		P039	298-04-4
Dithiazinine iodide	500/10,000				514-73-8
Dithiobiuret	100/10,000	100		P049	541-53-7
Diuron		100			330-54-1
Dodecylbenzene- sulfonic acid		1000			27176-87-0
Emetine, dihydrochloride	1/10,000				316-42-7

(continued)

Appendix 3-1 (continued)

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.
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				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				2104-64-5
Ergocalciferol	1000/ 10,000				50-14-6
Ergotamine tartrate	500/10,000				379-79-3
Ethanamine,N-ethyl-N- nitroso-		1	x	U174	55-18-5
Ethane,1,1'-oxybis-		100		U117	60-29-7
Ethane,1,2-dibromo-		1	x	U067	106-93-4
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				1622-32-8
Ethanethioamide		10	x	U218	62-55-5
Ethanol,1,2-dichloro- acetate	1000				10140-87-1
Ethanol,2,2'-(nitroso imino) bis-		1		U173	1116-54-7
Ethene, tetrachloro		100	x	U210	127-18-4
Ethene, chloro-		1	x	U043	75-01-4
Ethion	1000	10			563-12-2
Ethoprophos	1000				13194-48-4

(continued)

Appendix 3-1 (continued)

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.
Ethyl acrylate		1000	x	U113	140-88-5
Ethyl chloroformate			x		541-41-3
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				538-07-8
Ethylene			x		74-85-1
Ethylene glycol			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 tetraacetic acid (EDTA)		5000			60-00-4
Ethyleneimine	500	1	x	P054	151-56-4
Ethylenethiocyanate	10,000				542-90-5
Ethylidene dichloride			x		75-34-3
Famphur		1000		P097	52-85-7
Fenamiphos	10/10,000				22224-92-6
Fenitrothion	500				122-14-5
Fensulfothion	500				115-90-2
Ferric ammonium citrate		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

(continued)

Appendix 3-1 (continued)

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.
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
Flourouracil	500/10,000				51-21-8
Fluometuron	100/10,000		x		4301-50-2
Fluorene		5000			2164-17-2
Fluorene	500	10		P056	86-73-7
Fluoroacetamide	100/10,000	100		P057	7782-41-4
Fluoroacetic acid	10/10,000				640-19-7
Fluoroacetyl chloride	10				144-49-0
Fonofos	500				359-06-8
Formaldehyde	500	100	x	U122	944-22-9
Formaldehyde cyano- hydrin	1000				50-00-0
Formetanate hydro- chloride	500/10,000				107-16-4
Formic acid		5000	x	U123	23422-53-9
Formothion	100				64-18-6
Formparanate	100/10,000				2540-82-1
Fosthietan	500				17702-57-7
Fuberidazole	100/10,000				21548-32-3
Fulminic acid, mercury(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
					109-99-9

(continued)

Appendix 3-1 (continued)

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.
Gallium trichloride	500/10,000				13450-90-3
Glycidylaldehyde		10		U126	765-33-4
Guanidine,N-nitroso-N methyl-N'-nitro		10		U163	70-25-7
Heptachlor		1	x	P059	76-44-8
Heptachlor epoxide		1			1024-57-3
Hexachloro-1,3-butadi- ene		1	x	U128	87-68-3
Hexachlorocyclopenta- diene	100	10	x	U130	77-47-4
Hexachloronaphthalene			x		1335-87-1
Hexachlorophene		100	x	U132	70-30-4
Hexachloropropene		1000		U234	1888-71-7
Hexaethyl tetraphos- phate		100		P062	757-58-4
Hexamethylenedi- amine, N,N'-dibutyl-	500				4835-11-4
Hexamethylphospora- mide			x		680-31-9
Hydrazine	1000	1	x	U133	302-01-2
Hydrazine sulfate			x		10034-93-2
Hydrochloric acid (Hydro-gen chloride (gas only))***	500	5000	x		7647-01-0
Hydrocyanic acid	100	10	x	P063	74-90-8
Hydrogen fluoride	100	100	x	U134	7664-39-3
Hydrogen peroxide (conc > 52%)	1000				7722-84-1
Hydrogen selenide	10				7783-07-5
Hydrogen sulfide	500	100		U135	7783-06-4
Hydroquinone	500/10,000		x		123-31-9
Indeno(1,2,3-cd)pyrene		100		U137	193-39-5
Iron, pentacarbonyl-	100				13463-40- 06

(continued)

Appendix 3-1 (continued)

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.
iso-Amyl acetate		5000			123-92-2
iso-Butyl acetate		5000			110-19-0
iso-Butylamine		1000			78-81-9
iso-Butyric acid		5000			79-31-2
Isobenzan	100/10,000				297-78-9
Isobutyl alcohol		5000		U140	78-83-1
Isobutyraldehyde			x		78-84-2
Isobutyronitrile	1000				78-82-0
Isocyanic acid,3,4- dichlorophenyl ester	500/10,000				102-36-3
Isodrin	100/10,000	1		P060	465-73-6
Isophorone		5000			78-59-1
Isophorone diisocyan- ate	100				4098-71-9
Isoprene		100			78-79-5
Isopropanolamine dode-cyclbenzene sulfonate		1000			42504-46-1
Isopropyl alcohol (mfg- strong acid pro- cesses)			x		67-63-0
Isopropyl chloroform- ate	1000				108-23-6
Isopropylmethylpyra- zoly dimethylcar- bamate	500				119-38-0
Kepone		1		U142	143-50-0
Lactonitrile	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

(continued)

Appendix 3-1 (continued)

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.
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				21609-90-5
Lewisite	10				541-25-3
Lindane	1000/ 10,000	1	x	U129	58-89-9
Lithium chromate		10			14307-35-8
Lithium hydride	100				7580-67-8
m-Cresol		1000	x	U052	108-39-4
m-Nitrophenol		100			554-84-7
m-Nitrotoluene		1000			99-08-1
Malathion		100			121-75-5
Maleic acid		5000			110-16-7
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

(continued)

Appendix 3-1 (continued)

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.
Manganese, tricarbonyl methylcyclopentadienyl	100				12108-13-3
Mechlorethamine	10		x		51-75-2
Melphalan		1		U150	148-82-3
Mephosfolan	500				950-10-7
Mercuric acetate	500/10,000				1600-27-7
Mercuric chloride	500/10,000				7487-94-7
Mercuric cyanide		1			592-04-1
Mercuric nitrate		10			10045-94-0
Mercuric oxide	500/10,000				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
Methacrolein diacetate	1000				10476-95-6
Methacrylic anhydride	500				760-93-0
Methacryloyl chloride	100				920-46-7
Methacryloyloxyethyl isocyanate	100				30674-80-7
Methacrylonitrile	500	1000	x	U152	126-98-7
Methamidophos	100/10,000				10265-92-6
Methane, chloro		100	x	U045	74-87-3
Methane, dibromo-		1000	x	U068	74-95-3
Methane, dichloro-		1000	x	U080	75-09-2
Methane, iodide-		100	x	U138	74-88-4
Methane, trichlorofluoro- (CFC-11)		5000		U121	75-69-4
Methanesulfanyl chloride, trichloro	500	100		P118	594-42-3

(continued)

Appendix 3-1 (continued)

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.
Methanesulfonyl fluoride	1000				558-25-8
Methanol		5000	x	U154	67-56-1
Methapyrilene		5000		U155	91-80-5
Methidathion	500/10,000				950-37-8
Methiocarb	500/10,000	10			2032-65-7
Methomyl	500/10,000	100		P066	16752-77-5
Methoxychlor		1	x		72-43-5
Methoxyethylmercuriacetate	500/10,000				151-38-2
Methyl 2-chloroacrylate	500				80-63-7
Methyl acrylate			x		96-33-3
Methyl bromide	1000	1000	x	U029	74-83-9
Methyl chlorocarbonate			x		79-22-1
Methyl chloroformate(Methylchlorocarbonate)	500	1000		U156	79-22-1
Methyl chloroform		1000	x	U226	71-55-6
Methyl hydrazine		10	x	P068	60-34-4
Methyl isobutyl ketone		5000	x	U161	108-10-1
Methyl isocyanate	500	10	x	P064	624-83-9
Methyl isothiocyanate	500				556-61-1
Methyl mercaptan	500	100		U153	74-93-1
Methyl methacrylate		1000	x	U162	80-62-6
Methyl phenkapton	500				3735-23-7
Methyl phosphonic dichloride	100				676-97-1
Methyl tert-butyl ether			x		1634-04-4
Methyl thiocyanate	10,000				556-64-9
Methyl vinyl ketone	10				78-94-4

(continued)

Appendix 3-1 (continued)

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.
Methylene-bis-(phenyl- iso-cyanate)(MBI)			x		101-68-8
Methylmercuric dicy- anamide	500/10,000				502-39-6
Methylthiouracil		10		U164	56-04-2
Methyltrichlorosilane	500				75-79-6
Metolcarb	100/10,000				1129-41-5
Mevinphos	500	10			7786-34-7
Mexacarbate	500/10,000	1000			315-18-4
Michler's ketone			x		90-94-8
Mitomycin C	500/10,000	10		U010	50-07-7
Molybdenum trioxide			x		1313-27-5
Moncrotophos	10/10,000				6923-22-4
(Mono)chloropenta- fluoroethane (CFC 115)			x		76-15-3
Monoethylamine		100			75-04-7
Monomethylamine		100			74-89-5
Muscimol	500/10,000	1000		P007	2763-96-4
Mustard gas	500		x		505-60-2
n-Butyl alcohol			x		71-36-3
N,N'-Dimethylaniline			x		121-69-7
N,N'-Diethylhydrazine		10		U086	1615-80-1
N-Nitroso-N-ethylurea		1	x		759-73-9
N-Nitroso-N-methy- lurea		1	x		684-93-5
N-Nitrosodipheny- lamine		100	x		86-30-6
N-Nitrosomethylviny- lamine		10	x		4549-40-0
N-Nitrosomorpholine			x		59-89-2
N-Nitrosornicotine			x		16543-55-8

(continued)

Appendix 3-1 (continued)

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.
N-Nitrosopiperidine		10	x	U179	100-75-4
N-Nitrosopyrrolidine		1		U180	930-55-2
Naled		10			300-76-5
Naphthalene		100	x	U165	91-20-3
Naphthenic acid		100			1338-24-5
Nickel		100	x		7440-02-0
Nickel ammonium sul- fate		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
Nicotine sulfate	100/10,000				65-30-5
Nitric acid	1000	1000	x		7697-37-2
Nitric oxide	100	10		P076	10102-43-9
Nitrilotriacetic acid			x		139-13-9
Nitrobenzene	10,000	1000	x	U169	98-95-3
Nitrocyclohexane	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				991-42-4

(continued)

Appendix 3-1 (continued)

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.
O,O-Diethyl S-methyl dithiophosphate		5000		U087	3288-58-2
o-Anisidine hydrochloride			x		134-29-2
o-Anisidine			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
Osmium tetroxide		1000	x	P087	20816-12-0
Ouabain	100/10,000				630-60-4
Oxamyl	100/10,000				23135-22-0
Oxetane,3,3- bis(chloromethyl)-	500				78-71-7
Oxydisulfoton	500				2497-07-6
Ozone	100				10028-15-6
p-Anisidine			x		104-94-9
p-Benzoquinone		10	x	U197	106-51-4
p-Cresidine			x		120-71-8
p-Cresol		1000	x	U052	106-44-5
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
p-Phenylenediamine			x		106-50-3
Paraformaldehyde		1000			30525-89-4
Paraldehyde		1000	x		123-63-7
Paraquat	10/10,000				1910-42-5
Paraquat methosulfate	10/10,000				2074-50-2

(continued)

Appendix 3-1 (continued)

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.
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
Pentaborane	500				19624-22-7
Pentachloroethane		10	x	U184	76-01-7
Pentachlorophenol		10	x	U242	87-86-5
Pentadecyclamine	100/10,000				2570-26-5
Peracetic acid	500		x		79-121-0
Phenanthrene		5000			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				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), methylcar- bamate	500/10,000				64-00-6
Phenoxarsine,10,10'- oxydi-	500/10,000				58-36-6
Phenyl dichloroarsine	500	1		P036	696-28-6
Phenylhydrazine hydrochloride	1000/ 10,000				59-88-1
Phenylmercury acetate	500/10,000	100		P092	62-38-4
Phenylsilatrane	100/10,000				2097-19-0
Phenylthiourea	100/10,000	100		P093	103-85-5
Phorate	10	10		P094	298-02-2
Phosacetim	100/10,000				4104-14-7
Phosfolan	100/10,000				947-02-4
Phosgene	10	10	x	P095	75-44-5

(continued)

Appendix 3-1 (continued)

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.
Phosmet	10/10,000				732-11-6
Phosphamidon	100				13171-21-6
Phosphine	500	100		P096	7803-51-2
Phosphonothioic acid- methyl-O-(4-nitro- phenyl)O-phenyl ester	500				2665-30-7
Phosphonothioic acid, methyl-O-ethyl-O- (4-(meth- ylthio)phenyl) Ester	500				2703-13-1
Phosphonothioic acid, methyl-,s-(2-(bis(1- methylethyl)amino Ethyl o-Ethyl Ester	100				50782-69-9
Phosphoric acid		5000	x		7664-38-2
Phosphoric acid, dimethyl 4-(meth- ylthio)phenyl ester	500				3254-63-5
Phosphorothioic acid, O,O-diethyl, O- pyrazinyl ester	500	100		P040	297-97-2
Phosphorothioic acid, O,O-dimethyl-S-(2- methylthio)ethyl est	500				2587-90-8
Phosphorus	100	1	x		7723-14-0
Phosphorus oxychloride	500	1000			10025-87-3
Phosphorus pentachloride	500				10026-13-8
Phosphorus pentasulfide		100		U189	1314-80-3
Phosphorus pentoxide	10				1314-56-3
Phosphorus trichloride	1000	1000			7719-12-2
Physostigmine	100/10,000				57-47-6
Physostigmine, salicylate (1:1)	100/10,000				57-64-7

(continued)

Appendix 3-1 (continued)

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.
Picric acid			x		88-89-1
Picrotoxin	500/10,000				124-87-8
Piperidine	1000				110-89-4
Pirimifos-ethyl	1000				23505-41-1
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 chromate		10			7789-00-6
Potassium cyanide	100	10		P098	151-50-8
Potassium hydroxide		1000			1310-58-3
Potassium permanganate		100			7722-64-7
Potassium silver cyanide	500	1		P099	506-61-6
Promecarb	500/10,000				2631-37-0
Pronamide			x		23950-58-5
Propargite		10			2312-35-8
Propargyl alcohol		1000		P102	107-19-7
Propargyl bromide	10				106-96-7
Propiolactone, beta-	500		x		57-57-8
Propionaldehyde			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
Propiophenone, 4'-amino-	100/10,000				70-69-9
Propenenitrile	500	10		P101	107-12-0
Propenenitrile, 3-chloro-	1000	1000		P027	542-76-7

(continued)

Appendix 3-1 (continued)

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.
Propoxur			x		114-26-1
Propyl chloroformate	500				109-61-5
Propylene (Propene)			x		115-07-1
Propylene oxide	10,000	100	x		75-56-9
Propyleneimine	10,000	1	x	P067	75-55-8
Prothoate	100/10,000				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				140-76-1
Pyridine,4-amino-	500/10,000	1000		P008	504-24-5
Pyridine,4-nitro-1- oxide	500/10,000				1124-33-0
Pyriminil	100/10,000				53558-25-1
Quinoline		5000	x		91-22-5
Reserpine		5000		U200	50-55-5
Salcomine	500/10,000				14167-18-1
Sarin	10				107-44-8
sec-Amyl acetate		5000			626-38-0
sec-Butyl acetate		5000			105-46-4
sec-Butyl alcohol			x		78-92-2
sec-Butylamine		1000			13952-84-6
sec-Butylamine		1000			513-49-5
Selenium		100	x		7782-49-2
Selenium dioxide		10		U204	7446-08-4
Selenium disulfide		10		U205	7448-56-4
Selenium oxychloride	500				7791-23-3

(continued)

Appendix 3-1 (continued)

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.
Selenious acid	1000/ 10,000	10		U204	7783-00-8
Selenouree		1000		P103	630-10-4
Semicarbazide hydro- chloride	1000/ 10,000				563-41-7
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
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(N ₃))	500	1000		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				124-65-2
Sodium chromate		10			7775-11-3
Sodium cyanide (Na(CN))	100	10		P106	143-33-9
Sodium dodecylben- zene sulfonate		1000			25155-30-0
Sodium fluoride		1000			7681-49-4
Sodium fluoroacetate	10/10,000	10		P058	62-74-8
Sodium hydrosulfide		5000			16721-80-5
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			7632-00-0

(continued)

Appendix 3-1 (continued)

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 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				13410-01-0
Sodium selenite	100/10,000	100			10102-18-8
Sodium selenite		100			7782-82-3
Sodium tellurite	500/10,000				10102-20-2
Strannane,acetoxo-triphenyl-	500/10,000				900-95-8
Strontium chromate		10			7789-06-2
Strychnine	100/10,000	10		P108	57-24-9
Strychnine, sulfate	100/10,000				60-41-3
Styrene		1000	x		100-42-5
Styrene oxide			x		96-09-3
Sulfotep	500	100		P109	3689-24-5
Sulfoxide,3-chloropropyl octyl	500				3569-57-1
Sulfur dioxide	500				7446-09-5
Sulfur monochloride		1000			12771-08-3

(continued)

Appendix 3-1 (continued)

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.
Sulfur tetrafluoride	100				7783-60-0
Sulfur trioxide	100				7446-11-9
Sulfuric acid	1000	1000	x		7664-93-9
Sulfuric acid		1000			8014-95-7
Tabun	10				77-81-6
Tellurium	500/10,000				13494-80-9
Tellurium hexafluoride	100				7783-80-4
Tetraethyldithiopyr phosphate	100	10		P111	107-49-3
Terbufos	100				13071-79-9
tert-Amyl acetate		5000			625-16-1
tert-Butyl acetate		5000			540-88-5
tert-Butyl alcohol			x		75-65-0
tert-Butylamine		1000			75-64-9
Tetrachlorvinphos			x		961-11-5
Tetraethyllead	100	10		P110	78-00-2
Tetraethyltin	100				597-64-8
Tetramethyl Lead	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				2757-18-8
Thallos sulfate	100/10,000	100		P115	7446-18-6
Thiocarbazide	1000/ 10,000				2231-57-4

(continued)

Appendix 3-1 (continued)

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.
Thiofanox	100/10,000	100		P045	39196-18-4
Thiram		10	x	U244	137-26-8
Thiophenol	500	100		P014	108-98-5
Thiosemicarbazide	100/10,000	100		P116	79-19-6
Thiourea		10	x		62-56-6
Thiourea,(2-chlorophe- nyl)-	100/10,000	100		P026	5344-82-1
Thiourea, (2- methylphenyl)-	500/10,000				614-78-8
Thorium dioxide			x		1314-20-1
Titanium dioxide			x		13463-67-7
Titanium tetrachloride	100		x		7550-45-0
Toluene2,4-diisocyan- ate	500	100	x		584-84-9
Toluene2,6-diisocyan- ate	100	100	x		91-08-7
Toxaphene(Camphe- clor)		1	x	P123	8001-35-2
Trans 1,1-dichloro butene	500				110-57-6
Triamiphos	500/10,000				1031-47-6
Triaziquone			x		68-76-8
Triazofos	500				24017-47-8
Trichloroacetyl chloride	500				76-02-8
Trichloro(chlorome- thyl) silane	100				1558-25-4
Trichloro(dichloro- phenyl) silane	500				27137-85-5
Trichloroethylene		100	x	U228	79-01-6
Trichloroethylsilane	500				115-21-9
Trichlorofon		100	x		52-68-6
Trichloronate	500				327-98-0

(continued)

Appendix 3-1 (continued)

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.
Trichlorophenol		10			25167-82-2
Trichlorophenylsilane	500				98-13-5
Triethanolamine dodecylbenzene sulfonate		1000			27323-41-7
Triethoxysilane	500				998-30-1
Triethylamine		5000			121-44-8
Trifluralin			x		1582-09-8
Trimethylamine		100			75-50-3
Trimethylchlorosilane	1000				75-77-4
Trimethylolpropane phosphite	100/10,000				824-11-3
Trimethyltin chloride	500/10,000				1066-45-1
Triphenyltin chloride	500/10,000				639-58-7
Tris(2-chloroethyl) amine	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
Valinomycin	1000/ 10,000				2001-95-8
Vanadium(fume or dust)			x		7440-62-2
Vanadium pentoxide	100/10,000	1000		P120	1314-62-1
Vanadyl sulfate		1000			27774-13-6
Vinyl acetate	1000	5000	x		108-05-4
Vinyl bromide			x		593-60-2
Warfarin	500/10,000	100		P001	81-81-2
Warfarin sodium	100/10,000				129-06-6

(continued)

Appendix 3-1 (continued)

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.
Xylenol		1000			1300-71-6
Xylylene dichloride	100/10,000				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				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
Zirconium nitrate		5000			13746-89-9
Zirconium potassium fluoride		1000			16923-95-8
Zirconium sulfate		5000			14644-61-2

(continued)

Appendix 3-1 (continued)

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.
Zirconium tetrachloride		5000			10026-11-6

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	
	IA	IB	IC	II	III
Glass or approved plastic	1 pt [0.47 L]	1 qt [0.95 L]	1 gal [3.79 L]	1 gal [3.79 L]	1 gal [3.79 L]
Metal (other than DOT drums)	1 gal [3.79 L]	5 gal [18.93 L]	5 gal [18.93 L]	5 gal [18.93 L]	5 gal [18.93 L]
Safety cans	2 gal [7.57 L]	5 gal [18.93 L]	5 gal [18.93 L]	5 gal [18.93 L]	5 gal [18.93 L]
Metal drums (DOT specifications)	60 gal [227.12 L]	60 gal [227.12 L]	60 gal [227.12 L]	60 gal [227.12 L]	60 gal [227.12 L]
Approved portable tanks	660 gal [2498.37 L]	660 gal [2498.37 L]	660 gal [2498.37 L]	660 gal [2498.37 L]	660 gal [2498.37 L]

Appendix 3-3

**Storage in Inside Rooms
(29 CFR 1910.106(d)(4), Table H-13)**

Fire Protection Provided¹	Fire Resistance (hours)	Maximum Size	Total Allowable Quantities (gal/ft² floor area)²
Yes	2	500 ft ² [46.45 m ²]	10 [37.85 L]
No	2	500 ft ² [46.45 m ²]	4 [15.14 L]
Yes	1	150 ft ² [13.94 m ²]	5 [18.93 L]
No	1	150 ft ² [13.94 m ²]	2 [7.57 L]

¹Fire protection system will be sprinkler, water spray, or other approved method.

²If metric containers are being stored, use the nearest metric equivalent.

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

Class	Liquid Storage Level	Protected Storage Maximum per Pile	Unprotected Storage Minimum per Pile
A	Ground and upper floors	2750 gal [10409.88 L] (50)	600 gal [2271.25 L] (12)
	Basement	Not permitted	Not permitted
B	Ground and upper floors	5500 gal [20819.77 L] (100)	1375 gal [5204.94 L] (25)
	Basement	Not permitted	Not permitted
C	Ground and upper floors	16,500 gal [62459.30 L] (300)	4125 gal [15614.82 L] (25)
	Basement	Not permitted	Not permitted
II	Ground and upper floors	16,500 gal [62459.30 L] (300)	4125 gal [15614.82 L] (75)
	Basement	5500 gal [20819.77 L] (100)	Not permitted
III	Ground and upper floors	55,000 gal [208197.66 L] (1000)	13,750 gal [52049.42 L] (250)
	Basement	8250 gal [31229.65 L] (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 [3.66 m] from an aisle. Main aisles will be at least 8 ft [2.44 m] wide and side aisles at least 4 ft [1.22 m] wide.

NOTE 3: Each pile shall be separated from the others by at least 4 ft [1.22 m].

(continued)

Appendix 3-4 (continued)

Outdoor Container Storage

Class	Maximum per pile (gal) [L]	Distance between piles (ft) [m]	Distance to property line that can be built upon (ft) [m]	Distance to street, alley or public way (ft) [m]
IA	1100 [4163.95]	5 [1.52]	20 [6.10]	10 [3.05]
IB	2200 [8327.91]	5 [1.52]	20 [6.10]	10 [3.05]
IC	4400 [44003.79]	5 [1.52]	20 [6.10]	10 [3.05]
II	8800 [33311.63]	5 [1.52]	10 [3.05]	5 [1.52]
III	22,000 [83279.06]	5 [1.52]	10 [3.05]	5 [1.52]

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 [60.96 m] of each container, there will be a 12 ft [3.66 m] 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 3 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 [0.91 m].

(continued)

Appendix 3-4 (continued)

Indoor Portable Tank Storage

Class Liquid	Storage Level	Protected Storage Maximum per Pile (gal) [L]	Unprotected Storage Minimum per Pile (gal) [L]
IA	Ground and upper floors Basement	Not permitted Not permitted	Not permitted Not permitted
IB	Ground and upper floors Basement	20,000 [75708.24] Not permitted	2000 [7570.82] Not permitted
IC	Ground and upper floors Basement	40,000 [151420.48] Not permitted	5500 [20820.32] Not permitted
II	Ground and upper floors Basement	40,000 [151420.48] 20,000 [75708.24]	5500 [20820.32] Not permitted
III	Ground and upper floors Basement	60,000 [227124.72] 20,000 [75708.24]	22,000 [83279.06] 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 [3.66 m] from an aisle. Main aisles will be at least 8 ft [2.44 m] wide and side aisles at least 4 ft [1.22 m] wide.

NOTE 3: Each pile shall be separated from each other by at least 4 ft [1.22 m].

(continued)

Appendix 3-4 (continued)

Outdoor Portable Tank Storage

Class	Maximum per pile (gal) [L]	Distance between piles (ft) [m]	Distance to property line that can be built upon (ft) [m]	Distance to street, alley public way (ft) [m]
IA	2200 [8327.95]	5 [1.52]	20 [6.10]	10 [3.05]
IB	4400 [44003.79]	5 [1.52]	20 [6.10]	10 [3.05]
IC	8800 [33311.63]	5 [1.52]	20 [6.10]	10 [3.05]
II	17,600 [66623.25]	5 [1.52]	10 [3.05]	5 [1.52]
III	44,000 [166558.12]	5 [1.52]	10 [3.05]	5 [1.52]

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 [60.96 m] of each container, there will be a 12 ft [3.66 m] 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 3 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 [0.91 m].

Appendix 3-5

Potentially Incompatible Hazardous Materials (40 CFR 264, Appendix V))

Below are examples of potentially incompatible materials, along with the harmful consequences that result from mixing materials in one group with materials in another group. The list is intended as a guide to indicate the need for special precautions when managing these potentially incompatible waste materials or components. This list is not intended to be exhaustive.

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequences as noted.

Potential Consequences: Heat generation, violent reaction.

Group 1-A	Group 1-B
Acetylene sludge	Acid sludge
Alkaline caustic liquids	Acid and water
Alkaline cleaner	Battery acid
Alkaline corrosive liquids	Chemical cleaners
Alkaline corrosive battery acid	Electrolyte, acid
Caustic wastewater	Etching acid liquid or solvent
Lime sludge and other corrosive alkalies	Pickling liquor and other corrosive acids
Lime wastewater	Spent acid
Lime and water	Spent mixed acid
Spent caustic	Spent sulfuric acid

Potential Consequences: Fire or explosion, generation of flammable hydrogen gas.

Group 2-A	Group 2-B
Aluminum	Any waste in Group 1-A or 1-B
Beryllium	
Calcium	
Lithium	
Magnesium	
Potassium	
Sodium	
Zinc powder	
Other reactive metals and metal hydrides	

(continued)

Appendix 3-5 (continued)

Potential Consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 3-A	Group 3-B
Alcohols Water	Any concentrated waste in Groups 1-A or 1-B Calcium Lithium Metal hydrides Potassium SO ₂ , Cl ₂ , SOCl ₂ , PCl ₃ , CH ₃ , SiCl ₃ Other water-reactive waste

Potential Consequences: Fire or explosion, violent reaction.

Group 4-A	Group-4-b
Alcohols Aldehydes Halogenated hydrocarbons Nitrated hydrocarbons Unsaturated hydrocarbons Other reactive organic compounds and solvents	Concentrated Group 1-A or Group 1-B wastes Group 2-A wastes

Potential Consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group 1-B wastes

Potential Consequences: Fire, explosion, or violent reaction.

Group 6-A	Group 6-B
Chlorates Chlorine Chlorites Chromic acid Hypochlorites Nitrates Nitric acid, fuming Perchlorates Permanganates Peroxides Other strong oxidizers	Acetic acid and other organic acids Concentrated mineral acids Group 2-A wastes Group 4-A wastes Other flammable and combustible wastes

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 [453 kg] 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

(continued)

Appendix 3-6 (continued)

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 [3780 L] or more must be placarded.
6. Cargo tanks having any quantity of hazardous material must be placarded.

INSTALLATION:	COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		

Section 4

Hazardous Waste Management Management

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SECTION 4

HAZARDOUS WASTE MANAGEMENT

A. Applicability

This section applies to Centers for Disease Control and Prevention (CDC) facilities that generate, store, transport, treat, or dispose of any type of hazardous waste. This section and its associated checklists are more complex than other sections in this volume. Not all checklist items will be applicable to a facility. Guidance is provided on the checklists to direct the assessor to the regulations concerning the type of hazardous waste activities/facilities on the facility.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

- *The Resource Conservation and Recovery Act (RCRA)*, Subtitle C. This law, Public Law (PL) 98-616 (42 U.S. Code (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 [0.40 km] of an underground source of drinking water.
- *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). It also defines hazardous waste in relation to public vessels.

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 assessors 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. CDC Regulations/Requirements

- This section includes a description of the environmental regulations, policies, and requirements of the Agency. None are available at this time.

E. Key Compliance Requirements

- Generator Requirements - Responsibilities 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, waste 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 [220.46 lb] of hazardous waste or 1 kg [2.20 lb] of acutely hazardous waste in a 1 mo time period. They also do not accumulate onsite more than 1000 kg [2204.62 lb] of waste at any one time. When either the volume of waste produced in 1 mo exceeds 100 kg [220.46 lb] or more than 1000 kg [2204.62 lb] of waste has accumulated onsite, the facility is required to comply with the more stringent standards applicable to a Small Quantity Generator (SQG).
 2. An SQG produces between 100 [220.46 lb] and 1000 kg [2204.62 lb] of hazardous waste in a month. The waste cannot accumulate onsite for more than 180 days unless the waste is transported more than 200 mi [321.87 km] to a treatment, storage, and disposal facility (TSDF). In that situation, the waste can accumulate for 270 days. But at no time is there to be more than 6000 kg [13,227.73 lb] of waste accumulated at the facility. When the volume of waste generated in one mo exceeds 1000 kg [2204.62 lb], the accumulation time onsite is exceeded, or more than 6000 kg [13,227.73 lb] of waste is onsite, the facility is required to comply with the standards for a Generator.
 3. A Generator produces more than 1000 kg [2204.62 lb] of hazardous waste in a month.

(NOTE: Using water, which weighs approximately 8 lb/gal [3.63 kg/gal] as a basis of measurement, 100 kg [220.46 lb] would equal about 28 gal [105.99 L] (one-half of a 55 gal [208.20 L] drum), 1000 kg [2204.62 lb] would equal about 273 gal [1036.15 L] (almost five, 55 gal [208.20 L] drums.)

Whether the facility is a CESQG, 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 points 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 [220.46 lb/m]	100 kg/mo [220.46 lb] - 1000 kg/mo [2204.62 lb]	>1000 kg/mo [2204.62 lb/mo]
Acute Waste Limits	≤ 1 kg/mo [2.20 lb/mo]	None	None
Management of 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 [2204.62 lb]	≤ 6000kg [13,227.73 lb]	Any quantity
Accumulation Time Limits (without permit)	None	≤ 180 days or ≤ 270 days (>200 mi [321.87 km])	≤ 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	Yes	Yes	Yes

- **Transport Requirements** - Containers of hazardous waste shipped offsite must be labeled to identify the waste and its hazard class. Transporters of hazardous waste that is required to be manifested must have an USEPA identification number and must comply with manifest management requirements
- **Accumulation Point Management** - An accumulation point is an area in or near the workplace 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 where no more than 55 gal [208.20 L] of a hazardous waste or 1 qt [0.95 L] of acute hazardous waste is accumulated at or near the point of generation. The satellite accumulation point is under the control of one operator. When the 55 gal [208.20 L] limit is reached the operator has 3 days to move the waste to a 90 day storage area or a permitted TSDF. These standards only apply to an SQG or a Generator.

- **Radioactive Waste** - Throughout the cited regulations, radioactive substances are referred to as radioactive materials regardless of their condition as a new product or a waste. Personnel working with radioactive materials are required to receive training in addition to the standards hazardous communications training. There are also additional release reporting requirements and sign posting requirements depending on the level of the radioactive materials being stored and used. Containers of radioactive materials are required to be labeled with the radiation caution symbol and the words CAUTION: RADIOACTIVE MATERIALS. If radioactive materials are stored in a nonradiation area, they must be secured against unauthorized removal (29 CFR 1910.96).

F. Responsibility for Compliance

- **Environmental Program Manager.** This person, or the Health and Safety Officer, is responsible for all aspects of the hazardous waste management program. This office receives copies of the manifest labels who comes on the facility to pick up hazardous waste for disposal.

G. Key Compliance Definitions

- **Acute Hazardous Waste** - any waste listed under 40 CFR 261.31 through 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).
- **Airborne Radioactivity Area** - This includes (29 CFR 1910.96(e)(4)(i)):
 1. any room, enclosure, or operating area in which airborne radioactive materials, composed wholly or partly of radioactive material, exist in concentration in excess of the amounts specified in column 1 of Table 1 of Appendix B of 10 CFR 20
 2. any room, enclosure, or operating area in which airborne radioactive materials exist in concentrations that, averaged over the number of hours in any week during which individuals are in the area, exceeds 25 percent of the amounts specified in column 1 of Table 1 of Appendix B to 10 CFR 20.
- **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).
- **Certification** - a statement of professional opinion based upon knowledge and belief (40 CFR 260.10).
- **Characteristics of Hazardous Waste** - the characteristics of ignitibility, corrosivity, reactivity, and toxicity which identify hazardous waste (40 CFR 261.20 through 261.24).
- **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).
- *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).
- *Dike* - an embankment or ridge of either natural or man-made 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).
- *EPA Acknowledgement of Consent* - the cable sent to the EPA 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 EPA 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 EPA to each generator, transporter, and treatment, storage, or disposal facility (40 CFR 260.10).
- *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).

- *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 a 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 parts 264 and 265 are no longer conducted at the facility unless subject to the provisions of 262.34 (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).
- *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 [2204.62 lb/mo].)
- *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 4-1 (40 CFR 268.2).
- *Hazardous Debris* - debris that contains a hazardous waste or that exhibits a characteristic of hazardous waste (40 CFR 268.2).
- *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).
- *High Radiation Area* - any area accessible to personnel in which there exists radiation at such levels that a major portion of the body could receive in any 1 h a dose in excess of 100 mrem (29 CFR 1910.96(d)(3)(iii)).
- *Incompatible Waste* - a hazardous waste that is unsuitable for (40 CFR 160.10):
 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, gases, or flammable fumes or gases.
- *Individual Generation Site* - the contiguous site at or on which one or more hazardous wastes are 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).
 - *Injection Wells* - a well into which fluids are injected (40 CFR 260.10).
 - *International Shipment* - the transportation of hazardous waste into or out of the jurisdiction of the United States (40 CFR 260.10).
 - *Land Disposal* - includes, but is not limited to, any placement of hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, underground mine or cave, or placement in a concrete vault or bunker intended for disposal purposes (40 CFR 268.2).
 - *Large Quantity Generator* - see Generator.
 - *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., daily visible containment 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).
 - *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).
 - *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 five digit number assigned to the manifest by the generator for recording and reporting purposes (40 CFR 260.10).
 - *Movement* - that hazardous waste transported to a facility in an individual vehicle (40 CFR 260.10).
 - *New Hazardous Waste Management Facility* - a facility which began operation, or for which construction commenced after 21 October 1976 (40 CFR 260.10).

- *Onsite* - the same or geographically continuous property which may be divided by a public right-of-way, provided the entrance and exit between the properties is at a cross-roads intersection and access is by crossing as opposed to going along the right-of-way (40 CFR 260.10).
- *Ordinance* - 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).
- *Point Source* - any discernible, confined, and discrete conveyance, including, but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture (40 CFR 260.10).
- *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).
- *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 ground-water 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 judgements regarding groundwater monitoring and contaminant fate and transport (40 CFR 260.10).
- *Radiation* - includes alpha rays, beta rays, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles, but does not include sound or radio waves, visible light, or infrared or ultraviolet (29 CFR 1910.96(a)(1)).
- *Radiation Area* - any area accessible to personnel in which there exists radiation, originating in whole or in part with licensed material, at such levels that a major portion of the body could receive in any 1 h a dose in excess of 5 mrems, or in any 5 consecutive days a dose in excess of 100 mrems (29 CFR 1910.96(d)(3)(ii)).
- *Radioactive Material* - any material that emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations (29 CFR 1910.96(a)(2)).
- *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 [2204.62 lb] of hazardous waste in a calendar month but more than 100 kg [220.46 lb] (40 CFR 260.10).
- *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).
- *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).
- *Transit Country* - any foreign country, other than a receiving country, through which a hazardous waste is transported (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).
- *United States* - the 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands (40 CFR 260.10).

- *Waste Explosives* - this includes waste which has the potential to detonate and bulk military propellants which cannot be safely disposed of through other modes of treatment (40 CFR 265.382).
- *Wastewaters* - wastes that contain less than 1 percent by weight total organic compounds (40 CFR 268.2).

HAZARDOUS WASTE MANAGEMENT
GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS*:	REFER TO PAGE NUMBER:
All Facilities	4-1 through 4-5	(1)(2)(21)	4-15
All Sizes of Generators	4-6 and 4-7	(1)(2)(21)	4-17
Conditionally Exempt Small Quantity Generators (CESQGs)	4-8 through 4-13	(1)(2)(8)(21)	4-19
Small Quantity Generators (SQGs)			
General	4-14 through 4-19	(1)(2)(21)	4-23
Personnel Training	4-20 and 4-21	(1)(2)(8)(21)	4-27
Containers	4-22 through 4-27	(1)(2)(21)	4-29
Satellite Accumulation Points	4-28	(1)(2)(21)	4-31
Container Storage Areas	4-29 through 4-31	(1)(2)(21)	4-33
Disposal of Restricted Waste	4-32 through 4-36	(1)(2)(21)	4-35
Generators			
General	4-37 through 4-43	(1)(2)(21)	4-39
Personnel Training	4-44 and 4-45	(1)(2)(8)(21)	4-43
Contingency Plans and Emergency Coordinators	4-46 through 4-49	(1)(2)(21)	4-45
Containers	4-50 through 4-55	(1)(2)(21)	4-47
Satellite Accumulation Points	4-56	(1)(2)(21)	4-49
Container Storage Areas	4-57 through 4-59	(1)(2)(21)	4-51
Containment Buildings	4-60 through 4-66	(1)(2)(21)	4-53
Disposal of Restricted Waste	4-67 through 4-72	(1)(2)(21)	4-59
Radioactive Wastes	4-73 through 4-78	(1)(2)(21)	4-63
Transportation	4-79 through 4-83	(1)(2)(21)	4-67

* CONTACT/LOCATION CODE:

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (8) Training Activity
- (21) Health and Safety Officer

HAZARDOUS WASTE MANAGEMENT

Records To Review

Generator (including TSDFs if they are also generators):

- Notification (USEPA identification number)
- Hazardous waste manifests
- Manifest exception reports
- Biennial reports
- Inspection logs
- Delistings
- Speculative accumulation records
- Land disposal restriction certifications
- Employee training documentation
- Contingency plan
- Notifications of hazardous waste oil fuel marketing or blending activity

Physical Features To Inspect

- Disposal sites
- Accumulations points
- Incinerators
- Vehicles used for transport
- Storage facilities (including drums)
- Surface impoundments
- OB/OD sites

People To Interview

- Environmental Program Manager
- Facility Supervisor/director
- Training Activity
- Health and Safety Officer

**COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>4-1. 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>4-2. Copies of all relevant CDC, Federal, state, and local regulations on hazardous waste are required to be maintained at the facility (MP).</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. (1)(2)(21)</p> <p>(NOTE: States may obtain authorization to operate the RCRA program from USEPA, provided regulations at least as stringent as USEPA regulations have been passed and an agreement has been signed with USEPA.)</p> <p>Determine from interview if copies of the following regulations are maintained and kept current at the facility: (1)(2)(21)</p> <ul style="list-style-type: none"> - 40 CFR 260, <i>Hazardous Waste Management System: General.</i> - 40 CFR 261, <i>Identification and Listing of Hazardous Waste.</i> - 40 CFR 262, <i>Standards Applicable to Generators of Hazardous Waste.</i> - 40 CFR 263, <i>Standards Applicable to Transporters of Hazardous Waste.</i> - 40 CFR 264, <i>Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities.</i> - 40 CFR 265, <i>Interim Status Standards for Owners and Operators of Hazardous Waste Treatment Storage and Disposal Facilities.</i> - 40 CFR 266, <i>Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities.</i> - 40 CFR 268, <i>Land Disposal Restrictions.</i> - 49 CFR 172-179, <i>Transportation Regulations.</i>

(1) Environmental Program Manager (2) Facility Supervisor/Director (8) Training Activity (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-3. Facilities are required to comply with state and local regulations concerning hazardous waste management (EO 12088, Section 1-1; FFCA, Section 102).</p> <p>4-4. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of finding).</p> <p>4-5. Specific persons should be designated responsible for hazardous waste storage areas, and the precise nature of their responsibilities should be specified (MP).</p>	<p>Verify that the facility is abiding by state and local hazardous waste requirements. (1)(2)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies where approved. (1)(2)(21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - additional manifesting requirements - more frequent reporting requirements - transportation - identification of special waste or waste categories - regulation of specific substances as hazardous waste such as: medical, pathological, and infectious waste; used oil; explosives; used batteries - small and very small quantity generator requirements - RCRA permitting of oil/water separators - disposal requirements - construction and operation of storage and disposal facilities - satellite accumulation point requirements - container marking and labeling requirements.) <p>Verify that the actions detailed in compliance agreements are being taken according to the schedule established in the agreements. (1)(2)(21)</p> <p>Determine if any new regulations have been issued since the finalization of the guide. (1)(2)(21)</p> <p>Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(2)(21)</p> <p>Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(2)(21)</p> <p>Verify that specific individuals have been designated responsible for hazardous waste storage areas. (1)(2)(21)</p> <p>Verify that the individuals designated responsible for hazardous waste storage areas are aware of the precise nature of their responsibilities. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL SIZES OF GENERATORS</p> <p>4-6. Facilities that generate solid wastes must determine if the wastes are hazardous wastes (40 CFR 261.3, 261.4(b), 261.24, and 262.11).</p>	<p>(NOTE: Unidentified waste materials and spilled hazardous materials may have to be disposed of as hazardous waste depending on their constituents or characteristics. 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"> - knowledge of all the constituents of the waste (MSDSs) - laboratory analysis - knowledge of processes used - a sample which is collected for the sole purpose of testing to determine characteristics or composition.) <p>Discuss with staff how wastes generated on the facility were identified and classified. (1)(2)(21)</p> <p>Determine if the facility followed USEPA criteria 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 4-4). (1)(2)(21)</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 4-4 for guidance) and the quantity. (1)(2)(21)</p> <p>(NOTE: The following solid wastes are not considered to be hazardous wastes:</p> <ul style="list-style-type: none"> - household waste - 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 - drilling fluids, produced waters and other wastes affiliated with the explorations, development, or production of crude oil, natural gas, or geothermal energy - solid waste which consists of discarded arsenical-treated wood or wood products which fail the test for Toxicity Characteristics for arsenic and which is not a hazardous waste for any other reason if the waste is generated by persons who utilize the arsenical treated wood and wood products for those materials intended end use - petroleum contaminated media and debris that fail the test for Toxicity Characteristic (Hazardous Waste Codes D018 through D043 only) and are required to meet the corrective action regulations under 40 CFR 280 (see the Section titled AST/UST Management) - 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 CFCs as the heat transfer fluid in a refrigeration cycle, provided that the refrigerant is reclaimed for further use

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>CONDITIONALLY EXEMPT SMALL QUANTITY GENERATORS (CESQG)</p> <p>4-8. Generators of no more than 100 kg/mo [220.46 lb/mo] of hazardous waste may qualify as CESQGs when they meet specific requirements (40 CFR 261.5).</p>	<p>Verify that the following quantity and storage limitations are met: (1)(2)(21)</p> <ul style="list-style-type: none"> - no more than 100 kg [220.46 lb] of hazardous waste is generated in a calendar month - total onsite accumulation does not exceed more than 1000 kg [2204.62 lb] of hazardous waste - no more than 1 kg [2.2 lb] of acute hazardous waste (see Appendix 4-5) is generated in a calendar month - no more than a total of 100 kg [220.46 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. <p>Verify that wastes are either treated or disposed of in an onsite facility or delivered to an offsite TSD, either of which are one of the following: (1)(2)(21)</p> <ul style="list-style-type: none"> - permitted - in interim status - authorized to manage hazardous waste by a state with an approved hazardous waste management program - permitted, licensed, or registered by a state to manage municipal or industrial solid waste - a facility which does one of the following: <ul style="list-style-type: none"> - beneficially uses or reuses, or legitimately recycles or reclaims its waste - treats it waste prior to beneficial use or reuse, or legitimate recycling or reclamation. <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 an facility mixes its waste with used oil, the mixture is subject to the requirements in Subpart G of 40 CFR 279 if it 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>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-9. CESQG personnel who handle hazardous waste should meet certain training requirements (MP).</p>	<p>Verify that the training program is directed by a person trained in hazardous waste management procedures. (1)(2)(8)(21)</p> <p>Verify that the training program includes the following: (1)(2)(8)(21)</p> <ul style="list-style-type: none"> - contingency plan implementation (emergency procedures, equipment, and systems) - key parameters for automatic waste feed cut-off system - procedures for using, inspecting, and repairing emergency and monitoring equipment - operation of communications and alarm systems - response to fire or explosion - response to leaks or spills - waste turn in procedures - identification of hazardous wastes - container use, marking, labeling, and on-base transportation - manifesting and offbase transportation - accumulation point management - personnel health and safety and fire safety - shutdown procedures. <p>Verify that new employee training is completed within 6 mo of employment. (1)(2)(8)(21)</p> <p>Verify that an annual review of initial training is provided. (1)(2)(8)(21)</p> <p>Verify that employees do not work unsupervised until training is completed. (1)(2)(8)(21)</p> <p>Verify specifically that accumulation point managers and hazardous waste handlers have been trained. (1)(2)(8)(21)</p>
<p>4-10. Training records must be maintained for all CESQG staff who manage hazardous waste (MP).</p>	<p>Examine training records and verify they include the following: (1)(2)(8)(21)</p> <ul style="list-style-type: none"> - job title and description for each employee by name - written description of how much training each position will obtain - documentation of training received by name. <p>Determine if training records are retained for 3 yr after employment at the facility. (1)(2)(8)(21)</p>

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**COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-11. Empty containers at CESQGs 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 for containers or inner liners holding hazardous wastes: (1)(2)(21)</p> <ul style="list-style-type: none"> - wastes are removed that can be removed using common practices - no more than 2.5 cm [1 in.] of residue remains. - if the container is less than or equal to 110 gal [416.40 L], no more than 3 percent by weight of total container capacity remains - when the container is greater than 110 gal [416.40 L], no more than 0.3 percent by weight of the total container capacity remains. <p>Verify that for containers that hold a compressed gas, the pressure in the container approaches atmosphere. (1)(2)(21)</p> <p>Verify that for containers or inner liners that held an acute hazardous waste listed in Appendix 4-5, that one of the following is done: (1)(2)(21)</p> <ul style="list-style-type: none"> - it is triple rinsed - it is cleaned by another method identified through the literature or testing as achieving equivalent removal - the inner liner is removed.
<p>4-12. Containers at CESQGs should be managed in accordance with specific management practices (MP).</p>	<p>Verify the following by inspecting storage areas: (1)(2)(21)</p> <ul style="list-style-type: none"> - containers are not stored more than two high and have pallets between them - containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - at least 3 ft [0.91 m] of aisle space is provided between rows of containers.
<p>4-13. Containers of hazardous waste should be kept in designated storage areas at CESQGs (MP).</p>	<p>Verify that all hazardous waste containers are identified and stored in appropriate areas. (1)(2)(21)</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>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SMALL QUANTITY GENERATORS (SQGs)</p> <p>General</p> <p>4-14. Generators of more than 100 kg [220.46 lb] but less than 1000 kg [2204.62 lb] of hazardous waste per month may qualify as a SQG which 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>4-15. SQGs that generate, transport, or handle hazardous wastes must obtain an USEPA identification number (40 CFR 262.12(a), 262.12(b), and 265.11).</p>	<p>Inspect containers, storage, and records. (1)(2)(21)</p> <p>Verify that no more than 1000 kg [2204.62 lb] of hazardous waste is generated in any month. (1)(2)(21)</p> <p>Verify that the onsite accumulation time does not exceed 180 days. (1)(2)(21)</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 [13,227.73 lb] is allowed to accumulate at the facility. (1)(2)(21)</p> <p>Verify that containers are marked with the date accumulation began and the words HAZARDOUS WASTE. (1)(2)(21)</p> <p>Verify that the containers and the areas where containers are stored meet the requirements outlined in the subsections pertaining to SQGs. (1)(2)(21)</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. (1)(2)(21)</p> <p>Verify that correct identification number is used on all appropriate documentation (i.e., manifests). (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-16. A SQG must not offer its hazardous waste to transporters or to TSDFs that have not received an USEPA identification number (40 CFR 262.12(c)).</p> <p>4-17. SQGs of hazardous waste are required to use manifests and keep records of hazardous waste activity (40 CFR 262.20, 262.42(b), and 262.44).</p>	<p>Verify that all transporters of hazardous waste of TSDFs have an USEPA identification number by examining records pertaining to disposal contract awards. (1)(2)(21)</p> <p>Verify that signed copies of returned manifests are kept for 3 yr. (1)(2)(21)</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. (1)(2)(21)</p> <p>Verify that exception reports are kept for at least 3 yr. (1)(2)(21)</p> <p>Verify that records of test results, waste analyses, and determinations are kept for 3 yr. (1)(2)(21)</p> <p>(NOTE: The requirement to prepare a manifest does not apply if:</p> <ul style="list-style-type: none"> - the waste is reclaimed under contractual agreement and: - the type of waste and frequency of shipments are specified in the agreement - 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 - the generator maintains a copy of the reclamation agreement for at least 3 yr after termination of the agreement.) <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>4-18. SQGs are required to keep records of waste analyses, tests, and waste determinations (40 CFR 262.40(c)).</p>	<p>Verify that appropriate records are kept for at least 3 yr from the date the waste was last sent to an onsite or offsite TSD. (1)(2)(21)</p> <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>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-19. SQGs are required to have an emergency coordinator and emergency response planning (40 CFR 262.34(d)(5)).</p>	<p>Verify that the facility has an emergency coordinator. (1)(2)(21)</p> <p>Verify that the following emergency information is posted next to the telephone: (1)(2) (21)</p> <ul style="list-style-type: none">- name and telephone number of emergency coordinator- location of fire extinguishers and spill control materials- location of fire alarms (if present)- telephone number of fire department. <p>Verify that waste handlers are familiar with waste handling and emergency procedures. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Containers</p> <p>4-22. Empty containers at SQGs 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>4-23. 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>4-24. 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>Verify that for containers or inner liners holding hazardous waste: (1)(2)(21)</p> <ul style="list-style-type: none"> - wastes are removed that can be removed using common practices - no more than 2.5 cm [1 in.] of residue remains - if the container is less than or equal to 110 gal [416.40 L], no more than 3 percent by weight of total container capacity remains - when the container is greater than 110 gal [416.40 L], no more than 0.3 percent by weight of the total container capacity remains. <p>Verify that for containers that held a compressed gas, the pressure in the container approaches atmosphere. (1)(2)(21)</p> <p>Verify that for containers or inner liners that held an acute hazardous waste listed in Appendix 4-5, one of the following is done: (1)(2)(21)</p> <ul style="list-style-type: none"> - it is triple rinsed - it is cleaned by another method identified through the literature or testing as achieving equivalent removal - the inner liner is removed. <p>Verify that containers are not leaking, bulging, rusting, damaged, or dented. (1)(2)(21)</p> <p>Verify that waste is transferred to a new container or managed in another appropriate manner when necessary. (1)(2)(21)</p> <p>Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-25. 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>4-26. 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>4-27. Containers of hazardous waste at SQGs should be managed in accordance with specific management practices (MP).</p>	<p>Verify that containers are closed except when it is necessary to add or remove waste (check bungs on drums, look for funnels). (1)(2)(21)</p> <p>Verify that handling and storage practices do not cause damage to the containers or cause them to leak. (1)(2)(21)</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: (1)(2)(21)</p> <ul style="list-style-type: none"> - generate extreme heat or pressure, fire, or explosion, or violent reaction - produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health - produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions - damage the structural integrity of the device or facility - by any other like means threaten human health. <p>(NOTE: Incompatible wastes as listed in Appendix 4-6 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. (1)(2)(21)</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. (1)(2)(21)</p> <p>Determine the following by inspecting containers and storage areas: (1)(2)(21)</p> <ul style="list-style-type: none"> - containers are not stored more than two high and have pallets between them - containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - at least 3 ft [0.91 m] of aisle space is provided between rows of containers.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Satellite Accumulation Points</p> <p>4-28. All SQGs may accumulate as much as 55 gal [208.20 L] of hazardous waste or 1 qt [0.95 L] 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: 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. (1)(2)(21)</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. (1)(2)(21)</p> <p>Verify that the containers are marked HAZARDOUS WASTE or other appropriate identification. (1)(2)(21)</p> <p>(NOTE: See Appendices 4-1, 4-2, 4-3, 4-4, and 4-5 for a guidance list of hazardous and acute wastes.)</p> <p>Verify that when waste is accumulated in excess of quantity limitations the following actions are taken by interviewing the shop managers: (1)(2)(21)</p> <ul style="list-style-type: none"> - the excess container is marked with the date the excess amount began accumulating - the waste is transferred to a 90 day or permitted storage area within 3 days.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Container Storage Areas</p> <p>4-29. Containers of hazardous waste at SQGs should be kept in storage areas designated in the management plan (MP).</p> <p>4-30. SQG 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(d)(4) and 265.30 through 265.37).</p>	<p>Verify that all containers are identified and stored in appropriate areas. (1)(2)(21)</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>Determine if the following required equipment is easily accessible and in working condition by inspecting the SQG storage areas: (1)(2)(21)</p> <ul style="list-style-type: none"> - internal communications or alarm system capable of providing immediate emergency instruction to facility personnel - a telephone or hand-held two way radio - portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals) - spill control equipment - decontamination equipment - 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. <p>Determine if equipment is tested and maintained as necessary to insure proper operation in an emergency. (1)(2)(21)</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. (1)(2)(21)</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. (1)(2)(21)</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. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-31. SQGs must conduct weekly inspections of container storage areas (40 CFR 262.34(d)(2) and 265.174).</p>	<p>Verify that inspections are conducted at least weekly to look for leaking containers and signs of deterioration of containers. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SQGs</p> <p>Disposal of Restricted Waste</p> <p>4-32. SQGs must test their wastes or use process knowledge to determine if they are restricted from land disposal (40 CFR 268.7(a)).</p> <p>4-33. When an SQG is managing a restricted waste a notice must be issued to the TSDF in writing of the appropriate treatment standards and prohibition levels (40 CFR 268.7(a) (1) through 268.7(a)(3) and 268.7(a) (10)).</p>	<p>Determine whether the generator tests for restricted wastes. (1)(2)(21)</p> <p>Determine if the facility generates restricted wastes by reviewing test results (see Appendix- 4-7). (1)(2)(21)</p> <p>Verify that for restricted waste that does not meet the applicable treatment standards or exceeds the applicable prohibition levels, the notice is issued and includes: (1)(2)(21)</p> <ul style="list-style-type: none"> - the USEPA hazardous waste number - treatment standards and applicable prohibition levels - the manifest number associated with the shipment - for hazardous debris, the contaminants subject to treatment and the following statement "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45" - the waste analysis data, when available. <p>Verify that for restricted waste that can be land disposed without further treatment (this does not include debris that does not contain hazardous waste) the notice includes: (1)(2)(21)</p> <ul style="list-style-type: none"> - the USEPA hazardous waste number - treatment standards - the manifest number associated with the shipment - the waste analysis data, when available - the signature of an authorized representative certifying that the waste complies with the treatment standards of 40 CFR 268.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-33. (continued)</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: (1)(2)(21)</p> <ul style="list-style-type: none"> - the USEPA hazardous waste number - treatment standards - the manifest number associated with the shipment - the waste analysis data, when available - for hazardous debris, the contaminant subject to treatment and the following statement "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45" - the date the waste is subject to prohibitions. <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.)</p>
<p>4-34. SQGs 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)(4) and 268.7(a)(10)).</p>	<p>Verify that the plan describes the procedures that the generator will carry out to comply with treatment standards. (1)(2)(21)</p> <p>(NOTE: SQGs 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: (1)(2)(21)</p> <ul style="list-style-type: none"> - the plan is based on a detailed chemical and physical analysis of representative sample of the prohibited waste being treated - contains all the information necessary to treat the waste according to regulatory requirements, including the selected testing frequency - 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. <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.)</p>
<p>4-35. SQGs are required to keep specific documents pertaining to restricted wastes onsite (40 CFR 268.7(a)(5) through 268.7(a)(7) and 268.7(a)(10)).</p>	<p>Verify that if the facility is using generator knowledge to determine whether a waste meets land disposal restriction requirements, the supporting data used in making this determination is retained in the facility operating record. (1)(2)(21)</p> <p>Verify that if the facility has determined whether a waste is restricted using appropriate test methods, the waste analysis data is retained. (1)(2)(21)</p> <p>Verify that if the facility has determined that they are managing a restricted 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 facilities files stating that the generated waste is excluded. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>GENERATORS</p> <p>General</p> <p>4-37. 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>4-38. A generator that generates, transports, or handles hazardous wastes must obtain an USEPA identification number (40 CFR 262.12(a), 262.12(b), 264.11, and 265.11).</p> <p>4-39. Generators must not offer their waste to transporters or TSDFs that have not received an USEPA identification number (40 CFR 262.12(c)).</p>	<p>Inspect each accumulation point and interview the accumulation point manager. Verify that: (1)(2)(21)</p> <ul style="list-style-type: none"> - 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) - each container and tank is labeled or marked clearly with the words HAZARDOUS WASTE. <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 TSDF and permitting requirements.)</p> <p>Examine documentation from USEPA for the facility's generator identification number. (1)(2)(21)</p> <p>Verify that the correct identification number is used on all appropriate documentation (i.e., manifests). (1)(2)(21)</p> <p>Verify that all transporters of hazardous wastes or TSDFs used by the generator have an USEPA identification number by examining records pertaining to disposal contract awards. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-40. 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. (1)(2)(21)</p> <p>Verify that copies are kept for 3 yr. (1)(2)(21)</p> <p>(NOTE: Reporting for exports of hazardous waste is not required.)</p> <p>(NOTE: This does not apply if an annual report was submitted to the state.)</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>4-41. 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. (1)(2)(21)</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 of after the waste is accepted by the initial transporter. (1)(2)(21)</p> <p>Verify that manifests and exception reports are kept for 3 yr. (1)(2)(21)</p> <p>(NOTE: Periods of retention for reports may be extended automatically during the course of any unresolved enforcement action.)</p>
<p>4-42. 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. (1)(2)(21)</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>
<p>4-43. 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: (1)(2)(21)</p> <ul style="list-style-type: none"> - internal communications or alarm system capable of providing immediate emergency instruction to facility personnel - a telephone or hand-held two way radio - portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals) - spill control equipment - decontamination equipment - 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.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
4-43. (continued)	<p>Determine if equipment is tested and maintained as necessary to insure proper operation in an emergency. (1)(2)(21)</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. (1)(2)(21)</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. (1)(2)(21)</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. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>GENERATORS</p> <p>Personnel Training</p> <p>4-44. 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>4-45. 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>Verify that the training program is directed by a person trained in hazardous waste management procedures. (1)(2)(8)(21)</p> <p>Verify that the training program includes the following: (1)(2)(8)(21)</p> <ul style="list-style-type: none"> - contingency plan implementation (emergency procedures, equipment, and systems) - key parameters for automatic waste feed cut-off system - procedures for using, inspecting, and repairing emergency and monitoring equipment - operation of communications and alarm systems - response to fire or explosion - response to leaks or spills - waste turn in procedures - identification of hazardous wastes - container use, marking, labeling, and on-base transportation - manifesting and offbase transportation - accumulation point management - personnel health and safety and fire safety - shutdown procedures. <p>Verify that new employee training is completed within 6 mo of employment/assignment. (1)(2)(8)(21)</p> <p>Verify that an annual review of initial training is provided. (1)(2)(8)(21)</p> <p>Verify that employees do not work unsupervised until training is completed. (1)(2)(8)(21)</p> <p>Verify specifically that accumulation point managers and hazardous waste handlers have been trained. (1)(2)(8)(21)</p> <p>Verify that training records include the following by examination: (1)(2)(8)(21)</p> <ul style="list-style-type: none"> - job title and description for each employee by name - written description of how much training each position will obtain - documentation of training received by name. <p>Determine if training records are retained for 3 yr after employment at the facility. (1)(2)(8)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>GENERATORS</p> <p>Contingency Plans and Emergency Coordinators</p> <p>4-46. Generators must have a contingency plan (40 CFR 262.34(a)(4) and 265.50 through 265.54).</p> <p>4-47. 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>(NOTE: Generating activities may be addressed in the facility's 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 environmental from fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents. (1)(2)(21)</p> <p>Verify that the plan includes the following: (1)(2)(21)</p> <ul style="list-style-type: none"> - a description of actions to be taken during an emergency - a description of arrangements made with local police departments, fire departments, hospitals, contractors, and state and local emergency response teams as appropriate - names, addresses, and phone numbers of all persons qualified to act as emergency coordinator - a list of all emergency equipment at the facility and where this equipment is required, located, and what it looks like - an evacuation plan for facility personnel where there is a possibility evacuation would be needed. <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. (1)(2)(21)</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. (1)(2)(21)</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. (1)(2)(21)</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 the emergency coordinator has the authority to commit the resources needed to carry out the contingency plan. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-48. 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 the emergency coordinator is required to follow these emergency procedures: (1)(2)(21)</p> <ul style="list-style-type: none"> - immediately activate facility alarms or communication systems and notify appropriate base, state, and local response parties - identify the character, exact source, amount, and a real extent of any released materials - 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.) - stop processes and operations at the facility when necessary to prevent fires, explosions, or further releases - collect and contain the released waste - remove or isolate containers when necessary - monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment whenever appropriate - provide for treatment, storage, or disposal of recovered waste, contaminated soil, or surface water, or other material - ensure that no waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup is completed - ensure that all emergency equipment is cleaned and fit for its intended use before operations are resumed - notify USEPA, and appropriate state and local authorities when cleanup is complete and operation resumes.
<p>4-49. Generator 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)).</p>	<p>Determine if incidents have been recorded and corrective actions taken through a review of the facility operating records. (1)(2)(21)</p> <p>Verify that written reports have been submitted to the USEPA regional administrator within 15 days after the incident. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>GENERATORS</p> <p>Containers</p> <p>4-50. Empty containers at generators 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>4-51. 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).</p> <p>4-52. 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).</p>	<p>Verify that for containers or inner liners holding hazardous wastes: (1)(2)(21)</p> <ul style="list-style-type: none"> - wastes are removed that can be removed using common practices - no more than 2.5 cm [1 in.] of residue remains - if the container is less than or equal to 110 gal [416.40 L], no more than 3 percent by weight of total container capacity remains - when the container is greater than 110 gal [416.40 L], no more than 0.3 percent by weight of the total container capacity remains. <p>Verify that for containers that held a compressed gas, the pressure in the container approaches atmosphere. (1)(2)(21)</p> <p>Verify that for containers or inner liners that held an acute hazardous waste listed in Appendix 4-5 that one of the following is done: (1)(2)(21)</p> <ul style="list-style-type: none"> - it is triple rinsed - it is cleaned by another method identified through the literature or testing as achieving equivalent removal - the inner liner is removed. <p>Verify that the rinse water has been tested. (1)(2)(21)</p> <p>Verify that containers are not leaking, bulging, rusting, damaged, or dented. (1)(2)(21)</p> <p>Verify that waste is transferred to a new container or managed in another appropriate manner when necessary. (1)(2)(21)</p> <p>Verify that containers are compatible with waste, in particular, check that strong caustics and acids are not stored in metal drums. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-53. Containers must be closed during storage and handled in a safe manner at generators (40 CFR 262.34(a)(1)(i) and 265.173).</p> <p>4-54. 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>4-55. Containers used to store hazardous waste at generators should be managed in accordance with specific management practices (MP).</p>	<p>Verify that containers are closed except when it is necessary to add or remove waste (check bungs on drums, look for funnels). (1)(2)(21)</p> <p>Verify that handling and storage practices do not cause damage to the containers or cause them to leak. (1)(2)(21)</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: (1)(2)(21)</p> <ul style="list-style-type: none"> - generate extreme heat or pressure, fire, or explosion, or violent reaction - produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health - produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions - damage the structural integrity of the device or facility - by any other like means threaten human health or the environment. <p>(NOTE: Incompatible wastes as listed in Appendix 4-6 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. (1)(2)(21)</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. (1)(2)(21)</p> <p>Verify the following by inspecting container storage areas: (1)(2)(21)</p> <ul style="list-style-type: none"> - containers are not stored more than two high and have pallets between them - containers of highly flammable wastes are electrically grounded (check for clips and wires and make sure wires lead to ground rod or system) - at least 3 ft [0.91 m] of aisle space is provided between rows of containers.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>GENERATORS</p> <p>Satellite Accumulation Points</p> <p>4-56. Generators may accumulate as much as 55 gal [18.208.20 L] of hazardous waste or 1 qt [0.95 L] 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: 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. (1)(2)(21)</p> <p>Verify that the containers are in good condition and are compatible with the waste stored in them and the containers are kept closed except when waste is being added or removed. (1)(2)(21)</p> <p>Verify that the containers are marked HAZARDOUS WASTE or other appropriate identification. (1)(2)(21)</p> <p>(NOTE: See Appendices 4-1, 4-2, 4-3, 4-4, and 4-5 for a guidance list of hazardous and acute wastes.)</p> <p>Verify that when waste is accumulated in excess of quantity limitations, the following actions are taken by interviewing the shop managers: (1)(2)(21)</p> <ul style="list-style-type: none"> - the excess container is marked with the date the excess amount began accumulating - the waste is transferred to a 90 day or permitted storage area within 3 days.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>GENERATORS</p> <p>Container Storage Areas</p> <p>4-57. At Generators, containers of hazardous waste should be kept in designated storage areas (MP).</p> <p>4-58. 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>4-59. Generator personnel must conduct weekly inspections of container storage areas (40 CFR 262.34(a)(1)(i) and 265.174).</p>	<p>Verify that all containers are identified and stored in appropriate areas. (1)(2)(21)</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>Determine the distance from storage containers holding ignitable or reactive waste to the property line. (1)(2)(21)</p> <p>Verify that inspections are conducted at least weekly to look for leaking containers and signs of deterioration of containers. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>GENERATORS</p> <p>Containment Buildings</p> <p>4-60. 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), 264.1100, and 265.1100).</p>	<p>(NOTE: According to the Background Information published on page 37221 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.)</p> <p>Verify that the containment building meets the following: (1)(2)(21)</p> <ul style="list-style-type: none"> - 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 withstand the movement of personnel, wastes, and handling of equipment within the unit - if the unit is used to manage liquids: <ul style="list-style-type: none"> - 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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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-61. Containment buildings are required to be designed according to specific standards (40 CFR 262.34(a)(1)(iv), 264.1101(a)(1) through 264.1101(a)(2), 264.1101(b), 265.1101(a)(1) through 265.1101(a)(2), and 265.1101(b)).</p>	<p>Verify that containment buildings meet the following design standards: (1)(2)(21)</p> <ul style="list-style-type: none"> - it is completely enclosed with a floor, walls, and a roof to prevent exposure to the elements and to assure containment of wastes - the floor and containment walls, including any required secondary containment system, are 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 sufficient structural strength to prevent collapse or other failure - all surfaces in contact with hazardous wastes are compatible with the wastes - 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. <p>Verify that if the containment building is going to manage hazardous wastes with free liquids or treated with free liquids, the following design requirements are also met: (1)(2)(21)</p> <ul style="list-style-type: none"> - 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) - 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"> - the primary barrier is sloped to drain liquids to the associated collection system - liquids and wastes are collected and removed to minimized hydraulic head on the containment system at the earliest practicable time - 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 - the leak detection component of the secondary containment system meets the following: <ul style="list-style-type: none"> - it is constructed with a bottom slope of 1 percent or more - it is constructed of a granular drainage materials with a hydraulic conductivity of 1×10^{-2} 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 3×10^{-5} m²/s or more - 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.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-62. (continued)</p> <p>4-63. Containment buildings are required to be certified by a registered professional engineer (40 CFR 262.34(a)(1)(iv), 264.1101(c)(2), and 265.1101 (c)(2)).</p> <p>4-64. Leaks in containment buildings must be repaired and reported (40 CFR 262.34(a)(1)(iv), 264.1101(c)(3), and 265.1101(c)(3)).</p> <p>4-65. Containment buildings that contain both areas with and without secondary containment must meet specific requirements (40 CFR 262.34(a)(1)(iv), 264.1101(d), and 265.1101(d)).</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. (1)(2)(21)</p> <p>Verify that there is documentation that the waste does not remain for more than 90 days. (1)(2)(21)</p> <p>Verify that the building has been certified by reviewing the documentation. (1)(2)(21)</p> <p>Verify that if a condition is detected that could lead to a leak or has already caused a leak, it is repaired promptly. (1)(2)(21)</p> <p>Verify that when a leak is discovered: (1)(2)(21)</p> <ul style="list-style-type: none"> - the discovery is recorded in the facility operating record - the portion of the containment building that is affected is removed from service - a cleanup and repair schedule is established - within 7 days the Regional Administrator is notified and within 14 working days written notice is provided to the Regional Administrator - the Regional Administrator is notified upon the completion of all repairs and certification from a registered professional engineer is also submitted. <p>Verify that each area is designed and operated according to the appropriate requirements. (1)(2)(21)</p> <p>Verify that measures are taken to prevent the release of liquids or wet materials into areas without secondary containment. (1)(2)(21)</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. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-66. When a containment building is closed specific requirements must be met (40 CFR 262.34(a)(1)(iv), 264.1102, and 265.1102).</p>	<p>Determine if the facility has closed a containment building recently. (1)(2)(21)</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. (1)(2)(21)</p> <p>Verify that the containment building is closed in accordance with closure and post-closure requirements for TSDFs. (1)(2)(21)</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. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>GENERATORS</p> <p>Disposal of Restricted Waste</p> <p>4-67. Facilities that generate hazardous wastes must test their wastes or use process knowledge to determine if they are restricted from land disposal (40 CFR 268.7(a)).</p> <p>4-68. When a generator is managing a restricted waste a notice must be issued to the TSDF in writing of the appropriate treatment standards and prohibition levels (40 CFR 268.7(a) (1) through 268.7(a)(3), 268.7(a)(10)).</p>	<p>Determine whether the generator tests for restricted wastes. (1)(2)(21)</p> <p>Determine if the facility generates restricted wastes by reviewing test results (see Appendix 4-7). (1)(2)(21)</p> <p>Verify that for restricted waste that does not meet the applicable treatment standards or exceeds the applicable prohibition levels the notice is issued and includes: (1)(2)(21)</p> <ul style="list-style-type: none"> - the USEPA hazardous waste number - treatment standards and applicable prohibiting levels - the manifest number associated with the shipment - for hazardous debris, the contaminants subject to treatment and the following statement "This hazardous debris is subject to the alternative treatment standards of 40 CFR 268.45" - the waste analysis data, when available. <p>Verify that for restricted waste that can be land disposed without further treatment (this does not include debris that does not contain hazardous waste) the notice includes: (1)(2)(21)</p> <ul style="list-style-type: none"> - the USEPA hazardous waste number - treatment standards - the manifest number associated with the shipment - the waste analysis data, when available - the signature of an authorized representative certifying that the waste complies with the treatment standards of 40 CFR 268.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-71. 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)).</p> <p>4-72. 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 a one-time notification is submitted to the Director or authorized state including the following: (1)(2)(21)</p> <ul style="list-style-type: none"> - the name and address of the facility receiving the treated waste - a description of the hazardous debris as initially generated, including the applicable USEPA Hazardous Waste Number - for excluded debris, the technology used to treat the debris. <p>Verify that the notification is updated if the debris is shipped to a different facility. (1)(2)(21)</p> <p>Verify that for debris that 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. (1)(2)(21)</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. (1)(2)(21)</p> <p>(NOTE: If the 90 day storage period is exceeded, the generator is required to be permitted as a TSDF.)</p> <p>Verify that transporters do not store manifested shipments of land disposal restricted wastes for more than 10 days. (1)(2)(21)</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. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RADIOACTIVE WASTES</p> <p>4-73. Personnel working around radioactive materials are required to be notified of specific information and trained (29 CFR 1910.96(i)).</p> <p>4-74. Specific notification requirements must be met for radioactive material incidents (29 CFR 1910.96(l) and 1910.96(m)).</p>	<p>(NOTE: Throughout the regulations, radioactive substances are referred to as radioactive materials regardless of their condition as a new product or as a waste.)</p> <p>Verify that all individuals working in or frequenting any portion of a radiation area are: (1)(2)(21)</p> <ul style="list-style-type: none"> - informed of the existence of radioactive materials - instructed in the safety problems associated with exposure to such materials and radiation, and in precautions or devices to minimize exposure - advised of reports that must be made concerning exposure. <p>Verify that the facility has conspicuously posted a current copy of its provisions and operating procedures in locations where radioactive materials are found or keeps the documents in a place where they are available on request. (1)(2)(21)</p> <p>Verify that the facility notifies the Assistant Secretary of Labor or his duly appointed representative by telephone or telegraph of any incident that may have caused or threatened to cause: (1)(2)(21)</p> <ul style="list-style-type: none"> - exposure of the whole body or any individual to 25 rems or more of radiation - exposure of the skin of the whole body of any individual to 150 rems or more of radiation - exposure of the feet, ankles, hands, or forearms of any individual to 375 rems or more of radiation. <p>Verify that the facility notifies the Assistant Secretary of Labor or his duly appointed representative by telephone or telegraph of any incident that may have caused or threatens to cause the release of radioactive material in concentrations which, if averaged over a period of 24 h, would exceed 5000 times the limits specified in Table II of Appendix B of 10 CFR 20. (1)(2)(21)</p> <p>Verify that the notification is made within 24 h of the following: (1)(2)(21)</p> <ul style="list-style-type: none"> - exposure of the whole body or any individual to 5 rems or more of radiation - exposure of the skin of the whole body of any individual to 30 rems or more of radiation - exposure of the feet, ankles, hand, or forearms to 75 rems or more of radiation. <p>Verify that a written report of overexposure is made within 30 days. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-75. Specific signs are required in radiation areas (29 CFR 1910.96(e)(1) through 1910.96(e)(3)(i), 1910.96(e)(4) through 1910.96(e)(5), and 1910.96(g)).</p> <p>4-76. Containers of radioactive materials are required to be labeled according to specific standards (29 CFR 1910.96(e)(6) and 1910.96(h)).</p>	<p>Verify that each radiation area is posted with a conspicuous sign or signs bearing the radiation symbol and the words CAUTION, RADIATION AREA. (1)(2)(21)</p> <p>Verify that each high radiation area is posted with a conspicuous sign or signs bearing the radiation symbol and the words CAUTION, HIGH RADIATION AREA. (1)(2)(21)</p> <p>Verify that each airborne radioactive area is posted with a conspicuous sign or signs bearing the radiation symbol and the words CAUTION, AIRBORNE RADIOACTIVITY AREA. (1)(2)(21)</p> <p>Verify that each area or room in which radioactive material is used or stored and which contains any radioactive material (other than natural uranium or thorium) in any amount exceeding 10 times the quantity of such material specified in Appendix C of 10 CFR 20 is conspicuously posted with a sign or signs bearing the radiation caution symbol and the words CAUTION, RADIOACTIVE MATERIALS. (1)(2)(21)</p> <p>(NOTE: The following are exempted from sign posting requirements:</p> <ul style="list-style-type: none"> - a room or an area with a sealed source when the radiation level 12 in. [30.5 cm] from the surface of the source container or housing does not exceed 5 mrem/h - rooms or other areas containing radioactive material for periods of less than 8 h if: <ul style="list-style-type: none"> - the materials are constantly attended during such periods by an individual who takes appropriate precautions - the room is under the control of the facility.) <p>Verify that each container in which is transported, stored, or used a quantity of radioactive material (other than natural uranium or thorium) greater than the quantity of the material specified in the Appendix bears a durable, clearly visible label with the radiation caution symbol and the words CAUTION, RADIOACTIVE MATERIAL. (1)(2)(21)</p> <p>(NOTE: A label is not required if:</p> <ul style="list-style-type: none"> - the concentration of the material in the containers does not exceed that specified in the Appendix - the containers are laboratory containers such as beakers, flasks, and test tubes used transiently in laboratory procedures and the user if present.) <p>Verify that when containers are used for storage, the labels also state the quantities and kinds of radioactive materials in the containers as well as the date of measurement of the quantities. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-76. (continued)</p> <p>4-77. High radiation areas are required to be equipped with specific control devices (29 CFR 1910.96(e)(3)(ii)).</p> <p>4-78. Radioactive materials stored in a nonradiation area must be secured against unauthorized removal from the place of storage (29 CFR 1910.96(j)).</p>	<p>(NOTE: Radioactive materials packaged and labeled according to DOT rules do not have to be labeled according to these requirements if the inside containers are labeled according to these requirements.)</p> <p>Verify that each high radiation area is equipped with a control device that either causes the level of radiation to be reduced below the level at which an individual might receive a dose of 100 mrem in 1 h upon entry into the area or energizes a conspicuous visible or audible alarm signal so that the individual entering and the supervisor of the activity are aware of the entry. (1)(2)(21)</p> <p>(NOTE: This requirement does not apply to high radiation areas established for a period of 30 days or less.)</p> <p>Verify that radioactive materials are stored in a manner that they are secured against unauthorized removal. (1)(2)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>TRANSPORTATION</p> <p>4-79. Transporters of hazardous waste that is required to be manifested must have an 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)).</p> <p>4-80. 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 their own vehicles or a contractor. (1)(2)(21)</p> <p>Verify that the transporter has a USEPA identification number. (21)</p> <p>Verify that all waste accepted, transported, or offered for transport is accompanied by a manifest. (1)(2)(21)</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. (1)(2)(21)</p> <p>Verify that the transporter retains a copy of the manifest after delivery. (1)(2)(21)</p> <p>Verify that manifests are kept on file for 3 yr. (1)(2)(21)</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. (1)(2)(21)</p> <p>Verify that containers are properly constructed and contain no leaks, corrosion, or bulges by inspecting a sample of containers awaiting transport. (1)(2)(21)</p> <p>Examine end-seams for minor weeping that indicates drum failure. (1)(2)(21)</p> <p>Verify that labeling and marking on each container is compatible with the manifests. (1)(2)(21)</p> <p>Verify that the following information is displayed on a random sample of containers of 110 gal [416.40 L] or less in accordance with 49 CFR 172.304: (1)(2)(21)</p> <p align="center">HAZARDOUS WASTE FEDERAL LAW PROHIBITS IMPROPER DISPOSAL. IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY. Generator's name and address _____ Manifest Document Number _____</p> <p>Verify that proper DOT placarding is available for the transporter. (1)(2)(21)</p>

(1) Environmental Program Manager (2) Facility Supervisor/Director (8) Training Activity (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
HAZARDOUS WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>4-81. 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>4-82. 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>4-83. 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 transport operators have instructions to notify local authorities and take cleanup action so that the discharge does not present a hazard. (1)(2)(21)</p> <p>Verify that transporters give notice to the NRC and report in writing as required by 49 CFR 171.15 and 171.16. (1)(2)(21)</p> <p>Determine if procedures exist to manage movement of hazardous wastes throughout the facility. (1)(2)(21)</p> <p>Determine if drivers are trained in spill control procedures. (1)(2)(21)</p> <p>Determine if provisions have been made for securing wastes in vehicles when transporting. (1)(2)(21)</p> <p>Determine if the facility has a transfer facility. (1)(2)(21)</p> <p>Verify the following: (1)(2)(21)</p> <ul style="list-style-type: none"> - transfer facility storage is for 10 days or less - DOT packaging requirements are met - shipments are manifested and manifests accompany shipments - storage is consistent with good management practice. <p>(NOTE: Storage for more than 10 days will require a TSD permit.)</p>

(1) Environmental Program Manager (2) Facility Supervisor/Director (8) Training Activity (21) Health and Safety Officer

Appendix 4-1

Identification and Listing of Hazardous Waste 40 CFR 261

Table I
Hazardous Waste from Nonspecific Sources
(40 CFR 261.30 through 261.31)

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)

* 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.

(continued)

Appendix 4-1 (continued)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
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 (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(t)
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 where cyanides are used in the process.	(r,t)
F010	quenching bath residues from oil baths from metal heat treating operations where 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)

* 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.

(continued)

Appendix 4-1 (continued)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
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 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.	(t)
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 w/ process contaminants), process residue, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use of have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with 261.35 and where 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)

* 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.

(continued)

Appendix 4-1 (continued)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
F034	wastewaters (except those that have come into contact w/ process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote 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 w/ 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 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.	(t)

* 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.

(continued)

Appendix 4-1 (continued)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
F037 (cont)	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.	(t)

* HAZARD CODE

- t = toxic waste
- i = ignitable waste
- r = reactive waste
- h = acute hazardous waste
- c = corrosive waste
- e = toxicity characteristic waste

* 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 F034 or F035 listings. These stays will remain in effect until further administrative action is taken.

** (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 which employ one of the following treatment methods: activated sludge; trickling filter; rotating biological contactor for the 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 employs a minimum of 6hp per million gallons of treatment volume; and either (B) the hydraulic retention time of the unit is no longer than 5 days; of (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.

(continued)

Appendix 4-1 (continued)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
F038 (cont)	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 non-contact 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.	
F039	leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under Subpart D.	
	<p>* HAZARD CODE</p> <ul style="list-style-type: none"> t = toxic waste i = ignitable waste r = reactive waste h = acute hazardous waste c = corrosive waste e = toxicity characteristic waste <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 F034 or F035 listings. These stays will remain in effect until further administrative action is taken.</p> <p>** (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.</p> <p>*** Aggressive biological treatment units are defined as units which employ one of the following treatment methods: activated sludge; trickling filter; rotating biological contactor for the 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 employs a minimum of 6hp per million gallons of treatment volume; and either (B) the hydraulic retention time of the unit is no longer than 5 days; or (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>	

(continued)

Appendix 4-1 (continued)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
F039 (cont)	(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.)	
	<p>* HAZARD CODE</p> <ul style="list-style-type: none">t = toxic wastei = ignitable waster = reactive wasteh = acute hazardous wastec = corrosive wastee = toxicity characteristic waste	
	<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 F034 or F035 listings. These stays will remain in effect until further administrative action is taken.</p>	
	<p>** (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.</p>	
	<p>*** Aggressive biological treatment units are defined as units which employ one of the following treatment methods: activated sludge; trickling filter; rotating biological contactor for the 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 employs a minimum of 6hp per million gallons of treatment volume; and either (B) the hydraulic retention time of the unit is no longer than 5 days; or (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>	

(continued)

Appendix 4-1 (continued)

Chart 2 Hazardous Wastes from Organic and Inorganic Chemical Industries (40 CFR 261.30 through 261.31)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
<u>Organic Chemicals</u>		
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)
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)

* HAZARD CODES (Column 3)

r = reactive waste

t = toxic waste

(continued)

Appendix 4-1 (continued)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
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)
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)
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)
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)
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)

* HAZARD CODES (Column 3)

r = reactive waste

t = toxic waste

(continued)

Appendix 4-1 (continued)

Industry and USEPA Hazardous Waste Number	Hazardous Waste	Hazard Code*
K113	condensed liquid light ennation of dinitrotoluene.	(t)
K114	vicinals from the purification of toluenediamine in the production of toluenediamine.	(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)
<u>Inorganic Chemicals</u>		
K071	brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.	(t)
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)
<u>Hazardous Waste from Explosives Manufacturing</u>		
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)

* HAZARD CODES (Column 3)

r = reactive waste

t = toxic waste

Appendix 4-2

Commercial Chemical Products or Manufacturing Chemical Intermediates Identified as Toxic Wastes (40 CFR 261.33)

(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
U001	acetaldehyde (i)
U034	acetaldehyde, trichloro-
U187	acetamide, N-(4-ethoxyphenyl)-
U005	acetamide, N-9H-fluoren-2-yl-
U240	acetic acid, (2,4-dichlorophenoxy)-, 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
U011	amitrole
U012	aniline (i, t)
U136	arsenic acid, dimethyl-
U014	auramine
U015	azaserine

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
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-,
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
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-

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
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-
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
U203	1,3-benzodioxole, 5-(2-propenyl)-
U141	1,3-benzodioxole, 5-(1-propenyl)-
U090	1,3-benzodioxole, 5-propyl-
U064	benzo[rs]pentaphene

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
U248	2-H-1-benzopyran-2-on2, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, and salts, when present at concentrations of 0.3% or less
U022	benzo[a]pyrene
U197	p-benzoquinone
U023	benzotrichloride (c,r,t)
U085	2,2-bioxirane (i,t)
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-butenic acid, 2-methyl-, 7- [(2,3-dihydroxy-2-(1-methoxyethyl) -3-methyl-1-oxobutoxy)methyl] -2,3,5,7s-yrtyshyfto-1- pyrrolizin-1-yl ester, [1S-[alpha(Z),7(2S,3R), 7aalpha]]-
U031	n-Butyl alcohol (i)
U136	cacodylic acid
U032	calcium chromate
U238	carbamic acid, ethyl ester
U178	carbamic acid, methylnitroso- ethyl ester
U097	carbamic chloride, dimethyl-
U114	carbamodithioic acid, 1,2- ethanedylbis-, salts and esters
U062	carbamothioic acid, bis(1-methylethyl)-S- (2,3-dichloro-2-propenyl) ester

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
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
U041	1-chloro-2,3-epoxypropane
U042	2-chloroethyl vinyl ether
U044	chloroform
U046	chloromethyl methyl ether
U047	beta-chloronaphthalene
U048	o-chlorophenol
U049	4-chloro-o-toluidine, hydrochloride
U032	chromic acid H ₂ CrO ₄ , 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-

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
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
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)
U108	1,4-diethyleneoxide
U028	diethylhexyl phthalate
U086	N,N-diethylhydrazine
U087	O,O-diethyl-s-methyl dithiophosphate
U088	diethyl phthalate

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
U089	diethylstilbestrol
U090	dihydrosafrole
U091	3,3'-dimethoxybenzidine
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)
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-
U077	ethane, 1,2-dichloro-
U131	ethane, hexachloro-
U024	ethane, 1,1-[methylenebis(oxy)] bis[2-chloro-

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
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
U359	ethane, 1,1,2-trichloro-
U173	ethanol, 2,2'-(nitrosoimino)bis-
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)
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

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
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
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
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

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
U142	kepone
U143	lasiocarpine
U144	lead acetate
U146	lead, bis(acetato-O) tetrahydroxytri-
U145	lead phosphate
U146	lead subacetate
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-
U154	methanol (i)
U155	methapyrilene

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
U142	1,3,4-metheno-2H- cyclobuta[cd]pentalen-2-one-1,1a,3,3a,4,5,5,5a,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-lyxo-hexopyranosyl)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)-
U165	naphthalene
U047	naphthalene, 2-chloro-
U166	1,4-naphthalenedione

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
U236	2,7-naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)- bis(azo)bis(5-amino-4-hydroxy)-, tetrasodium salt
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)
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)
U126	oxiranecarboxyaldehyde
U041	oxirane, 2-(chloromethyl)-
U182	paraldehyde
U183	pentachlorobenzene
U184	pentachloroethane
U185	pentachloronitrobenzene
see F027	pentachlorophenol
U161	pentanol, 4-methyl-

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
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-
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	1-phenylalanine, 4- [bis(2-chloroethyl)amino]-
U145	phosphoric acid, lead salt
U087	phosphorodithioic acid, 0,0-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

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
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-propenamamide
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)
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)
U194	n-propylamine (i,t)
U083	propylene dichloride
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

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
U205	selenium sulfide
U205	selenium sulfide SeS ₂ (r,t)
U015	l-serine, diazoacetate (ester)
see F027	silvex (2,4,5-tp)
U206	streptozotocin
U103	sulfuric acid, dimethyl ester
U189	sulfur phosphide (r)
U232	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 F027	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
U153	thiomethanol (i,t)
U244	thioperoxydicarbonic diamide, tetramethyl-
U219	thiourea
U244	thiuram
U220	toluene
U221	toluenediamine
U223	toluene diisocyanate (r,t)
U328	o-toluidine
U353	p-toluidine
U222	o-toluidine hydrochloride

(continued)

Appendix 4-2 (continued)

USEPA Hazardous Waste Number	Substance
U011	1H-1,2,4-triazol-3-amine
U227	1,1,2-trichloroethane
U228	trichloroethylene
U121	trichloromonofluoromethane
U230	2,4,5-trichlorophenol
U231	2,4,6-trichlorophenol
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	Chronic toxicity reference level	Regulatory level (mg/L)
D004	Arsenic	7440-38-2	0.05	5.0
D005	Barium	7440-39-3	1.0	100.0
D018	Benzene	71-43-2	0.005	0.5
D006	Cadmium	7440-43-9	0.01	1.0
D019	Carbon tetrachloride	56-23-5	0.005	0.5
D020	Chlordane	57-74-9	0.0003	0.03
D021	Chlorobenzene	108-90-7	1	100.0
D022	Chloroform	67-66-3	0.06	6.0
D007	Chromium	7440-47-3	0.05	5.0
D023	o-Cresol	95-48-7	2	200.0 ¹
D024	m-Cresol	108-39-4	2	200.0 ¹
D025	p-Cresol	106-44-5	2	200.0 ¹
D026	Cresol		2	200.0 ¹
D016	2,4-D	94-75-7	0.1	10.0
D027	1,4-Dichlorobenzene	106-46-7	0.075	7.5
D028	1,2-Dichloroethane	107-06-2	0.005	0.5
D029	1,1-Dichloroethylene	75-35-4	0.007	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.0005	0.13 ²
D012	Endrin	72-20-8	0.0002	0.02
D031	Heptachlor (and its hydroxide)	76-44-8	0.00008	0.008
D032	Hexachlorobenzene	118-74-1	0.0002	0.13 ²
D033	Hexachloro-1,3-butadiene	87-68	3	0.005
D034	Hexachloroethane	67-72-1	0.03	3.0
D008	Lead	7439-92-1	0.05	5.0
D013	Lindane	58-89-9	0.004	0.4
D009	Mercury	7439-97-6	0.002	0.2
D014	Methoxychlor	72-43-5	0.1	10.0
D035	Methyl ethyl ketone	78-93-3	2	200.0
D036	Nitrobenzene	98-95-3	0.02	2.0
D037	Pentachlorophenol	87-86-5	1	100.0
D038	Pyridine	110-86-1	0.04	5.0 ²
D010	Selenium	7782-49-2	0.01	1.0
D011	Silver	7440-22-4	0.05	5.0
D039	Tetrachloroethylene	127-18-4	0.007	0.7
D015	Toxaphene	8001-35-2	0.005	0.5
D040	Trichloroethylene	79-01-6	0.005	0.5
D041	2,4,5-Trichlorophenol	95-95-4	4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	0.02	2.0
D017	2,4,5-TP (Silvex)	93-72-1	0.01	1.0
D043	Vinyl chloride	75-01-4	0.002	0.2

¹ If o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used.

² Quantitation limit is greater than the calculated regulatory level. Therefore, the quantitation limit becomes the regulatory level.



Appendix 4-4

Identification of Hazardous Wastes Hazardous Constituents (40 CFR 261, Appendix VIII)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Acetonitrile	Same	75-05-8	U003
Acetophenone	Ethanone, 1-phenyl-	98-86-2	U004
2-Acetylaminofluorene	Acetamide, N-9H-fluorene-2-yl	53-96-3	U005
Acetyl chloride	Same	75-36-5	U006
1-Acetyl-2-thiourea	Acetamide, N-(aminothioxomethyl)-	591-08-2	P002
Acrolein	2-Propenal	107-02-8	P003
Acrylamide	2-Propenamido	79-06-1	U007
Acrylonitrile	2-Propenenitrile	107-13-1	U009
Aflatoxins	Same	1402-68-2	
Aldicarb	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime	116-06-3	P070
Aldrin	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexachloro-1,4,4a,5,8,8a-hexahydro-, (1 alpha, 4alpha, 4beta, 5alpha, 8alpha, 8beta)-	309-00-2	P004
Allyl alcohol	2-Propen-1-ol	107-18-6	P005
Allyl chloride	1-Propane, 3-chloro	107-18-6	
Aluminum phosphide	Same	20859-73-8	P006
4-Aminobiphenyl	[1,1'-Biphenyl]-4-amine	92-67-1	
5-(Aminomethyl)-3-isoxazolol	3(2H)-Isoxazolone, 5-(aminomethyl)-	2763-96-4	P007
4-Aminopyridine	4-Pyridinamine	504-24-5	P008
Amitrole	1H-1,2,4-Triazol-3-amine	61-82-5	U011
Ammonium vanadate	Vanadic acid, ammonium salt	7803-55-6	P119
Aniline	Benzenzmine	62-53-3	U012
Antimony	Same	7440-36-0	
Antimony compounds, N.O.S. ¹			
Aramite	Sulfurous acid, 2-chloroethyl 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester	140-57-8	
Arsenic	Same	7440-38-2	
Arsenic compounds, N.O.S. ¹			
Arsenic acid	Arsenic acid H ₃ AsO ₄	7778-39-4	P010
Arsenic pentoxide	Arsenic oxide As ₂ O ₅	1303-28-2	P011
Arsenic trioxide	Arsenic oxide As ₂ O ₃	1327-53-3	P012
Auramine	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl]	492-80-8	
Azaserine	L-Serine, diazoacetate (ester)	115-02-6	U015
Barium	Same	7440-39-3	
Barium compounds, N.O.S. ¹			
Barium cyanide	Same	542-62-1	P013
Benz[c]acridine	Same	225-51-4	U016

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Benz[a]anthracene	Same	56-55-3	U018
Benzal chloride	Benzene, (dichloromethyl)-	98-87-3	U017
Benzene	Same	71-43-2	U019
Benzene arsonic acid	Arsonic acid, phenyl-	98-05-5	.....
Benzidine	[1,1'-Biphenyl]-4,4 ¹ -diamine	92-87-5	U021
Benzo[b]fluoranthene	Benz[e]acephenanthrylene	205-99-2	.....
Benzo[j]fluoranthene	Same	205-82-3	.....
Benzo[k]fluoranthene	Same	207-08-9	.....
Benzo[a]pyrene	Same	50-32-8	U022
p-Benzoquinone	2,5-Cyclohexadiene-1,4-dione	106-51-4	U197
Benzotrichloride	Benzene, (trichloromethyl)-	98-07-7	U023
Benzyl chloride	Benzene, (chloromethyl)-	100-44-7	P028
Beryllium powder	Same	7440-41-7	P015
Beryllium compounds, N.O.S. ¹ .....	.....	.....	.....
Bromoacetone	2-Propanone, 1-bromo-	598-31-2	P017
Bromoform	Methane, tribromo-	75-25-2	U225
4-Bromophenyl phenyl ether	Benzene, 1-bromo-4-phenoxy-	101-55-3	U030
Brucine	Strychnidin-10-one, 2,3-dimethoxy-	357-57-3	P018
Butyl benzyl phthalate	1,2-Benzenedicarboxylic acid, butyl phenyl-methyl ester.	85-68-7	.....
Cacodylic acid	Arsinic acid, dimethyl-	75-60-5	U136
Cadmium	Same	7440-43-9	.....
Cadmium compounds, N.O.S. ¹ .....	.....	.....	.....
Calcium chromate	Chromic acid H ₂ CrO ₄ , calcium salt	13765-19-0	U032
Calcium cyanide	Calcium cyanide Ca(CN) ₂	592-0108	P021
Carbon disulfide	Same	75-15-0	P022
Carbon oxyfluoride	Carbonic difluoride	353-50-4	U033
Carbon tetrachloride	Methane, tetrachloro-	56-23-5	U211
Chloral	Acetaldehyde, trichloro-	75-87-6	U034
Chlorambucil	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	305-03-3	U035
Chlordane	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-oc-tachloro-2,3,3a,4,7,7a-hexahydro-	57-74-9	U036
Chlordane (alpha and gamma isomers) .....	.....	.....	.....
Chlorinated benzenes, N.O.S. ¹ .....	.....	.....	.....
Chlorinated ethane, N.O.S. ¹ .....	.....	.....	.....
Chlorinated fluorocarbons, N.O.S. ¹ .....	.....	.....	.....
Chlorinated naphthalene, N.O.S. ¹ .....	.....	.....	.....
Chlorinated phenol, N.O.S. ¹ .....	.....	.....	.....
Chlomaphazin	Naphthalenamine, N,N'-bis(2-chloroethyl)-	494-03-1	U026
Chloroacetaldehyde	Acetaldehyde, chloro-	107-20-0	P023
Chloroalkyl ethers, N.O.S. ¹ .....	.....	.....	.....
p-Chloroaniline	Benzenamine, 4-chloro-	106-47-8	P024
Chlorobenzene	Benzene, chloro-	108-90-7	U037

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Chlorobenzilate.....	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-,ethyl ester.	510-15-6	U038
p-Chloro-m-cresol.....	Phenol, 4-chloro-3-methyl-.....	59-50-7	U039
2-Chloroethyl vinyl ether.....	Ethene, (2-chloroethoxy)-.....	110-75-8	U042
Chloroform.....	Methane, trichloro-.....	67-66-3	U044
Chloromethyl methyl ether.....	Methane, chloromethoxy-.....	107-30-2	U046
beta-Chloronaphthalene.....	Naphthalene, 2-chloro-.....	91-58-7	U047
o-Chlorophenol.....	Phenol, 2-chloro-.....	95-57-8	U048
1-(o-Chlorophenyl)thiourea.....	Thiourea, (2-chlorophenyl)-.....	5344-82-1	P026
Chloroprene.....	1,3-Butadiene, 2-chloro.....	126-99-8	.....
3-Chloropropionitrile.....	Propanenitrile, 3-chloro-.....	542-76-7	P027
Chromium.....	Same.....	7440-47-3	.....
Chromium compounds, N.O.S. ¹.....	.....	.....	.....
Chrysene.....	Same.....	218-01-9	U050
Citrus red No. 2.....	2-Naphthalenol, 1-[(2,5-dimethoxyphenyl)azo]-.....	6358-53-8	.....
Coal tar creosote.....	Same.....	8007-45-2	.....
Copper cyanide.....	Copper cyanide CuCN.....	544-92-3	P029
Creosote.....	Same.....	.....	U051
Cresol (Cresylic acid).....	Phenol, methyl-.....	1319-77-3	U052
Crotonaldehyde.....	2-Butenal.....	4170-30-3	U053
Cyanides (soluble salts and complexes) N.O.S. ¹	.....	.....	P030
Cyanogen.....	Ethanedinitrile.....	460-19-5	P031
Cyanogen bromide.....	Cyanogen bromide (CN)Br.....	506-68-3	U246
Cyanogen chloride.....	Cyanogen chloride (CN)Cl.....	506-77-4	P033
Cycasin.....	beta-D-Glucopyranoside, (methyl-ONN-azoxy)methyl.	14901-08-7	.....
2-Cyclohexyl-4,6-dinitrophenol.....	Phenol, 2-cyclohexyl-4,6-dinitro-.....	131-89-5	P034
Cyclophosphamide.....	2H-1,3,2-Oxazaphosphorin-2-amine, N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide.	50-18-0	U058
2,4-D.....	Acetic acid, (2,4-dichlorophenoxy)-.....	94-75-7	U240
2,4-D, salts, esters.....	.....	.....	U240
Daunomycin.....	5,12-Naphthacenedione, 8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxohexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-.	20830-81-3	U059
DDD.....	Benzene, 1,1'-(2,2-dichloroethylidene)bis[4-chloro-.	72-54-8	U060
DDE.....	Benzene, 1,1'-(dichloroethenylidene)bis[4-chloro-.	72-55-9	.....
DDT.....	Benzene, 1,1'-(2,2,2 trichloroethylidene)bis[4-chloro-.	50-29-3	U061
Diallate.....	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester.	2303-16-4	U062
Dibenz[a,h]acridine.....	Same.....	226-36-8	.....
Dibenz[a,j]acridine.....	Same.....	224-42-0	.....
Dibenz[a,h]anthracene.....	Same.....	53-70-3	U063

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
7H-Dibenzo[c,g]carbazole.....	Same.....	194-59-2	.....
Dibenzo[a,e]pyrene.....	Naphtho[1,2,3,4-def]chrysene.....	192-65-4	.....
Dibenzo[a,h]pyrene.....	Dibenzo[b,dif]chrysene.....	189-64-0	.....
Dibenzo[a,i]pyrene.....	Benzo[rst]pentaphene.....	189-55-9	U064
1,2-Dibromo-3-chloropropane.....	Propane, 1,2-dibromo-3-chloro-.....	96-12-8	U066
Dibutyl phthalate.....	1,2-Benzenedicarboxylic acid, dibutyl ester	84-74-2	U069
o-Dichlorobenzene.....	Benzene, 1,2-dichloro-.....	95-50-1	U070
m-Dichlorobenzene.....	Benzene, 1,3-dichloro-.....	541-73-1	U071
p-Dichlorobenzene.....	Benzene, 1,4-dichloro-.....	106-46-7	U072
Dichlorobenzene, N.O.S. ¹	Benzene, dichloro-.....	25321-22-6	.....
3,3'-Dichlorobenzidine.....	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	91-94-1	U073
1,4-Dichloro-2-butene.....	2-Butene, 1,4-dichloro.....	764-41-0	U074
Dichlorodifluoromethane.....	Methane, dichlorodifluoro-.....	75-71-8	U075
Dichloroethylene, N.O.S. ¹	Dichloroethylene.....	25323-30-2	.....
1,1-Dichloroethylene.....	Ethene, 1,1-dichloro.....	75-35-4	U078
1,2-Dichloroethylene.....	Ethene, 1,2-dichloro-, (E).....	156-60-5	U079
Dichloroethyl ether.....	Ethane, 1,1'-oxybis[2-chloro-.....	111-44-4	U025
Dichloroisopropyl ether.....	Propane, 2,2'-oxybis[2-chloro.....	108-60-1	U027
Dichloromethoxy ethane.....	Ethane, 1,1'-[methylenebis(oxy)bix[2-chloro-.	111-91-1	U024
Dichloromethyl ether.....	Methane, oxybis[chloro-.....	542-88-1	P016
2,4-Dichlorophenol.....	Phenol, 2,4-dichloro-.....	120-83-2	U081
2,6-Dichlorophenol.....	Phenol, 1,6-dichloro-.....	87-65-0	U082
Dichlorophenylarsine.....	Arsonous dichloride, phenyl-.....	696-28-6	P036
Dichloropropane, N.O.S. ¹	Propane, dichloro-.....	26638-19-7	.....
Dichloropropanol, N.O.S. ¹	Propanol, dichloro-.....	26545-73-3	.....
Dichloropropene, N.O.S. ¹	1-Propene, dichloro-.....	26952-23-8	.....
1,3-Dichloropropene.....	1-Propene, 1,3-dichloro-.....	542-75-6	U084
Dieldrin.....	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a- octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta, 6aalpha,7beta,7aalpha)-.	60-57-1	P037
1,2:3,4-Diepoxybutane.....	2,2'-Bioxirane.....	1464-53-5	U085
Diethylarsine.....	Arsine, diethyl-.....	692-42-2	P038
1,4-Diethyleneoxide.....	1,4Dioxane.....	123-91-1	U108
Diethylhexyl phthalate.....	1,2-Benzenedicarboxylic acid, bis(2-ethyl-hexyl) ester.	117-81-7	U028
N,N'-Diethylhydrazine.....	Hydrazine, 1,2-diethyl-.....	1615-80-1	U086
O,O-Diethyl S-methyl dithiophosphate.....	Phosphorodithioic acid, O,O-diethyl S-methyl..	3288-58-2	U087
Diethyl-p-nitrophenyl phosphate.....	Phosphoric acid, diethyl 4-nitrophenyl ester.....	311-45-5	P041
Diethyl phthalate.....	1,2-Benzenedicarboxylic acid, diethyl ester.....	84-66-2	U088
O,O-Diethyl O-pyrazinyl phosphoro-thioate.	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester.	297-97-2	P040
Diethylstilbesterol.....	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)obis-, (E)-.	56-53-1	U089
Dihydrosafrole.....	1,3-Benzodioxole, 5-propyl-.....	94-58-6	U090

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Diisopropylfluorophosphate (DFP)	Phosphorofluoridic, bis(1-mthylethyl) ester.....	55-91-4	P043
Dimethoate.....	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester.	60-51-5	P044
3,3'-Dimethoxybenzidine.....	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-...	119-90-4	U091
p-Dimethylaminoazobenzene	Benzenamine, N,N-dimethyl-4-(phenylazo)-.....	60-11-7	U093
7,12-Dimethylbenz[a]anthracene	Benz[a]anthracene, 7,12-dimethyl-	57-97-6	U094
3,3'-Dimethylbenzidine.....	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-	119-90-4	U095
Dimethylcarbamoyl chloride	Carbamic chloride, dimethyl-.....	79-44-7	U097
1,1-Dimethylhydrazine	Hydrazine, 1,1-dimethyl-	57-14-7	U098
1,2-Dimethylhydrazine.....	Hydrazine, 1,2-dimethyl-	540-73-8	U099
alpha,alpha-Dimethylphenethylamine.....	Benzeneethanamine, alpha,alpha-dimethyl.....	122-09-8	P046
2,4-Dimethylphenol.....	Phenol, 2,4-dimethyl-.....	105-67-9	U101
Dimethyl phthalate	1,2-Benzenedicarboxylic acid, dimethyl ester ...	131-11-3	U102
Dimethyl sulfate	Sulfuric acid, dimethyl ester.....	77-78-1	U103
Dinitrobenzene, N.O.S. ¹	Benzene, dinitro-	25154-54-5	.....
4,6-Dinitro-o-cresol	Phenol, 2-methyl-4,6-dinitro-.....	534-52-1	P047
4,6-Dinitro-o-cresol salts .....	.....	.....	P047
2,4-Dinitrophenol	Phenol, 2-methyl-4,6-dinitro-.....	51-28-5	P048
2,4-Dinitrotoluene.....	Benzene, 1-methyl-2,4-dinitro-	121-14-2	U105
2,6-Dinitrotoluene.....	Benzene, 2-methyl-1,3-dinitro-	606-20-2	U106
Dinoseb.....	Phenol, 2-(1-methylpropyl)-4,6-dinitro-	88-85-7	P020
Di-n-octyl phthalate.....	1,2-Benzenedicarboxylic acid, dioctyl ester	117-84-0	U017
Diphenylamine.....	Benzenamine, N-phenyl-.....	122-39-4	.....
1,2-Diphenylhydrazine	Hydrazine, 1,2-diphenyl-.....	122-66-7	U109
Di-n-propylnitrosamine	1-Propanamine, N-nitroso-N-propyl-.....	621-64-7	U111
Disulfoton	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl]ester.	298-04-4	P039
Dithiobiuret.....	Thioimidodicarbonic diamide [(H ₃ N)C(S)] ₂ NH.	541-53-7	P049
Endothall.....	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic	145-73-3	P088
Endrin	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a- octa- hydro-, (1alpha,2beta,2beta,3alpha,6alpha, 6beta,7beta,7alpha)-.	72-20-8	P051
Endrin metabolites .....	.....	.....	P051
Epichlorohydrin	Oxirane, (chloromethyl)-.....	106-89-8	U041
Epinephrine.....	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-.	51-43-4	P042
Ethyl carbamate (urethane).....	Carbamic acid, ethyl ester	51-79-6	U238
Ethyl cyanide	Propanenitrile	107-12-0	P101
Ethylenebisdithiocarbamic acid.....	Carbamodithioic acid, 1,2-ethanediybis-	111-54-6	U114
Ethylenebisdithiocarbamic acid, salts and esters.	.....	.....	U114
Ethylene dibromide.....	Ethane, 1,2-dibromo-.....	106-93-4	U067
Ethylene dichloride.....	Ethane, 1,2-dichloro-	107-06-2	U077
Ethylene glycol monoethyl ether.....	Ethanol, 2-ethoxy-	110-80-5	U359
Ethyleneimine.....	Aziridine.....	151-56-4	P054
Ethylene oxide	Oxirane.....	75-21-8	U115

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Ethylenethiourea.....	2-Imidazolidinethione.....	96-45-7	U116
Ethylidene dichloride.....	Ethane, 1,1-dichloro-.....	75-34-3	U076
Ethyl methacrylate.....	2-Propenoic acid, 2-methyl-, ethyl ester.....	97-63-2	U118
Ethyl methanesulfonate.....	Methanesulfonic acid, ethyl ester.....	65-50-0	U119
Famphur.....	Phosphorothioic acid, 0-[4- [(dimethylamino)sulfonyl]phenyl] O,O-di- methyl ester.	52-85-7	P097
Fluoranthene.....	Same.....	206-44-0	U120
Fluorine.....	Same.....	7782-41-4	P056
Fluoroacetamide.....	Acetamide, 2-fluoro-, sodium salt.....	62-74-8	P058
Formaldehyde.....	Same.....	50-00-0	U122
Formic acid.....	Same.....	64-18-6	U123
Glycidylaldehyde.....	Oxiranecarboxyaldehyde	765-34-4	U126
Halomethanes, N.O.S. ¹.....	.....	.....	.....
Heptachlor.....	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-hep- tachloro-3a,4,7,7a-tetrahydro-.	76-44-8	P059
Heptachlor epoxide.....	2,5-Methano-2H-indeno[1,2-b]oxirene, 2,3,4,5,6,7,7-heptachloro-1a,1b,5,5a,6,6a- hexa- hydro-, 1aalpha, 1bbeta, 2alpha, 5alpha, 5abeta, 6beta, 6aalpha)-.	.....	.....
Heptachlor epoxide (alpha, beta, and gamma isomers).	.....	.....	.....
Heptachlorodibenzofurans.....	.....	.....	.....
Heptachlorodibenzo-p-dioxins.....	.....	.....	.....
Hexachlorobenzene.....	Benzene, hexachloro-	118-74-1	U127
Hexachlorobutadiene.....	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87-68-3	U128
Hexachlorocyclopentadiene.....	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77-47-4	U130
Hexchlorodibenzo-p-dioxins.....	.....	.....	.....
Hexchlorodibenzofurans.....	.....	.....	.....
Hexachloroethane.....	Ethane, hexachloro-.....	67-72-1	U131
Hexachlorophene.....	Phenol, 2,2'-methylenebis[3,4,6-trichloro-.....	70-30-4	U132
Hexachloropropene.....	1-Propene, 1,1,2,3,3,3-hexachloro-.....	1888-71-7	U243
Hexaethyl tetraphosphate.....	Tetraphosphoric acid, hexaethyl ester.....	757-58-4	P062
Hydrazine.....	Same.....	302-01-2	U133
Hydrogen cyanide.....	Hydrocyanic acid.....	74-90-8	P063
Hydrogen fluoride.....	Hydrofluoric acid.....	7654-39-3	U134
Hydrogen sulfide.....	Hydrogen sulfide H ₂ S.....	7738-06-4	U135
Indeno[1,2,3-cd]pyrene.....	Same.....	193-39-3	U134
Isobutyl alcohol.....	1-Propanol, 2-methyl-.....	78-83-1	U140
Isodrin.....	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)-.	465-73-6	P060
Isosafrole.....	1,3-Benzodioxole, 5-(1-propenyl)-.....	120-58-1	U141
Kepone.....	1,3,4-Methano-2H-cyclobuta[cd]pentalen-2- one, 1,1a,3,3a,4,5,5a,5b,6, decachlorooctahydro-.	143-50-0	U142

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Lasiocarpine.....	2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester, [S-[1alpha(Z),7(2S*,3R*),7alpha]]-	303-34-1	4143
Lead.....	Same.....	7439-92-1	.....
Lead compounds, N.O.S. ¹.....	.....	.....	.....
Lead acetate.....	Acetic acid, lead(2+) salt.....	301-04-2	U144
Lead phosphate.....	Phosphoric acid, lead(2+) salt (2:3).....	7446-27-7	U145
Lead subacetate.....	Lead, bus(acetato-O)tetrahydroxytri.....	1335-32-6	U146
Lindane.....	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha,2alpha,3beta,4alpha,5alpha,6beta)-.	58-89-9	U129
Maleic anhydride.....	2,5-Furandione.....	108-31-6	U147
Maleic hydrazide.....	3,6-Pyridazinedione, 1,2-dihydro-.....	123-33-1	U148
Malononitrile.....	Propanedinitrile.....	109-77-3	U149
Melphalan.....	L-Phenylalanine, 4-[bis(2-chloroethyl)aminol]-.	148-82-3	U150
Mercury.....	Same.....	7439-97-6	U151
Mercury compounds, N.O.S. ¹.....	.....	.....	.....
Mercury fulminate.....	Fulminic acid, mercury(2+) salt.....	628-86-4	P065
Methacrylonitrile.....	2Propenenitrile, 2-methyl-.....	126-98-7	U152
Methapyrilene.....	1,2-Ethanediamine, NN-dimethyl-N'-2-pyridinyl-N'-(2-thienylmethyl)-.	91-80-5	U155
Methomyl.....	Ethanimidothioic acid, N-[[[(methylamino)carbonyl]oxy]-, methyl ester.	16752-77-5	P066
Methoxychlor.....	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-.	72-43-5	U247
Methyl bromide.....	Methane, bromo-.....	74-83-9	U029
Methyl chloride.....	Methane, chloro-.....	74-87-3	U045
Methyl chlorocarbonate.....	Carbonochloridic acid, methyl ester.....	79-22-1	U158
Methyl chloroform.....	Ethane, 1,1,1-trichloro-.....	71-55-6	U226
3-Methylcholanthrene.....	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl.....	56-49-5	U157
4,4'-Methylenebis(2-chloroaniline).....	Benzenamine, 4,4'-methylenebis[2-chloro-.....	101-14-4	U158
Methylene bromide.....	Methane, dibromo-.....	74-95-3	U068
Methylene chloride.....	Methane, dichloro-.....	75-09-2	U080
Methyl ethyl ketone (MEK).....	2-Butanone.....	78-93-3	U159
Methyl ethyl ketone peroxide.....	2-Butanone, peroxide.....	1338-23-4	U160
Methyl hydrazine.....	Hydrazine, methyl-.....	60-34-4	P068
Methyl iodide.....	Methane, iodo-.....	74-88-4	U138
Methyl isocyanate.....	Methane, isocyanato-624-83-9.....	P064	.....
2-Methylactonitrile.....	Propanenitrile, 2-hydroxy-2-methyl-.....	75-86-5	P069
Methyl methacrylate.....	2-Propenoic acid, 2-methyl-methyl ester.....	80-62-6	U162
Methyl methanesulfonate.....	Methanesulfonic acid, methyl ester.....	66-27-3	.....
Methyl parathion.....	Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester.	298-00-0	P071
Methylthiouracil.....	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-.	56-04-2	U164

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Mitomycin C.....	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[aminocarbonyloxy]methyl]- 1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5- methyl-, [1aS-1aalpha,8beta,8aalpha,8balph)]-.	50-07-7	U010
MNNG.....	Guanidine, N-methyl-N'-nitro-N-nitroso.....	70-25-7	U163
Mustard gas.....	Ethane, 1,1'-thiobis[2-chloro.....	505-60-2	.....
Naphthalene.....	Same.....	91-20-3	U165
1,4-Naphthoquinone.....	1,4-Naphthalenedione.....	130-15-4	U166
alpha-Naphthylamine.....	1-Naphthalenamine.....	134-32-7	U167
beta-Naphthylamine.....	2-Naphthalenamine.....	91-59-8	U168
alpha-Naphthylthiourea.....	Thiourea, 1-naphthalenyl-.....	86-88-4	P072
Nickel.....	Same.....	7440-02-0	.....
Nickel compounds, N.O.S. ¹.....	.....	.....	.....
Nickel carbonyl.....	Nickel carbonyl Ni(CO) ₄ , (T-4).....	13463-39-3	P073
Nickel cyanide.....	Nickel cyanide Ni(CN) ₂	557-19-7	P074
Nicotine.....	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-.....	54-11-5	P075
Nicotine salts.....	.....	.....	P075
Nitric oxide.....	Nitrogen oxide NO.....	10102-43-9	P076
p-Nitroaniline.....	Benzeneamine, 4-nitro-.....	100-01-6	P077
Nitrobenzene.....	Benzene, nitro-.....	98-95-3	U169
Nitrogen dioxide.....	Nitrogen dioxide NO ₂	10102-44-0	P078
Nitrogen mustard.....	Ethanamine, 2-chloro-N-(2-chloroethyl)-N-methyl-, N-oxide.	51-75-2	.....
Nitrogen mustard, N-oxide, hydro-chloride salt.	.....	.....	.....
Nitroglycerin.....	1,2,3-Propanetriol, trinitrate.....	55-63-0	P081
p-Nitrophenol.....	Phenol, 4-nitro-.....	100-02-7	U170
2-Nitropropane.....	Propane, 2-nitro-.....	79-46-9	U171
Nitrosamines, N.O.S. ¹.....	.....	35576-91-1D	.....
N-Nitrosodi-n-butylamine.....	1-Butamine, N-butyl-N-nitroso.....	924-16-3	U172
N-Nitrosodiethanolamine.....	Ethanol, 2,2'-(nitrosoimino)bis-.....	1116-54-7	U173
N-Nitrosodiethylamine.....	Ethanamine, N-ethyl-N-nitroso.....	55-18-5	U174
N-Nitrosodimethylamine.....	Methanamine, N-methyl-N-nitroso.....	62-75-9	P082
N-Nitroso-N-ethylurea.....	Urea, N-ethyl-N-nitroso-.....	759-73-9	U176
N-Nitrosomethylethylamine.....	Ethanamine, N-methyl-N-nitroso-10595-95-6.....	.....	.....
N-Nitroso-N-methylurea.....	Urea, N-methyl-N-nitroso-.....	684-93-5	U177
N-Nitroso-N-methylurethane.....	Carbamic acid, methylnitroso-, ethyl ester.....	615-53-2	U178
N-Nitrosomethylvinylamine.....	Vinylamine, N-methyl-N-nitroso-.....	4549-40-0	P084
N-Nitrosomorpholine.....	Morpholine, 4-nitroso-.....	59-89-2	.....
N-Nitrosomicotine.....	Pyridine, 3-(1-nitroso-2-pyrrolidinyl)-, (S).....	16543-55-8	.....
N-Nitrosopiperidine.....	Piperidine, 1-nitroso-.....	100-75-4	U179
N-Nitrosopyrrolidine.....	Pyrrolidine, 1-nitroso-.....	930-55-2	U180
N-Nitrososarcosine.....	Glycine, N-methyl-N-nitroso-.....	13256-22-9	.....
5-Nitro-o-toluidine.....	Benzenamine, 2-methyl-5-nitro-.....	99-55-8	U181
Octamethylpyrophosphoramidate.....	Diphosphoramidate, octamethyl-.....	152-16-9	P085

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Osmium tetroxide.....	Osmium oxide OsO ₄ (T-4).....	20816-12-0	P087
Paraldehyde.....	1,3,5-Trioxane, 2,4,6-trimethyl-.....	123-63-7	U182
Parathion.....	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester.	56-38-2	P089
Pentachlorobenzene.....	Benzene, pentachloro-	608-93-5	U183
Pentachlorodibenzo-p-dioxins.....	.....	.....	.....
Pentachlorodibenzofurans.....	.....	.....	.....
Pentachloroethane.....	Ethane, pentachloro-.....	76-01-7	U184
Pentachloronitrobenzene (PCNB).....	Benzene, pentachloronitro-.....	82-68-8	U185
Pentachlorophenol.....	Phenol, pentachloro-.....	87-86-5	See F027
Phenacetin.....	Acetamide, N-(4-ethoxyphenyl)-.....	62-44-2	U187
Phenol.....	Same.....	108-95-2	U188
Phenylenediamine.....	Benzenediamine.....	25265-76-3	.....
Phenylmercury acetate.....	Mercury, (acetato-O)phenyl-.....	62-38-4	P092
Phenylthiourea.....	Thiourea, phenyl-.....	103-85-5	P093
Phosgene.....	Carbonic dichloride.....	75-44-5	P095
Phosphine.....	Same.....	7803-51-2	P096
Phorate.....	Phosphorodithioic, O,O-diethyl S-[(ethylthio)methyl] ester.	298-02-2	P094
Phthalic acid esters, N.O.S. ¹.....	.....	.....	.....
Phthalic anhydride.....	1,3-Isobenzofurandione.....	85-44-9	U190
2-Picoline.....	Pyridine, 2-methyl-.....	109-06-8	U191
Polychlorinated biphenyls, N.O.S. ¹.....	.....	.....	.....
Potassium cyanide.....	Potassium cyanide K(CN).....	151-50-8	P098
Potassium silver cyanide.....	Argentate(1-), bis(cyano-C)-, potassium.....	506-61-6	P099
Pronamide.....	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-.	23950-58-5	U192
1,3-Propane sultone.....	1,2-Oxathiolane, 2,2-dioxide.....	1120-71-4	U193
n-Propylamine.....	1-Propanamine.....	107-10-8	U194
Propargyl alcohol.....	2-Propyn-1-ol.....	107-19-7	P102
Propylene dichloride.....	Propane, 1,2-dichloro-.....	78-87-5	U083
1,2-Propylenimine.....	Aziridine, 2-methyl-.....	75-55-8	P067
Propylthiouracil.....	4(1H)-Pyrimidinone, 2,3-dihydro-6-propyl-2-thioxo-.	51-52-5	.....
Pyridine.....	Same.....	110-86-1	U196
Reserpine.....	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-smethyl ester, (3beta,16beta,17alpha,18beta,20alpha)-.	50-55-5	U200
Resorcinol.....	1,3-Benzenediol	108-46-3	U201
Saccharin.....	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	81-07-2	U202
Saccharin salts.....	.....	.....	U202
Safrole.....	1,3-Benzodioxole, 5-(2-propenyl)-	94-59-7	U203
Selenium.....	Same.....	7782-49-2	.....
Selenium compounds, N.O.S. ¹.....	.....	.....	.....
Selenium dioxide.....	Selenious acid.....	7783-00-8	U204

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Selenium sulfide	Selenium sulfide SeS ₂	7488-56-4	U205
Selenourea	Same	630-10-4	P103
Silver	Same	7440-22-4	.....
Silver compounds, N.O.S. ¹ .....	.....	.....	.....
Silver cyanide	Silver cyanide Ag(CN)	506-64-9	P104
Silvex (2,4,5-TP)	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-	93-72-1	See F027
Sodium cyanide	Sodium cyanide Na(CN)	143-33-9	P106
Streptozotocin	D-Glucose, 2-deoxy-2- [[[(methylnitrosoamino)carbonyl]amino]- Strychnidin-10-one	18883-66-4	U206
Strychnine .....	.....	57-24-9	P108
Strychnine salts .....	.....	.....	P108
TCDD	Dibenzob,e][1,4]dioxin, 2,3,7,8-tetrachloro-	1746-01-6	.....
1,2,4,5-Tetrachlorobenzene	Benzene, 1,2,4,5-tetrachloro-	95-94-3	U207
Tetrachlorodibenzo-p-dioxins .....	.....	.....	.....
Tetrachlorodibenzofurans .....	.....	.....	.....
Tetrachloroethane, N.O.S. ¹	Ethane, tetrachloro-, N.O.S.	25322-20-7	.....
1,1,1,2-Tetrachloroethane	Ethane, 1,1,1,2-tetrachloro-	630-20-6	U208
1,1,2,2-Tetrachloroethane	Ethane, 1,1,2,-tetrachloro-	79-34-5	U209
Tetrachloroethylene	Ethene, tetrachloro-	127-18-4	U210
2,3,4,6-Tetrachlorophenol	Phenol, 2,3,4,6-tetrachloro-	58-90-2	See F027
Tetraethyldithiopyrophosphate	Thiodiphosphoric acid, tertaethyl ester	3689-24-5	P109
Tetraethyl lead	Plumbane, tetraethyl-	78-00-2	P110
Tetraethyl pyrophosphate	Diphosphoric acid, tetraethyl ester	107-49-3	P111
Tetranitromethane	Methane, tetranitro-	509-14-8	P112
Thallium	Same	7440-28-0	.....
Thallium compounds, N.O.S. ¹ .....	.....	.....	.....
Thallic oxide	Thallium oxide TI ₂ O ₃	1314-32-5	P113
Thallium(I) acetate	Acetic acid, thallium(1+) salt	563-68-8	U214
Thallium(I) carbonate	Carbonic acid, dithallium(1+) salt	6533-73-9	U215
Thallium(I) chloride	Thallium chloride TICI	7791-12-0	U216
Thallium(I) nitrate	Nitric acid, thallium(1+) salt	10102-45-1	U217
Thallium selenite	Selenious acid, dithallium(1+) salt	12039-52-0	P114
Thallium(I) sulfate	Sulfuric acid, dithallium(1+) salt	7446-18-6	P115
Thioacetamide	Ethanethioamide	62-55-5	U218
Thiofanox	2-Butanone, 3,3-dimethyl-1-(methylthio)-,)- [(methylamino)carbonyl] oxime.	39196-18-4	P045
Thiomethanol	Methanethiol	74-93-1	U153
Thiophenol	Benzenethiol	108-98-5	P014
Thiosemicarbazide	Hydrazinecarbothioamide	79-19-6	P116
Thiourea	Same	62-56-6	U219
Thiram	Thioperoxydicarbonic diamide [(H ₂ N)C(S)] ₂ S ₂ tetramethyl-	137-26-8	U244
Toluene	Benzene, methyl-	108-88-3	U220
Toluenediamine	Benzenediamine, ar-methyl-	25376-45-8	U221
Toluene-2,4-diamine	1,3-Benzenediamine, 4-methyl-	95-80-7	.....
Touene-2,6-diamine	1,3-Benzenediamine, 2-methyl-	823-40-5	.....

(continued)

Appendix 4-4 (continued)

Common Name	Chemical Abstracts Name	Chemical Abstracts Number	Hazardous Waste Number
Toluene-3,4-diamine.....	1,2-Benzenediamine, 4-methyl-.....	496-72-0	.....
Toluene diisocyanate.....	Benzene, 1,3-diisocyanatomethyl-.....	26471-62-5	U223
o-Toluidine.....	Benzenamine, 2-methyl-.....	95-53-4	U328
o-Toluidine hydrochloride.....	Benzenamine, 2-methyl-, hydrochloride.....	636-21-5	U222
p-Toluidine.....	Benzenamine, 4-methyl-.....	106-49-0	U353
Toxaphene.....	Same.....	8001-35-2	P123
1,2,4-Trichlorobenzene.....	Benzene, 1,2,4-trichloro.....	120-82-1	.....
1,1,2-Trichloroethane.....	Ethane, 1,1,3-trichloro-.....	79-00-5	U227
Trichloroethylene.....	Ethene, trichloro-.....	79-01-6	U228
Trichloromethanethiol.....	Methanethiol, trichloro-.....	75-70-7	P118
Trichloromonofluoromethane.....	Methane, trichlorofluoro-.....	75-69-4	U121
2,4,5-Trichlorophenol.....	Phenol, 2,4,5-trichloro-.....	95-95-4	See F027
2,4,6-Trichlorophenol.....	Phenol, 2,4,6-trichloro-.....	88-06-2	See F027
2,4,5-T.....	Acetic acid, (2,4,5-trichlorophenoxy)-.....	93-76-5	See F027
Trichloropropane, N.O.S. ¹.....	.....	25735-29-9	.....
1,2,3-Trichloropropane.....	Propane, 1,2,3-trichloro-.....	96-18-4	.....
O,O,O-Triethyl phosphorothioate.....	Phosphorothioic acid, O,O,O-triethyl ester.....	126-68-1	.....
1,3,5-Trinitrobenzene.....	Benzene, 1,3,5-trinitro-.....	99-35-4	U234
Tris(1-aziridinyl)phosphine sulfide.....	Aziridine, 1,1',1''-phosphinothioylidynetris-.....	.....	.....
Tris(2,3-dibromopropyl) phosphate.....	1-Propanol, 2,3-dibromo-, phosphate (3:1)	126-72-7	U235
Trypan blue.....	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)bis(azo)]-bis[5-amino-4-hydroxy-, tetrasodium salt.	72-57-1	U236
Uracil mustard.....	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-.	66-75-1	U237
Vanadium pentoxide.....	Vanadium oxide V ₂ O ₅	13-14-62-1	P120
Vinyl chloride.....	Ethene, chloro-.....	75-01-4	U043
Warfarin.....	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, when present at concentrations greater than 0.3%.	81-81-2	U248
Warfarin salts, when present at concentrations less than 0.3%.	.....	.....	U248
Warfarin salts, when present at concentrations greater than 0.3%	.....	.....	P001
Zinc cyanide	Zinc cyanide Zn(CN) ₂	557-21-1	P121
Zinc phosphide.....	Zinc phosphide Zn ₃ P ₂ , when present at concentrations greater than 10%.	1314-84-7	P122
Zinc phosphide.....	Zinc phosphide Zn ₃ P ₂ , when present at concentrations of 10% or less.	1314-84-7	U248

¹ The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.

Appendix 4-5

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	
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	
P001	2H-1-Benzopyran-2-one,4-hydroxy-3- (3-oxo-1-phenylbutyl)-, and salts when present at concentrations greater than 0.3%	

(continued)

Appendix 4-5 (continued)

Hazardous Waste Number	Substance
P028	Benzyl chloride
P015	Beryllium powder
P016	Bis(chloromethyl)ether
P017	Bromoacetone
P018	Brucine
P021	Calcium cyanide
P021	Calcium cyanide Ca(CN) ₂
P022	Carbon disulfide
P095	Carbonic dichloride
P023	Chloroacetaldehyde
P024	p-Chloroaniline
P026	1-(o-Chlorophenyl)thiourea
P027	3-Chloropropionitrile
P029	Copper cyanide
P029	Copper cyanide Cu(CN)
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, 3,4,5,6,9,9-hexachloro-1a,2,2a,3, 6,6a,7,7a-octahydro-, (1-aalpha, 2beta, 2aalpha, 3beta, 6beta, 6aalpha, 7beta, 7aalpha)-
P051	2,7:3,6-Dimethanonaphth[2,3b]oxirane, octahydro-, (1alpha, 2beta, 2abeta, 3alpha, 6alpha, 6abeta, 7beta, 7aalpha)-
P044	Dimethoate
P045	3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino)carbonyl]oxime
P046	alpha, alpha-Dimethylphenethylamine

(continued)

Appendix 4-5 (continued)

Hazardous Waste Number	Substance	
P047	4,6-Dinitro-o-cresol and salts	
P048	2,4-Dinitrophenol	
P020	Dinoseb	
P085	Diphosphoramidate, octamethyl-	
P111	Diphosphoric acid, tetraethyl ester	
P039	Disulfoton	
P049	Dithiobiuret	
P050	Endosulfan	
P088	Endothall	
P051	Endrin	
P051	Endrin and metabolites	
P042	Epinephrine	
P031	Ethanedinitrile	
P066	Ethanimidothioic acid, N-[[[(methylamino)car- bony] oxy]-, methyl ester	
P101	Ethyl cyanide	
P054	Ethyleneimine	
P097	Famphur	
P056	Fluorine	
P057	Fluoroacetamide	
p058	Fluoroacetic acid, sodium salt	
p065	Fulminic acid, mercury(2+) salt	(r,t)
P059	Heptachlor	
P062	Hexaethyl tetraphosphate	
p116	Hydrazinecarbothioamide	
P068	Hydrazine, methyl-	
P063	Hydrocyanic acid	
P063	Hydrogen cyanide	
P096	Hydrogen phosphide	
P064	Isocyanic acid, methyl ester	
P060	Isodrin	
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-	
P092	Mercury (acetato-O)phenyl-	
P065	Mercury fulminate	(r,t)
P082	Methanamine, N-methyl-N-nitroso	
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-hexahy- dro-,3-oxide	
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8- hept- tachloro-3a,4,7,7a-tetrahydro-	

(continued)

Appendix 4-5 (continued)

Hazardous Waste Number	Substance
P066	Methomyl
P068	Methyl hydrazine
P064	Methyl isocyanate
P069	2-Methylactonitrile
P071	Methyl parathion
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
P088	7-Oxabicyclo[2.2.1]heptane-2,3- dicarboxylic acid
P089	Parathion
P034	Phenol, 2-cyclohexyl-4,6-dinitro
P048	Phenol, 2,4-dinitro
P047	Phenol, 2-methyl-4,6-dinitro- and salts
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

(continued)

Appendix 4-5 (continued)

Hazardous Waste Number	Substance
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
P110	Plumbane, tetraethyl-
P098	Potassium cyanide
P098	Potassium cyanide K(CN)
P099	Potassium silver cyanide
P070	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P101	Propanenitrile
P027	Propanenitrile, 3-chloro-
P069	Propanenitrile, 2-hydroxy-2-methyl
P081	1,2,3-Propanetriol, trinitrate (r)
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
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

(continued)

Appendix 4-5 (continued)

Hazardous Waste Number	Substance
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-
P123	Toxaphene
P118	Trichloromethanethiol
P119	Vanadic acid, ammonium salt
P120	Vanadium oxide V ₂ O ₃
P120	Vanadium pentoxide
P084	Vinylamine, N-methyl-N-nitroso
P001	Warfarin, and salts, when present at concentrations greater than 0.3%
P121	Zinc cyanide
P121	Zinc cyanide Zn(CN) ₂
P122	Zinc phosphide Zn ₃ P ₂ , when present at concentrations greater than 0.3%

Appendix 4-6

Potentially Incompatible Hazardous Wastes (40 CFR 264, Appendix V)

Below are examples of potentially incompatible wastes and waste components along with the harmful consequences that result from mixing wastes in one group with wastes in another group. The list is intended as a guide to indicate the need for special precautions when managing these potentially incompatible waste materials or components. This list is not intended to be exhaustive. Operators must, as the regulations require, adequately analyze their wastes so they can avoid creating uncontrolled substances or reactions of the type listed below, whether listed below or not.

In the lists below, the mixing of a Group A material with a Group B material may have the potential consequences as noted.

Potential Consequences: heat generation, violent reaction.

Group 1-A	Group 1-B
Acetylene sludge	Acid sludge
Alkaline caustic liquids	Acid and water
Alkaline cleaner	Battery acid
Alkaline corrosive liquids	Chemical cleaners
Alkaline corrosive battery acid	Electrolyte, acid
Caustic wastewater	Etching acid liquid or solvent
Lime sludge and other corrosive alkalis	Pickling liquor and other corrosive acids
Lime wastewater	Spent acid
Lime and water	Spent mixed acid
Spent caustic	Spent sulfuric acid

Potential Consequences: fire or explosion; generation of flammable hydrogen gas.

Group 2-A	Group 2-B
Aluminum	Any waste in Group 1-A or 1-B
Beryllium	
Calcium	
Lithium	
Magnesium	
Potassium	
Sodium	
Zinc powder	
Other reactive metals and metal hydrides	

(continued)

Appendix 4-6 (continued)

Potential Consequences: fire, explosion, or heat generation; generation of flammable or toxic gases.

Group 3-A	Group 3-B
Alcohols	Any concentrated waste in
Water	Groups 1-A or 1-B
	Calcium
	Lithium
	Metal hydrides
	Potassium
	SO ² Cl ² , SOCl ² , PCl ³ , CH ³ SiCl ³
	Other water-reactive waste

Potential Consequences: fire explosion, or violent reaction.

Group 4-A	Group 4-B
Alcohols	Concentrated Group 1-A or Group
Aldehydes	1-B wastes
Halogenated hydrocarbons	Group 2-A wastes
Nitrated hydrocarbons	
Unsaturated hydrocarbons	
Other reactive organic compounds and solvents	

Potential Consequences: generation of toxic hydrogen cyanide, or hydrogen sulfide gas.

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group 1-B wastes

Potential Consequences: Fire, explosion, or violent reaction.

Group 6-A	Group 6-B
Chlorates	Acetic acid and other organic acids
Chlorine	
Chlorites	Concentrated mineral acids
Chromic acid	Group 2-A wastes
Hypochlorites	Group 4-A wastes
Nitrates	Other flammable and combustible
Nitric acid, fuming	wastes
Perchlorates	
Permanganates	
Peroxides	
Other strong oxidizers	

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
RCRA Hazardous Wastes	Those that contain naturally occurring radioactive materials.	8 May 1992
RCRA Listed Wastes	Mixed radioactive/hazardous wastes.	8 May 1992
D001	All	8 Aug 1990
D002	All	8 Aug 1990
D003	All	8 Aug 1990
D004	Wastewater	8 Aug 1990
D004	Nonwastewaters	8 May 1992
D005	Nonwastewater	8 May 1992
D006	All	8 Aug 1990
D007	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
D010	All	8 Aug 1990
D011	All	8 Aug 1990
D012	All	8 Aug 1990
D013	All	8 Aug 1990
D014	All	8 Aug 1990
D015	All	8 Aug 1990
D016	All	8 Aug 1990

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
D017	All	8 Aug 1990
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 1986
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
F022	All	8 Nov 1988
F023	All	8 Nov 1988
F024 (metals)	Wastewater	8 June 1989

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
F024 (metals)	Nonwastewater	8 Aug 1990
F024 \s-2\ub\d\s0	All others	8 June 1989
F025	All	8 Aug 1990
F026	All	8 Nov 1988
F027	All	8 Nov 1988
F028	All	8 Nov 1988
F039	Wastewater	8 Aug 1990
F039	Nonwastewater	8 May 1992
K001 (organics) ^b	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 ^c	Nonwastewater	8 Aug 1990
K005	Wastewater	8 Aug 1990
K005 ^c	Nonwastewater	8 June 1989
K006	All	8 Aug 1990
K007	Wastewater	8 Aug 1990
K007 ^c	Nonwastewater	8 June 1989
K008	Wastewater	8 Aug 1990
K008 ^c	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 ^c	Nonwastewater	8 Aug 1988

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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 ^c	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 1990
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 ^c	Nonwastewater	8 Aug 1988
K037 ^b	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 ^c	All	8 Aug 1988
K045 ^c	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

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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 ^c	Nonwastewater	8 Aug 1988
K061	Wastewater	8 Aug 1990
K061	Nonwastewater (low zinc) (interim standard for high zinc remains in effect until 7 Aug 1991).	8 Aug 1988
K062	All	8 Aug 1988
K069 (Non-Calcium Sulfate) ^c	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) ^b	All	8 Aug 1988
K086	All others	8 Aug 1988
K087	All	8 Aug 1988
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 ^c	Nonwastewater	8 Aug 1988
K101 (organics)	Wastewater	8 Aug 1988
K101 (metals)	Wastewater	8 Aug 1990
K101 (organics)	Nonwastewater	8 Aug 1988

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
K101 (metals)	Nonwastewater	8 May 1992
K102 (organics)	Wastewater	8 Aug 1988
K102 (metals)	Wastewater	8 Aug 1990
K102 (organics)	Nonwastewater	8 Aug 1988
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
K113	All	8 June 1989
K114	All	8 June 1989
K115	All	8 June 1989
K116	All	8 June 1989
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

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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
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

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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
P079	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
P096	All	8 Aug 1990
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

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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
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

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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
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

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
U066	All	8 Aug 1990
U067	All	8 Aug 1990
U068	All	8 Aug 1990
U069	All	8 June 1989
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
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
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
U101	All	8 June 1989
U103	All	8 Aug 1990

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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
U140	All	8 Aug 1990
U141	All	8 Aug 1990
U142	All	8 Aug 1990

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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
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
U212	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

(continued)

Appendix 4-7 (continued)

Waste Code	Waste Category	Effective Date
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

a This table also does not include contaminated soil and debris wastes.

b The standard has been revised in the Third Third Final Rule.

c No land disposal standard has been revised in the Third Third Final Rule.

(continued)

Appendix 4-7 (continued)

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 1990
3.	Soil and debris contaminated with California list HOCs from CERCLA response or RCRA corrective actions.	8 Nov 1990
4.	Soil and debris contaminated with California list HOCs not from CERCLA response or RCRA corrective actions.	8 July 1989
5.	All soil and debris contaminated with First Third wastes for which treatment standards are based on incineration.	8 Aug 1990
6.	All soil and debris contaminated with Second Third wastes for which treatment standards are based on incineration.	8 June 1991
7.	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 1993
8.	Debris that is contaminated with wastes listed in 40 CFR 268.10, 268.11, and 268.12 (including such wastes that are mixed radioactive hazardous wastes), and debris that is contaminated with any characteristic waste for which treatment standards are established (including such wastes that are mixed radioactive hazardous wastes).	8 May 1993
9.	Hazardous soil having treatment standards based on incineration, mercury retorting or vitrification, and soils contaminated with hazardous wastes listed in 40 CFR 268.10, 268.11, and 268.12 that are mixed radioactive hazardous wastes.	8 May 1993

NOTE:

1. Appendix VII is provided for the convenience of the reader.
2. Contaminated Soil and Debris Rule will be promulgated in the future.

INSTALLATION:	COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		

Section 5

Natural and Cultural Resources Management

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SECTION 5

NATURAL AND CULTURAL RESOURCES MANAGEMENT

A. Applicability

This section applies to any CDC facility with cultural and historic resources. Plans and programs for protection and management of cultural resources, which include historic and prehistoric properties, are included in this section. This section also integrates the requirements of regulations pertaining to the protection of natural resources and endangered and threatened species into a single document which normally will apply to any facility with land management programs.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

B. Federal Regulations

Natural Resources

- *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)).
- *Wild and Scenic Rivers Act* of 1986. This Act, (16 USC 1271-1287, last amended in May 1991), outlines the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, must be preserved in free-flowing condition, and that they and their immediate environments must be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and fulfill other vital national conservation purposes (16 USC 1271). The purpose of this Act is to implement the declared policy of Congress by instituting a national wild and scenic rivers system, by designing the initial components of that system, and by prescribing the methods by which and standards to which additional components may be added to the system from time to time (16 USC 1272).
- *Farmland Protection Policy Act* of 1981. The purpose of this Act, (7 USC 4201-4209, last amended in December 1991), is to minimize the extent to which Federal programs contribute to the unneces-

sary and irreversible conversion of farmland to nonagricultural uses, and to assure that Federal programs are administered in a manner that, to the extent practicable, will be compatible with state, unit of local government, and private programs and policies to protect farmland (7 USC 4201(b)).

- *The Fish and Wildlife Coordination Act* of 1946. This Act, last amended in July 1965, 16 USC 666c, is the Federal legislation which coordinates programs and activities regarding the conservation and rehabilitation of fish and wildlife in the United States. Unless provided for otherwise, whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first must consult with the U.S. Fish and Wildlife Service (FWS), Department of the Interior (DOI), and with the head of the agency exercising administration over the wildlife resources of the particular state where the impoundment, diversion, or other control facility is to be constructed, with a view to the conservation of wildlife resources by preventing loss of and damage to such resources as well as providing for the development and improvement thereof in connection with such water-resource development (16 USC 662(a)).
- *The Migratory Bird Treaty Act* of 1918. This Act, last amended in December 1989, 16 USC 703-711, is a Federal law which enforces international conventions for the protection of migratory birds and game animals to which the United States is a party. Unless permitted by regulations, it is unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, offer for sale, sell, offer to barter, offer to purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport or cause to be transported, carry or cause to be carried, or receive for shipment, transportation, carriage, or export, any migratory bird, any part, nest, or egg of any such bird, or any product, whether or not manufactured, which consists, or is composed in whole or in part, of any such bird or any part, nest, or egg thereof, included in the terms of the conventions for the protection and conservation of migratory birds and game mammals between the United States and the USSR, the United States and Mexico, and the United States and Japan (16 USC 703). It is also unlawful to ship, transport, or carry, by any means whatever, from one state, Territory, or district to or through another state, Territory, or district, or to or through a foreign country, any bird, or any part, nest, or egg thereof, captured, killed, taken, shipped, transported, or carried at any time contrary to the laws of the state, Territory, or district in which it was captured, killed, or taken, or from which it was shipped, transported, or carried (16 USC 705).
- *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.
- Executive Order (EO) 11514, *Protection and Enhancement of Environmental Quality*. This EO, issued on 5 March 1970 and amended by EO 11991 issued on 24 May 1977, is a Presidential order which implements NEPA. Under this EO, the Federal Government must provide leadership in protecting and enhancing the quality of the nation's environment to sustain and enrich human life. Federal agencies must initiate measures needed to direct their policies, plans and programs so as to meet national environmental goals.

- EO 11987, *Exotic Organisms*. This EO requires executive agencies to restrict the introduction of exotic species into natural ecosystems which they own or lease and encourage the states to prevent such introductions.
- EO 11988, *Floodplain Management*. This EO, dated 24 May 1977 and amended by EO 12148, 20 July 1979, implements NEPA, the *National Flood Insurance Act* of 1968, and the *Flood Disaster Protection Act* of 1973. Each agency must provide leadership and take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by floodplains.

Each agency must evaluate the potential effects of any actions it may take in a floodplain; to ensure that its planning programs and budget requests reflect consideration of flood hazards and floodplain management; and to prescribe procedures to implement the policies and requirements of this Order. Each agency must take floodplain management into account when formulating or evaluating any water and land use plans, and must require land and water resources use appropriate to the degree of hazard involved. Agencies must include adequate provision for the evaluation and consideration of flood hazards in the regulations and operating procedures for the license, permits, loan or grants-in-aid programs that they administer (Section 2(c)).

Agencies responsible for Federal real property and facilities must take the following additional actions:

1. The regulations and procedures established under Section 2(d) of this Order require, at a minimum, the construction of Federal structures and facilities to be consistent with standards, criteria, and the intent of those issued under the National Flood Insurance Program. They may deviate only to the extent that the standards of the Flood Insurance Program are demonstrably inappropriate for a given type of structure or facility.
 2. If, after compliance with the requirements of this Order, new construction of structures or facilities are to be located in a floodplain, accepted flood-proofing and other flood protection measures must be applied to new construction or rehabilitation. To achieve flood protection, Services must, wherever practicable, elevate structures above the base flood level rather than filling in land (Section 3(a)(b)).
- EO 11989, *Use of Off-Road Vehicles (ORVs) on the Public Lands*. This EO specifies that ORVs may not be used without special use and location designation.
 - EO 11990, *The Protection of Wetlands*. This EO, dated 24 May 1977 and amended by EO 12608, dated 9 September 1987, implements NEPA. Under this EO each Federal agency must provide leadership and take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands. Each agency, to the extent permitted by law, must avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds:
 1. that there is no practical alternative to such construction
 2. that the proposed action includes all practical measures to minimize harm to wetlands which may result from such use. In making this finding the head of the agency may take into account economic, environmental and other pertinent factors (Section 2(a)).

Each agency must also provide opportunity for early public review of any plans or proposals for new construction in wetlands (Section 2(b)).

- *The Convention on Wetlands of International Importance Especially as Waterfowl Habitat.* This Convention was created on 2 February 1971, in Ramsar, amended by Paris Protocol of 12 March 1982, and entered into force for the United States on 18 December 1986. Each country must promote the conservation of wetlands and waterfowl by establishing nature reserves on wetlands and provide adequately for their wardening (Article 4, para 1). The contracting countries must promote the training of personnel competent in the fields of wetland research, management, and wardening (Article 4, para 4). Those countries which are Contracting Parties to the convention agreed:
 1. wetlands constitute a resource of great economic, cultural, scientific and recreational value, the loss of which would be irreparable
 2. the progressive encroachment on and loss of wetlands now and in the future should be stemmed
 3. waterfowl in their seasonal migration should be regarded as an international resource
 4. conservation of wetlands and their flora and fauna can be ensured by combining far-sighted national policies with coordinated international action.

- EO 12088, *Federal Compliance with Pollution Standards.* This EO, dated 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 ensuring that the agencies, facilities, programs, and activities the Agency funds meet applicable Federal, state, and local environmental requirements 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.

- *The Coastal Zone Management Act of 1972.* This Act, last amended in November 1990, 16 USC 1451-1464, is the Federal legislation which governs the preservation and management of coastal waters in the nation. In relation to coastal zones, the national policy is:
 1. to preserve, protect, develop, and where possible, to restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations
 2. to encourage and assist the states to exercise effectively their responsibilities in the coastal zone through the development and implementation of management programs to achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic, and esthetic values as well as the needs for compatible economic development
 3. to encourage the preparation of special area management plans which provide for increased specificity in protecting significant natural resources, reasonable coastal-dependent economic growth, improved protection of life and property in hazardous areas, including those areas likely to be affected by land subsidence, sea level rise, or fluctuating water levels of the Great Lakes, and improved predictability in governmental decision making
 4. to encourage the participation and cooperation of the public, state and local governments, and interstate and other regional agencies, as well as of the Federal agencies having programs affecting the coastal zone, in carrying out the purposes of this Act
 5. to encourage coordination and cooperation with and among the appropriate Federal, state, and local agencies, and international organizations where appropriate, in collection, analysis, synthesis, and dissemination of coastal management information, research results, and technical assistance, to support state and Federal regulation of land use practices affecting the coastal land ocean resources of the United States
 6. to respond to changing circumstances affecting the coastal environment and coastal resource management by encouraging states to consider such issues as ocean uses potentially affecting the coastal zone (16 USC 145).

- *The Federal Noxious Weed Act of 1970*. This Act, last amended in September 1988, 7 USC 2803 and 2809, states that no person is permitted to move any noxious weed identified in a regulation into or through the United States or interstate, unless such movement is:
 1. from Canada, or authorized under general or specific permit from the Secretary [of Agriculture]
 2. made in accordance with such conditions as the Secretary may prescribe in a permit and in regulations to prevent the dissemination into the United States, or interstate, of such noxious weed (42 USC 2803).
- Public Law (PL) 86-337. This Law (10 USC 2671) requires that all hunting, fishing, and trapping on Agency facilities be in accordance with the fish and game laws of the state in which it is located, and that appropriate state licenses for these activities on the facility be obtained.
- PL 86 -717 requires that projects be developed and maintained to encourage, promote, and assure adequate and dependable future resources, including supplies of forest products. The forest lands will be administered to increase the value of project lands for recreation and wildlife, and to promote ecological conditions by following accepted conservation practices.
- *Clean Water Act (CWA)*. Section 404 of this Act (33 USC 1344) requires that all discharges of dredged and fill material in the waters of the United States, including wetlands, must meet the requirements of USEPA's 404(b)(1) guidelines (40 CFR 230) and obtain water quality certification from the state (33 USC 1341) unless exempted by Congress through implementation of Section 404(r).

Cultural Resources

- *Antiquities Act of 1906*. Within this Act, 16 U.S. Code (USC) 431-433, the President of the United States is authorized to declare historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Federal government to be national monuments (16 USC 431). Permits for the examination of ruins, the excavation of archaeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretary of the Interior (SOI), Agriculture, and Army to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe (16 USC 432).
- *Historic Sites Act of 1935*. This Act, Public Law (PL) 74-292 (16 USC 470-470w-6), authorizes the designation of national historic sites and landmarks, authorizes interagency efforts to preserve historic resources, and establishes a maximum fine of \$500 for violations of the Act.
- *National Historic Preservation Act (NHPA) of 1966*. This Act, 16 USC 470-470w-6, last amended in August 1989, addresses the issue of preserving our national history. The Congress declares that the historical and cultural foundations of the Nation should be preserved as a living part of our community life and development; and that the preservation of this irreplaceable heritage is in the public

interest so that its vital legacy of cultural, educational, aesthetic, inspirational, economic, and energy benefits will be maintained and enriched for future generations of Americans (16 USC 470(b)(2)(4)). The policy of the Federal Government is to:

1. use measures, including financial and technical assistance, to foster conditions under which our modern society and our prehistoric and historic resources can exist in productive harmony and fulfill the social, economic, and other requirements of present and future generations
2. provide leadership in the preservation of the prehistoric and historic resources of the United States and of the international community of nations
3. administer Federally owned, administered, or controlled prehistoric and historic resources in a spirit of stewardship for the inspiration and benefit of present and future generations
4. contribute to the preservation of non-Federally owned prehistoric and historic resources and give maximum encouragement to organizations and individuals undertaking preservation by private means
5. encourage the public and private preservation and utilization of all usable elements of the Nation's historic built environment
6. assist state and local governments and the National Trust for Historic Preservation in the United States to expand and accelerate their historic preservation programs and activities (16 USC 470-1).

- *The National Environmental Policy Act (NEPA)*. The purpose of this Act, 42 USC 4321-4370c, as last amended in November 1990, was to declare a national policy which will encourage productive and enjoyable harmony between man and his environment. Additionally it provides for the promotion of efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man (42 USC 4321). It is the continuing responsibility of the Federal government is to use practicable means and resources to the end that the Nation may preserve important historic, cultural, and natural aspects of our national heritage (42 USC 4331(b)(4)).
- Executive Order (EO) 11593, *Protection and Enhancement of the Cultural Environment*. This EO, dated 13 May 1971, directs Federal agencies to: provide leadership in preserving, restoring, and maintaining the historic and cultural environment of the Nation; ensure the preservation of historic resources; locate, inventory, and nominate to the National Register all properties under their control that meet the criteria for nomination; and ensure that historic resources are not inadvertently damaged, destroyed, or transferred before the completion of inventories and evaluation for the National Register.
- *Archaeological and Historic Preservation Act of 1974*. This Act, PL 93-291 (amends PL 86-523); (16 USC 469-469c), directs Federal agencies to notify the SOI when they find that any Federal construction project or Federally licensed activity or program may cause irreparable loss or destruction of significant scientific, prehistoric, historical, or archaeological data. It also provides criteria for funding historical and archaeological protection for such projects.
- *Public Buildings Cooperative Use Act of 1976*. This Act, 40 USC 490, 601 note, et seq., was last amended in November 1988. Under this Act, the Administrator of General Services must, among other duties, acquire and use space in suitable buildings of historic, architectural, or cultural significance, unless use of such space would not prove feasible and prudent compared with available alternatives (40 USC 601a(a)(1)).
- *American Indian Religious Freedom Act of 1978*. This Act, PL 95-341 (42 USC 1996), states the policy of the United States to protect and preserve for American Indians their inherent rights of free-

dom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Alert, and native Hawaiians. These rights include, but are not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremony and traditional rites.

- *Archaeological Resources Protection Act (ARPA)* of 1979. This Act, 16 USC 470aa-470mm, was last amended in October 1988. The purpose of this Act is to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites which are on public lands and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data which were obtained before 1 October 1979 (16 USC 470aa(b)).
- *Native American Graves Protection and Repatriation Act (NAGPRA)* of October 1990. This Act, 25 USC 3001-3013, permits the intentional removal from or excavation of Native American cultural items from Federal or tribal lands for purposes of discovery, study, or removal of such items only if:
 1. such items are excavated or removed pursuant to a permit issued which must be consistent with this Act
 2. such items are excavated or removed after consultation with or, in the case of tribal lands, consent of the appropriate (if any) Indian tribe or Native Hawaiian organization
 3. the ownership and right of control of the disposition of such items must be as provided in subsections (a) and (b) of this section
 4. proof of consultation or consent is shown (25 USC 3002(c)).

Each Federal agency and museum which has possession or control over holdings or collections of Native American human remains and associated funerary objects must compile an inventory of such items and, to the extent possible based on information processed by such museum or Federal agency, identify the geographical and cultural affiliation of such item (25 USC 3003(a)). Each Federal agency or museum which has possession or control over holdings or objects of Native American unassociated funerary objects, sacred objects, or objects of cultural patrimony must provide a written summary of such objects based on available information held by such agency or museum. The summary must describe the scope of the collection, kinds of objects included, reference to geographical location, means and period of acquisition and cultural affiliation, where readily ascertainable.

- *Abandoned Shipwreck Act* of 1987. This Act, PL 100-298, defines and clarifies access and ownership rights and directs the Director of the National Park Service to prepare guidelines, in consultation with appropriate public and private section interests, to administer and manage underwater resources.

C. State/Local Regulations

Natural Resources

States develop lists for their local threatened or endangered species in addition to the Federal lists.

States develop regulations and management practices (MPs) for the protection of surface waters, coastal zones, wetlands, and the prevention of nonpoint source pollution.

States also establish regulations governing hunting and fishing activities.

Cultural Resources

At the state level, the State Historic Preservation Officer (SHPO) provides assistance in determining cultural significance and eligibility for the National Register, but may also nominate properties, irrespective of ownership. The SHPO must be consulted during all cultural resources planning.

States may also issue regulations designating state historical sites.

D. CDC Regulations/Requirements

- This section includes a description of the applicable Agency regulations, policies, and requirements. None are available at this time.

E. Key Compliance Requirements

Natural Resources

- Land Management - Floodplains and wetlands should be identified and protected. Agency activities are not allowed to discharge dredge or fill material into the waters of the United States without a permit (MPs and 33 CFR 313.3(a)).
- Endangered/Threatened Species - Facilities with Federally designated endangered and threatened species are required to carry out programs for their conservation. A survey will be done to determine if the facility has any such species, and measures taken to maintain them. All facilities must review proposed actions and activities to ensure that they are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat (40 CFR 1500; 50 CFR 402.01(a), 402.10, and 402.12).
- EISs/Environmental Assessments (EA) - A facility must produce an EIS if a proposed action causes potential for significant degradation of environmental quality, significant threat to public health or safety, there is public controversy concerning significance or nature of the biophysical, environmental impact of an action, or potential for significant impact on protected natural or historic sources. An EA may be produced before any contract for action is entered into or action is begun to determine if an EIS is necessary. All EAs must prompt either the preparation of a finding of no significant impact (FNSI) or an EIS. When used, FNSIs must meet certain requirements, such as the name of the action, a brief description of the action, a discussion of environmental effects, the conclusions that have led to the FNSI, and the date of approval and appropriate signature (40 CFR 1502.4, 1502.10 through 1502.13, 1503.4(i), 1508.9, and 1508.13).
- Contaminated Sites - Facilities are required to conduct site investigations of potentially contaminated sites. If further actions are needed, the facility is required to participate in a detailed process of investigations and community relations.

Cultural Resources

- Historical Properties - All Federal Agencies are required to establish a program to locate, inventory, and nominate to the SOI all properties under the agency's control that qualify for inclusion on the

National Register of Historic Places. Historic properties held in fee by the Federal government, and under the jurisdiction of the CDC are required to be protected and managed and have damage mitigated. These requirements also apply to property held in less than fee by the Federal government whenever CDC activities have an adverse impact on the property. Facilities are required to take into account the effects of a new undertaking on property in the National Register before beginning an undertaking. The facility is required to consult the SHPO during identification, location, and evaluation of historic properties and in assessing the effect of an undertaking on historic property (36 CFR 60.9(7)(f), 60.13, 800.1, 800.4, and 800.5; 32 CFR 229.4(a) and 229.5(b)).

- **Archaeological Requirements** - When unrecorded historic property is discovered during construction or other undertakings, work is required to halt until the situation is properly evaluated. Archaeological resources on either public or Indian lands cannot be excavated, removed, damaged, or otherwise altered without permit (32 CFR 229.4(a) and 229.5(b)).
- **Native American Graves and Artifacts** - Federal law protects Native American graves and artifacts. Facilities are required to take measures to identify and protect them and cooperate with Native American groups in returning them to their rightful owners (PL 101-601, Section 3d, Section 5, and Section 6).

F. Responsibility for Compliance

- **Environmental Program Manager.** This person, or the Health and Safety Officer, is responsible for coordinating the NEPA review of all plans and activities for CDC facilities.
- **Grounds Maintenance Section.** This section is responsible for land management activities at CDC facilities.
- **Engineering Services Office.** This office, through its sections, is responsible for incorporating NEPA requirements into the planning and design process.

G. Key Compliance Definitions

- **Action** - all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to (50 CFR 402.02):
 1. actions intended to conserve listed species or their habitat
 2. the promulgation of regulations
 3. the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid
 4. actions directly or indirectly causing modifications to the land, water, or air.
- **Action Area** - all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR 402.02).
- **Advisory Council on Historic Preservation (ACHP)** - the Council established by Title II of the NHPA to advise the President and Congress, to encourage private and public interest in cultural preservation, and to comment on Federal agency action under Section 106 of the NHPA (36 CFR 65.3).

- *Archaeological Resource* - any material remains of prehistoric or historic human life or activities. Such resources include, but are not limited to: pottery, basketry, bottles, weapons, weapon projectiles, tools, structures or portions of structures, pit houses, rock paintings, rock carvings, intaglios, graves, human skeletal materials, or any portion or piece of any of the foregoing items (16 USC 470bb).
- *Associated Funerary Objects* - objects that, as a part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later, and both the human remains and associated funerary objects are presently in the possession or control of a Federal agency or museum, except for other items exclusively made for burial purposes or to contain human remains shall be considered as associated funerary objects (PL 101-601, Section 2).
- *Building* - a structure created to shelter any form of human activity, such as a house, barn, church, hotel, or similar structure. Building may refer to a historically related complex such as a courthouse and jail, or a house and barn (36 CFR 60.3).
- *Burial Site* - any natural or prepared physical location, whether originally below, on, or above the surface of the earth, into which as a part of the death rite or ceremony of a culture, individual human remains are deposited (PL 101-601, Section 2).
- *Candidate Species* - any species being considered by the SOI for listing as an threatened or endangered species (50 CFR 404.02).
- *CERCLIS* - This is the abbreviation of the CERCLA information system, U.S. Environmental Protection Agency's (USEPA) comprehensive database and management system that inventories and tracks releases addressed or needing to be addressed by the Superfund program (40 CFR 300.5).
- *Critical Habitat* - specific areas within the geographic area commonly occupied by a species which contain features essential to the conservation of the species and which may require special management considerations or protection. Specific areas outside the currently occupied range of a threatened or endangered species may be determined by the SOI as areas essential for the conservation of the species (50 CFR 424.02).
- *Cultural Affiliation* - a relationship of shared group identity which can be reasonably traced historically or prehistorically between a present day Indian tribe or Native Hawaiian organization and an identifiable earlier group (PL 101-601, Section 2).
- *Cultural Items* - associated and unassociated funerary objects, sacred objects, and cultural patrimony (PL 101-106, Section 2(3)(a-d)).
- *Cultural Patrimony* - an object having ongoing historical, traditional, or cultural importance central to the Native American group or culture itself, rather than property owned by an individual Native American, and which, therefore, cannot be alienated, appropriated, or conveyed by any individual regardless of whether or not the individual is a member of the Indian tribe or Native Hawaiian organization (PL 101-601, Section 2).

- *Destruction or Adverse Modification* - means a direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species. Such alterations include, but are not limited to, alterations adversely modifying any of those physical or biological features that were the basis for determining the habitat to be critical (50 CFR 402.02).
- *Determination of Eligibility* - a decision by the Department of the Interior (DOI) that a district, site, building, structure, or object meets the National Register criteria for evaluation although the property is not formally listed in the National Register (36 CFR 60.3).
- *District* - a geographically definable area, urban or rural, that possesses a significant concentration, linkage or continuity of sites, structures, buildings, or objects united by past events or aesthetically by plan or physical development. A district may also comprise individual elements separated geographically but linked by association or history (36 CFR 60.3).
- *Effect* - direct effects are caused by the undertaking and occur at the place and time of the undertaking. Indirect effects are those caused by the undertaking that are later in time or further removed in distance, but are still reasonably foreseeable (50 CFR 1508.8).
- *Endangered Property* - a historic property that is, or is about to be, subjected to a major impact that will destroy or seriously damage the qualities of significance that make it eligible for National Historic Landmark or National Register of Historic Places designation (36 CFR 65.3).
- *Endangered Species* - any species which is in danger of extinction throughout all or a significant portion of its range (other than a species of the Class Insect determined to constitute a pest). Federally listed endangered species are officially designated by the DOI (50 CFR 81.1).
- *Environmental Assessment* - a concise public document for which a Federal agency is responsible that serves to briefly provide sufficient evidence and analysis for determining whether to prepare an EIS or a FNSI (40 CFR 1508.9).
- *EIS (Environmental Impact Statement)* - a detailed statement by the responsible official on (40 CFR 1508.11):
 1. the environmental impact of the proposed action
 2. any adverse environmental effects which cannot be avoided should the proposal be implemented
 3. alternatives to the proposed action
 4. the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity
 5. any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.
- *Feasibility Study (FS)* - a study undertaken by the lead agency to develop and evaluate options for remedial action (40 CFR 300.5).
- *Federal Lands* - any land other than tribal lands which are controlled or owned by the United States, including lands selected by but not yet conveyed to Alaska Native Corporations and groups pursuant to the *Alaska Native Claims Settlement Act* of 1971 (PL 101-601, Section 2).

- *Federal Preservation Officer* - the person who is responsible for coordinating the agency's activities under the NHPA and EO 11593, including nominating properties under the agency's ownership or control to the National Register (36 CFR 60.3).
- *FNSI (Finding of No Significant Impact)* - a document that briefly presents the reasons why an action, not otherwise excluded, does not need an EIS (40 CFR 1508.13).
- *Historic Preservation* - identification, evaluation, documentation, curation, acquisition, protection, rehabilitation, restoration, management, stabilization, maintenance, recording, and reconstruction of cultural resources, and any combination of the foregoing (16 USC 470w(8)).
- *Historic Property or Resource* - any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register; such term includes artifacts, records, and remains which are related to such a district, site, building, structure, or object (16 USC 470W).
- *Indian Lands* - all lands under the jurisdiction or control of an Indian tribe (36 CFR 800.2).
- *Indian Tribe or Tribe* - an Indian Tribe, band, nation, or other organized group or community including a Native village, Regional Corporation or Village Corporation as those terms are defined in section 3 of the *Alaska Native Claims Settlement Act* (42 USC 1602), which is recognized as eligible for the special programs and services provided by the United States to Indians because of their status as Indians (NHPA, Section 301(4)).
- *Inventory* - an itemized list of human remains and funerary objects along with their geographical and cultural affiliations (PL 101-601, Section 5.(a) and (e)).
- *Jeopardize the Continued Existence of* - to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR 402.02).
- *Landmark* - a National Historic Landmark is a district, site, building, structure or object, in public or private ownership, judged by the SOI to possess national significance in American history, archaeology, architecture, engineering, and culture, and is so designated by the Secretary (36 CFR 65.3).
- *Management Practice (MP)* - practices, that although not mandated by law, are encouraged to promote safe operating procedures.
- *Museum* - any institution or state or local government agency (including any institution higher learning) that receives Federal funds and has possession of, or control over, Native American cultural items. Such term does not include the Smithsonian Institution or any other Federal agency (PL 101-601, Section 2).
- *National Historic Landmarks Program* - the program that identifies, designates, recognizes, lists, and monitors National Historic Landmarks, conducted by the Secretary through the National Park Service (36 CFR 65.3).
- *National Park Service* - the bureau of the DOI to which the SOI has delegated the authority and responsibility for administering the National Register program (36 CFR 60.3(h)).

- *National Register of Historic Places (National Register)* - the listing of districts, sites, buildings, structures, and objects of national, state, or local significance in American history, architecture, archaeology, or culture that is maintained by the SOI (Keeper of the Register) (36 CFR 65.3).
- *Native American* - of, or relating to, a tribe, people, or culture that is indigenous to the United States (PL 101-106, Section 2).
- *Native Hawaiian* - any individual who is a descendent of the aboriginal people who, prior to 1778, occupied and exercised sovereignty in the area that now constitutes the state of Hawaii (PL 101-106, Section 2).
- *NOI (Notice of Intent)* - a notice that an EIS will be prepared and considered. It should contain (40 CFR 1508.22):
 1. a description of the proposed action and possible alternatives
 2. the proposed scoping process and schedule
 3. the name and address of the person who can give more information.
- *Nominate* - to complete and submit National Register of Historic Places form proposing that a resource be included in the National Register. Nominations can be made for individual resources, multiple resources, or thematic groups (36 CFR 60.4).
- *Preliminary Assessment (PA)* - review of existing information and offsite reconnaissance, if appropriate, to determine if a release may require additional investigation or action. A PA may include an onsite reconnaissance if appropriate (40 CFR 300.5).
- *Preservation* - identification, evaluation, recordation, documentation, curation, acquisition, protection management, rehabilitation, restoration, stabilization, maintenance, and reconstruction of any constituents of the foregoing activities (16 USC 470W).
- *Property* - a site, building, object, structure, or a collection of the above that forms a district (36 CFR 65.3).
- *Public Lands* - lands owned and administered by the United States including the national park system, national wildlife refuge system, and national forest system. Additional public lands are those whose fee title is held by the United States, the Outer Continental Shelf, and lands under the jurisdiction of the Smithsonian Institute (PL 96-95, Section 3(3)).
- *Remedial Design (RD)* - the technical analysis and procedures which follow the selection of a remedy for a site and results in a detailed set of plans and specifications for implementation of the remedial action (40 CFR 300.5).
- *Remedial Investigation (RI)* - a process undertaken by the lead agency to determine the nature and extent of the problem presented by the release (40 CFR 300.5).
- *Restoration* - the act or process of accurately recovering the form and details of property and its setting as it appeared at a particular period of time by means of the removal of later work or by the replacement of missing earlier work (36 CFR 68.2).

- *Sacred Objects* - specific ceremonial objects which are needed by traditional Native American religious leaders for the practice of their traditional Native American religions by their present day adherents (PL 101-601, Section 2).
- *Section 106 Consultation* - a compliance procedure in which an agency requests the comments of the SHPO and/or the ACHP when an undertaking may affect a property on, or eligible for, the National Register (36 CFR 800.3 through 800.9).
- *State Historic Preservation Officer (SHPO)* - the official, who is responsible for administering the NHPA within the state of jurisdiction, or a designated representative authorized to act for the SHPO (36 CFR 60.3).
- *Threatened Species* - any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Federally listed threatened species are officially designated by the DOI (50 CFR 81.21).
- *Unassociated Funerary Objects* - objects that, as a part of the death rites or ceremony of a culture are reasonably believed to have been placed with individual human remains either at the time of death or later, where the remains are not in the possession or control of the Federal agency or museum and the objects can be identified by a preponderance of the evidence as related to specific individuals or families or to known human remains or, by a preponderance of the evidence, as having been removed from a specific burial site of an individual culturally affiliated with a particular Indian tribe (PL 101-106, Section 2).
- *Undertaking* - a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal Agency, including (NHPA 301(7)):
 1. those carried out by or on behalf of the agency
 2. those carried out with Federal financial assistance
 3. those requiring a Federal permit, license or approval
 4. those subject to state or local regulation administered pursuant to a delegation of approval by a Federal agency.

NATURAL AND CULTURAL RESOURCES MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS:*	REFER TO PAGE NUMBER:
All Facilities	5-1 through 5-6	(1)(2)(3)(13)(21)	5-19
Land Management	5-7 through 5-10	(1)(14)(15)(21)	5-23
Endangered/Threatened Species	5-11 and 5-12	(1)(6)(13)(15)(21)	5-25
Migratory Species	5-13	(1)(14)(21)	5-27
NEPA	5-14 through 5-26	(1)(2)(16)(21)	5-29
Contaminated Sites	5-27	(1)(2)(16)(21)	5-35
Historic Properties	5-28 through 5-30	(1)(15)(16)(21)	5-37
Religious/Heritage Access	5-31	(1)(16)(21)	5-39
Archaeological/Indian Sites	5-32 and 5-33	(1)(14)(15)(21)	5-41

* CONTACT/LOCATION CODE

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (3) Facilities Operations Branch
- (13) Facilities Design Branch
- (14) Grounds Maintenance Section
- (15) Engineering Services Office
- (16) Real Property and Space Management Branch
- (21) Health and Safety Officer

NATURAL AND CULTURAL RESOURCES MANAGEMENT

Records To Review

- For construction activities: documentation of finding of no adverse effect, finding of adverse effect, or Memorandum of Agreement (MOA) with the SHPO or requests for comment when there is no agreement on historic properties.
- Environmental Impact Documentation
- Master Plans
- Land Management Plan
- Fish and Wildlife Cooperative Agreement
- Outdoor Recreation Cooperative Agreement
- Forest Management Plan
- Grounds Maintenance Contracts
- Agricultural and Grazing Lease Contracts
- EISs
- EAs
- FNSIs
- MOAs
- administrative records
- PAs
- REC
- ROD
- NOI
- CXs
- Environmental agreements
- Maps of CERCLA sites
- Federal Agency property transfer contracts
- Cultural Resources Inventory/Survey
- Land Use Plans
- Environmental Assessments
- Environmental Impact Documentation

Physical Features To Inspect

- Construction sites (erosion control, runoff, sedimentation, and landscaping)
- Facilities constructed in the past 2 yr (erosion and landscaping)
- Wildlife containment areas (condition and management)
- Wildlife habitat and land and water resources (condition and management)
- Equipment which could damage wildlife, its habitat, or land and water resources (use and control)
- Grounds maintenance areas (beautification and condition)
- Forest management areas (condition and management)
- Agricultural and grazing lease areas (condition and management)
- Stormwater drainage areas and improvements (condition)
- Erosion sites (condition and erosion)
- Shorelines

- Sites that are the subject of EISs, or EAs
- Disposal sites
- Sites of historic, archaeological, or Native American interest (designation, protection, and interpretation)
- Buildings and structures of potential historical significance (national, state, or local)

People To Interview

- Environmental Program Manager
- Facility Supervisor/Director
- Facilities Operations Branch
- Facilities Design Branch
- Grounds Maintenance Section
- Engineering Services Office
- Real Property and Space Management Branch
- Health and Safety Officer

**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>5-1. 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>5-2. Copies of all relevant Federal, CDC, state, and local regulations and guidance documents on natural resources management should be available at the facility (MP).</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. (1)(2)(21)</p> <p>Verify that copies of the following regulations concerning natural resources are available and kept current: (1)(2)(21)</p> <ul style="list-style-type: none"> - EO 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 7 CFR 360, <i>Noxious Weed Regulations</i> - 33 CFR 323, <i>Permits for Discharges of Dredged or Fill Material into Waters of the United States.</i> - 40 CFR 1500-1508, <i>Council on Environmental Quality.</i> - 50 CFR 17, <i>Endangered and Threatened Wildlife and Plants.</i> - 50 CFR 21, <i>Migratory Bird Permits.</i> - 50 CFR 402, <i>Interagency Cooperation-Endangered Species Act 1973, as amended.</i> - Applicable state and local regulations.

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
5-2. (continued)	<p>Verify that copies of the following regulations concerning cultural resources are available and kept current: (1)(2)(21)</p> <ul style="list-style-type: none"> - 25 CFR 261, <i>Preservation of Antiquities.</i> - 32 CFR 229, <i>Protection of Archaeological Resources: Uniform Regulations.</i> - 36 CFR 60, <i>National Register of Historic Places.</i> - 36 CFR 62, <i>National Landmarks Program.</i> - 36 CFR 63, <i>Determinations of Eligibility for Inclusion in the National Register of Historic Places.</i> - 36 CFR 65, <i>National Historic Landmarks Program.</i> - 36 CFR 79, <i>Curation of Federally-owned and Administered Archaeological Collections.</i> - 36 CFR 296, <i>Protection of Archaeological Resources: Uniform Regulations.</i> - 36 CFR 800, <i>Protection of Historic and Cultural Properties.</i> - 43 CFR 3, <i>Preservation of American Antiquities.</i> - 43 CFR 7, <i>Protection of Archaeological Resources.</i> - Applicable state and local regulations.
5-3. Facilities of Federal Agencies are required to abide by state and local regulations concerning natural resources (EO 12088, Section 1-1).	<p>Verify that the facility is abiding by state and local requirements. (1)(2)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies. (1)(2)(21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - endangered and threatened species lists - hunting and trapping restrictions - erosion control requirements - wetlands management - floodplains designation and management - wild and scenic rivers - coastal zones management - surface mining - sand and gravel pits - rock quarries - mineral exploration - reporting requirements - definitions of contaminated and uncontaminated - NEPA reporting requirements - state NEPA processes.)

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>5-4. Facilities should comply with state and local regulations concerning cultural resources management (MP).</p> <p>5-5. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of finding).</p>	<p>Verify that the facility is abiding by state and local requirements. (1)(2)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies. (1)(2)(21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include: - designation of historic and archaeological sites - protection of historic and archaeological sites.)</p> <p>Determine if any new regulations concerning cultural resources management have been issued since the finalization of the manual. (1)(2)</p> <p>Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(2)</p> <p>Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(2)</p>
<p>5-6. Personnel should be trained for environmental responsibilities (MP).</p>	<p>Verify that the Environmental Program Manager responsible for NEPA compliance has received appropriate training in NEPA requirements. (1)(3)(13)(21)</p> <p>Verify that the person responsible for NEPA compliance is included in all master planning meetings (1)(3)(13)(21)</p> <p>Verify that the person responsible for NEPA compliance is an early reviewer of all plans for construction, renovation, or significant changes in operations that might impact the environment. (1)(3)(13)(21)</p>

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>LAND MANAGEMENT</p> <p>5-7. Noxious weeds must not be moved through the United States unless the movement is allowed by a permit (7 CFR 360.100 through 360.300).</p> <p>5-8. A protective vegetative cover or other measures should be provided to control dust and erosion damage to land (GMP).</p> <p>5-9. Floodplains and wetlands should be identified and protected (MP).</p> <p>5-10. 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) and 323.3(b)).</p>	<p>Verify that the facility is not moving noxious weeds without a permit. (1)(14)(21)</p> <p>(NOTE: A list of noxious weeds is in Appendix 5-1.)</p> <p>Determine if the facility has been surveyed to locate areas where bare soil is exposed and current or potential erosion requires correction. (1)(14)(21)</p> <p>Determine if there is an erosion problem at shorelines. (1)(14)(21)</p> <p>Verify that remedial actions have been initiated. (1)(14)(21)</p> <p>Verify that floodplains and wetlands are identified and protected by reviewing the operations/management plan. (1)(15)(21)</p> <p>Verify that activities in floodplains are conducted in accordance with the National Permit. (1)(15)(21)</p> <p>Verify that proper permits are obtained for activities in floodplains. (1)(15)(21)</p> <p>Determine if the facility has wetlands. (1)(15)(21)</p> <p>Verify that any activities involving dredging and filling wetlands are permitted by the Army Corps of Engineers. (1)(15)(21)</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 the CWA.)</p>

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COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ENDANGERED/ THREATENED SPECIES</p> <p>5-11. Facilities with Federally designated endangered and threatened species must carry out programs for their conservation (50 CFR 402.01 (a), 402.10, and 402.12).</p> <p>5-12. All facilities must review proposed actions and activities to ensure that they are not likely to jeopardize the continued existence of a listed species or to destroy or adversely modify its critical habitat (50 CFR 402.01(a) and 40 CFR 1500).</p>	<p>Verify that a survey has been done to determine if the facility has any threatened or endangered species and is reflected in management plans.(1)(21)</p> <p>Verify that consultations have been held with the FWS and state conservation agency. (1)(21)</p> <p>Verify that measures have been initiated to maintain threatened and endangered species by checking records of FWS consultations/opinions received. (6)(13)(15)(21)</p> <p>Verify that action has been taken to comply with FWS requirements if a jeopardy biological opinion has been given. (6)(13)(15)(21)</p> <p>Verify that the following documents are considered in the review process: (1)(21)</p> <ul style="list-style-type: none"> - 40 CFR 1500 through 1508, <i>Council on Environmental Quality.</i> - 50 CFR 17, <i>Endangered and Threatened Wildlife and Plants.</i> - 50 CFR 402, <i>Interagency Cooperation-Endangered Species Act of 1973, as amended.</i> - 50 CFR 450, <i>Endangered Species Exemption Process: General Provisions.</i> - 50 CFR 451, <i>Endangered Species Exemption Process: Application Procedures.</i>

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>MIGRATORY SPECIES</p> <p>5-13. Individuals may not take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter any migratory bird, or the parts, nests, or eggs without a permit (50 CFR 21.11 through 21.50).</p>	<p>Determine if the facility is on a migratory bird path. (1)(14)(21)</p> <p>Verify that prior to killing birds for any reason, it is determined if they are migratory birds. (1)(14)(21)</p> <p>Verify that if actions are taken with migratory bird, the facility has a permit to do so. (1)(14)(21)</p> <p>(NOTE: Exemptions from the permit requirement are available for the following: <ul style="list-style-type: none"> - captive-reared and properly marked mallard duck - captive-reared and properly marked migratory waterfowl.) </p>

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>NEPA</p> <p>5-14. The NEPA process must be integrated into planning for projects at the facility as early as possible in order to prevent delays in project implementation (40 CFR 1501.1 and 1501.2).</p> <p>5-15. An EA must be produced, under certain circumstances, to determine if an EIS is necessary (40 CFR 1501.1(b) and 1508.9).</p> <p>5-16. A facility must produce an EIS if certain conditions exist due to a proposed action (40 CFR 1501.4(a), 1501.4(c), and 1502.4).</p>	<p>Verify that the NEPA process is routinely reviewed as a part of new project development and potentially significant issues identified. (1)(2)(16)(21)</p> <p>Verify that early cooperative consultation among agencies is also a part of new project development. (1)(2)(16)(21)</p> <p>Verify that the facility identifies environmental effects and values in adequate detail so they can be compared to economic and technical analysis. (1)(2)(16)(21)</p> <p>Verify that the facility develops and describes appropriate alternatives to recommended actions in any proposal which involve unresolved conflicts concerning alternative uses of available resources. (1)(2)(16)(21)</p> <p>Determine if an EA has been completed and submitted to the Director for review before any contract for action is entered into or action is begun unless: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - the action normally requires and EIS - normally does not require either an EIS or an EX (a categorical exclusion). <p>Verify that the assessment was prepared according to agency policies. (1)(2)(16)(21)</p> <p>(NOTE: Title 40 CFR 1501.3 states that agencies will adopt procedures to indicate when an EA is required to be done.)</p> <p>Verify that the facility produces an EIS for any activity which normally required an EIS including: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - the adoption of new agency programs or regulations - technological developments - broad actions - the EA indicates it is necessary. <p>(NOTE: Federal Agencies are required to develop policies indicating what types of actions require an EIS.)</p>

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>5-17. If, due to the results of an EA, an EIS is not going to be prepared, a FNSI must be prepared according to specific parameters (40 CFR 1501.4(e) and 1508.13).</p>	<p>Verify that FNSIs include the following information: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - the name of the action - a brief description of the action (including any alternatives considered) - a short discussion of anticipated environmental effects - the conclusions that have led to the FNSI. <p>Verify that, in general, the FNSI is made available for public review. (1)(2)(16)(21)</p> <p>Verify that the FNSI is made available for public review for 30 days prior to making a final determination whether to prepare an EIS and before the action begins when: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - the proposed action is, or is closely similar to, one which normally requires the preparation of an EIS by the agency - the nature of the proposed action is without precedence.
<p>5-18. When two or more Agencies propose or are involved in the same action or are involved in a group of actions directly related to each other because of their functional interdependencies or geographical proximity, a lead agency will supervise the preparation of the EIS (40 CFR 1501.5 and 1501.6).</p>	<p>Determine if the facility is involved in an EIS the includes agencies other than their own. (1)(2)(16)(21)</p> <p>Determine who the lead agency is. (1)(2)(16)(21)</p> <p>(NOTE: Federal, state, or local agencies, including at least one Federal agency may act as joint lead agencies to prepare an EIS.)</p> <p>Verify that there is a letter or memorandum indicating which agency is the Federal agency and which are the cooperating agencies. (1)(2)(16)(21)</p> <p>Verify that if the facility is a lead agency it: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - requests the participation of each cooperating agency in the NEPA process at the earliest possible time - uses the environmental analysis and proposals of cooperating agencies with jurisdiction by law or special expertise, to the maximum extent possible consistent with its responsibility as lead agency - meets with a cooperating agency at the cooperating agency's request.
<p>5-19. A draft EIS must be prepared according to a specific format and process (40 CFR 1501.5(d), 1501.7, 1502.5(a), 1502.6, 1502.9 through 1502.18, and 1508.22).</p>	<p>Determine if a notice of intent (NOI) of the proposed action is published in the Federal Register and made available to the media in the areas potentially affected by the proposed action. (1)(2)(16)(21)</p> <p>Verify that after the NOI has been published, scoping procedures begin to determine the relative significance of issues and to what depth they must be addressed in the EIS. (1)(2)(16)(21)</p>

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
5-19. (continued)	<p>Verify that for projects directly undertaken by an agency, the EIS is prepared at the feasibility analysis stage. (1)(2)(16)(21)</p> <p>Verify that a preliminary draft is prepared from the scoping procedure with the following format: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - cover sheet: list of responsible agencies; title of proposed action; name, address, and telephone number of the person at the agency who can supply further information; the designation of the statement as draft, final, or draft or final supplement; a one paragraph abstract; date by which comments must be received - summary: must adequately summarize the statement, stressing major conclusions, areas of controversy, and issues to be resolved - table of contents - purpose of and need for action briefly specifying the underlying purpose and need to which the facility is responding in proposing the alternatives including the proposed action - alternatives including the proposed action: explore and objectively evaluate all reasonable alternatives, identify preferred alternative and explain reasoning - affected environment: description of the area(s) to be affected or created by the alternatives under considerations - environmental consequences: discussion of direct effects and their significance, indirect effects and their significance, possible conflicts between the proposed action and the objectives of NEPA, environmental effects of alternatives, energy requirements and conservation potential of various alternatives and mitigation measures, natural or depletable resource requirements and conservation potential of various alternatives and mitigation measures, means to mitigate adverse effects - list of preparers: names and qualifications of persons primarily responsible for preparing the EIS or background papers - list of agencies, organizations, and persons to whom copies of the statement are sent - index - appendix: material prepared in coordination with the EIS, normally analytic and relevant to discussions being made. <p>Verify that the EIS is prepared using an interdisciplinary approach. (1)(2)(16)(21)</p>

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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>5-20. As a part of the EIS process, scoping must be done according to specific requirements (40 CFR 1501.7(a)).</p>	<p>Verify that in the scoping process the lead agency: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - invites the participation of affected Federal, state, and local agencies, any affected Indian tribe, the proponent of the action and other interested persons unless there is a limited exception as defined by Agency regulations - determines the scope and the significant issues to be analyzed in depth in the EIS - identifies and eliminates from detailed study the issues which are not significant or which have been covered by prior environmental review - allocates assignments for preparation of the EIS among the lead and cooperating agencies with the lead agency retaining responsibility for the statement - indicates any public EAs and other EISs which are being or will be prepared that are related but are not part of the scope of the EIS under consideration - identifies other environmental review and consultation requirements so that other analyses and studies may be prepared concurrently with, and integrated with the EIS - indicates the relationship between the timing of the preparation of environmental analyses and the agency's tentative planning and decision making schedules.
<p>5-21. Public involvement is a required part of the EIS process (40 CFR 1506.6).</p>	<p>Verify that the facility made a diligent effort to involve the public including: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - providing public notice of NEPA-related hearings, public meetings, and the availability of environmental documentation such as: <ul style="list-style-type: none"> - mailing of notices to those who have requested it on an individual action - notice in the Federal Register and mailings to national organizations reasonably expected to be interested if the action is of national concern - notice to the State, local Indian tribes, local newspapers and other local media if the action is of local concern - holding or sponsoring public meetings in response to: <ul style="list-style-type: none"> - substantial environmental controversy or substantial interest in holding the meeting - a request for a hearing by another agency with jurisdiction over the action supported by reasons the hearing would be helpful - soliciting appropriate information from the public - explanations of where individuals can get information or status reports.

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>5-22. After the preparation of the draft EIS, the facility is required to obtain and request comments from specific individuals (40 CFR 1502.19 and 1503.1).</p>	<p>Verify that prior to preparing the final EIS, the facility obtained the comments of any Federal agency with jurisdiction by law or special expertise with respect to any environmental impact involved or which is authorized to develop and enforce environmental standards. (1)(2)(16)(21)</p> <p>Verify that prior to preparing the final EIS, comments were requested from the following: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - appropriate State and local agencies which are authorized to develop and enforce environmental standards - Indian tribes, when the effects may be on a reservation - any agency which has requested that it receive statements on actions of the kind proposed. <p>Verify that comments were requested from the applicant, if any. (1)(2)(16)(21)</p> <p>Verify that comments were requested from the public. (1)(2)(16)(21)</p>
<p>5-23. When preparing the final EIS specific actions are required (40 CFR 1503.4).</p>	<p>Verify that when preparing the final EIS, all comments are assessed and considered and responded to in one of the following ways: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - the alternatives are modified, including the proposed action - alternatives not previously given serious consideration by the agency are developed and evaluated - the analysis is supplemented, improved, or modified - an explanation is provided as to why the comments do not warrant further agency response. <p>Verify that all substantive comments received on the draft (or a summary of the comments) is attached to the final statement whether or not the comment is thought to merit individual discussion. (1)(2)(16)(21)</p>
<p>5-24. Under certain circumstances, supplements to the draft or final EIS must be prepared (40 CFR 1502.9(c)(1) and 1502.9(c)(4)).</p>	<p>Verify that a supplement is prepared if one of the following occurs: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - the facility makes substantial changes in the proposed action that are relevant to environmental concern - there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. <p>Verify that the supplement is prepared, circulated, and files in the same way that a draft and final statement unless alternate procedures have been approved by the Council on Environmental Quality (CEQ). (1)(2)(16)(21)</p>

(1) Environmental Program Manager (2) Facility Supervisor/Director (3) Facilities Operations Branch (13) Facilities Design Branch (14) Grounds Maintenance Section (15) Engineering Services Office (16) Real Property and Space Management Branch (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>5-25. At the time of a decision, facilities are required to prepare a concise public record of decision (40 CFR 1505.2).</p> <p>5-26. When implementing the decision, facility must meet specific requirements (40 CFR 1505.3).</p>	<p>Verify that the record states what the decision was and: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - identifies all alternatives considered in reaching the decision, specifying the alternative or alternatives considered to be environmentally preferable - a statement as to whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why not. <p>Verify that mitigation and other conditions established in the EIS or during its review and committed as a part of the decision are implemented. (1)(2)(16)(21)</p> <p>Verify that appropriate conditions are included in grants, permits, or other approvals. (1)(2)(16)(21)</p> <p>Verify that funding is based on actions of mitigation. (1)(2)(16)(21)</p> <p>Verify that results of relevant monitoring are made available upon request. (1)(2)(16)(21)</p>

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>CONTAMINATED SITES</p> <p>5-27. 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).</p>	<p>Determine if the facility has a contaminated site which might need to undergo CERCLA response actions. (1)(2)(16)(21)</p> <p>Verify that a removal site evaluation is done as quickly as possible. (1)(2)(16)(21)</p> <p>(NOTE: In response to a petition by potentially affected people, the facility may perform a removal preliminary assessment based on readily available information.)</p> <p>Verify that the removal site evaluation is not terminated until the following is determined: (1)(2)(16)(21)</p> <ul style="list-style-type: none"> - 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: <ul style="list-style-type: none"> - 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 onscene monitoring by the government is not required - the removal site evaluation is completed. <p>Verify that the results of the removal site evaluation are documented. (1)(2)(16)(21)</p> <p>Verify that, if natural resources are or may be injured by the release, state and Federal trustees of the property are notified. (1)(2)(16)(21)</p> <p>(NOTE: The removal site evaluation may indicate that a removal action is not required but that remediation action may be necessary.)</p>

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>HISTORIC PROPERTIES</p> <p>5-28. All Federal Agencies are required to establish a program to locate, inventory, and nominate to the SOI all properties under the agency's ownership or control that appear to qualify for inclusion on the National Register of Historic Places (36 CFR 60.9).</p> <p>5-29. Prior to the start of a new undertaking, facilities are required to take into account the effects of the undertaking on property included in or eligible for the National Register of Historic Places (36 CFR 800.1).</p> <p>5-30. The facility is required to consult with the SHPO during the identification, location, and evaluation of historic properties and in assessing the effect of any undertaking on historic property (36 CFR 800.4 and 800.5).</p>	<p>Determine if the facility has a program to locate, inventory and nominate properties that includes the following: (1)(16)(21)</p> <ul style="list-style-type: none"> - assignment of responsibility for recognizing and maintaining cultural resources - an inventory and evaluation of all known cultural resources - identification of the likelihood (based on scientific study) of the presence of other significant cultural resources - description of the facility's strategies for maintaining cultural resources and the methods used for compliance with this regulation - clear identification of the impacts on historic resources of ongoing projects and the resolutions to those impacts. <p>Determine if the SHPO is given the opportunity to review and comment on all aspects of the program. (1)(16)(21)</p> <p>Verify that known historic properties have been nominated. (1)(16)(21)</p> <p>Verify that prior to the start of a new undertaking, the impact of that undertaking on property included in or eligible for the National Register of Historic places has been investigated through the Section 106 process of consultation and documentation. (1)(15)(21)</p> <p>Verify that the facility determines the area of potential effect for every undertaking. (1)(15)(21)</p> <p>Determine if a MOA has been drafted and review a copy for compliance. (1)(15)(21)</p> <p>Verify that the MOA was reviewed by the ACHP. (1)(15)(21)</p> <p>Determine if the SHPO and staff have been consulted during all cultural resources planning including: (1)(21)</p> <ul style="list-style-type: none"> - identification of cultural properties - research design - applying criteria of National Register - requesting a determination of eligibility from the Keeper (Chief of Registration) of the National Register when an agency and a SHPO disagree on eligibility - interaction with ACHP - determination-of-effect in a single property compliance procedure.

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RELIGIOUS/ HERITAGE ACCESS</p> <p>5-31. Facilities cannot substantially burden a person's exercise of religion (<i>Religious Freedom Restoration Act of 1993</i>, Section 3).</p>	<p>Determine if the facility has on its property a site which is an integral part of a religious ceremony. Examples might include a burial ground or holy site. (1)(16)(21)</p> <p>Verify that access to and use of these sites is allowed unless denial of access/use furthers a compelling government interest and is the least restrictive means of furthering a government interest. (1)(16)(21)</p>

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ARCHAEOLOGICAL/ INDIAN SITES</p> <p>5-32. Facilities are required to take measures to identify Native American graves and artifacts, protect them, and cooperate with Native American groups in returning them to their rightful owners (NAGPRA of 1990 [PL 101-601]; Section 3(d), Section 5, and Section 6).</p>	<p>Verify that if Native American human remains, funerary objects, or other cultural items are discovered at the facility, that the Secretary of the Agency is notified through command channels, and the appropriate Indian tribe, Native Hawaiian organization, or Alaskan Native Corporation or group is notified. (1)(21)</p> <p>Verify that if the discovery is the result of an activity such as construction, mining, logging, or agriculture, the activity is stopped and a reasonable effort is made to protect the item discovered. (1)(21)</p> <p>(NOTE: The activity may resume 30 days after receipt of certification that notification has been received.)</p> <p>Verify that if the facility museum has possession or control over holdings or collections of Native American human remains and associated funerary objects an inventory of such items is being prepared and that it: (1)(21)</p> <ul style="list-style-type: none"> - includes information on the geographical origin and cultural information of the items - is completed in consultation with tribal government and Native Hawaiian organization officials and traditional religious leaders - is scheduled for completion no later than 16 November 1995 - is made available for review at all times and stages of completion to the reviewing Committee established by the SOI. <p>Verify that the facility museum supplies, upon request by an Indian tribe or Native Hawaiian organization, additional available documentation in the form of a summary of existing museum records, including inventories and catalogues, for the limited purpose of determining the geographical origin, cultural affiliation, and basic facts surrounding acquisition and accession of Native American or Native Hawaiian human remains and associated funerary objects. (1)(21)</p> <p>Verify that if a determination of cultural affiliation of any particular Native American human remains or associated funerary objects is made, the affected Native American group is notified within 6 mo of the completion of the inventory and a copy of the notice is sent to the SOI. Each notice shall contain information which: (1)(21)</p> <ul style="list-style-type: none"> - identifies each Native American human remains or associated funerary objects and the circumstances surrounding its acquisition - lists the human remains or associated funerary objects that are clearly identifiable as to tribal origin - lists the Native American human remains and associated funerary objects that are not clearly identifiable as to cultural affiliation, but which are likely to be affiliated with that Indian tribe or Native Hawaiian organization.

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**COMPLIANCE CATEGORY:
NATURAL AND CULTURAL RESOURCES MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
5-32. (continued)	<p>Determine if the facility museum has possession or control over unassociated funerary objects, sacred objects, or objects of cultural patrimony. If so, confirm that a written summary of such objects is prepared which contains: (1)(21)</p> <ul style="list-style-type: none"> - a description of the scope of the collection - kinds of objects included in the collection - reference to geographical origin of the objects - description of the means and time period of acquisition - cultural affiliation of the object. <p>Verify that completion of the summary is scheduled for no later than 16 November 1993, and is followed by consultation with tribal officials and traditional religious leaders. (1)(21)</p>
5-33. Archaeological resources located on public lands or Indian lands cannot be excavated, removed, damaged, or otherwise altered, defaced without a permit (32 CFR 229.4(a), 229.5(b), and 229.18).	<p>Determine if there is currently any excavation, removal, or disturbing of archaeological resources on the facility. (1)(14)(15)(21)</p> <p>Verify that any actions taken in relationship to archaeological resources have been permitted. (1)(21)</p> <p>Verify that the facility is following the parameters of the permit. (1)(21)</p> <p>(NOTE: A permit is not required in the following circumstances:</p> <ul style="list-style-type: none"> - for activities being conducted on public lands under other permits, leases, licenses, or entitlements for use when those activities are exclusively for activities other than excavation and/or removal of archaeological resources even if those activities might disturb the archaeological resources - for the collection for private purposes any rock, coin, bullet, or mineral that is not an archaeological resource if the collection of the item does not result in the disturbance of an archaeological resource - excavations done by an Indian tribe or member of an Indian tribe on the lands of that tribe.) <p>(NOTE: Federal land managers will not make information about the nature and location of any archaeological resources except under the following circumstances:</p> <ul style="list-style-type: none"> - the disclosure furthers the purposes of the NHPA without risking harm to the archaeological resource or the site at which it is located - when the Governor of any state submits a request for the information if the request includes: <ul style="list-style-type: none"> - the specific archaeological resource or area about which information is sought - the reason the information is requested - the Governor's written commitment to adequately protect the confidentiality of the information.

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Appendix 5-1

Noxious Weeds (7 CFR 360.200)

1. Aquatic weeds:

<i>Azolla pinnata</i>	R. Brown	mosquito fern, water velvet
<i>Eichornia azurea</i>	(Swartz) Kunth	anchored waterhyacinth, rooted waterhyacinth
<i>Hydrilla verticillata</i>	(Linnaeus f.) Royle	hydrilla
<i>Hygrophila polysperma</i>	T. Anderson	Miramar weed
<i>Ipomoea aquatica</i>	Forsskal	water-spinach, swamp morning-glory
<i>Lagarosiphon major</i>	(Ridley) Moss	
<i>Limnophila sessiliflora</i>	(Vahl) Blume	ambulia
<i>Monochoria hastata</i>	(Linnaeus) Solms-Laubach	
<i>Monochoria vaginalis</i>	(Burman f.) C.Presl	
<i>Sagittaria sagittifolia</i>	Linnaeus	arrowhead
<i>Salvinia auriculata</i>	Aublet	giant salvina
<i>Salvinia biloba</i>	Raddi	giant salvina
<i>Salvinia herzogii</i>	de la Sota	giant salvina
<i>Salvinia molesta</i>	D.S. Mitchell	giant salvina
<i>Sparganium erectum</i>	Linnaeus	exotic burrweed
<i>Stratiotes aloides</i>	Linnaeus	water-aloe

2. Parasitic weeds:

<i>Aeginetia</i>	spp.
<i>Alectra</i>	spp.
<i>Cuscuta</i>	spp. (dodders),
<i>other than the following species:</i>	
<i>Cuscuta americana</i>	Linnaeus
<i>Cuscuta applanata</i>	Engelmann
<i>Cuscuta approximata</i>	Babington
<i>Cuscuta attenuata</i>	Waterfall
<i>Cuscuta boldinghii</i>	Urban
<i>Cuscuta brachycalyx</i>	(Yuncker) Yuncker
<i>Cuscuta californica</i>	Hooker & Arnot
<i>Cuscuta campestris</i>	Yuncker
<i>Cuscuta cassytoides</i>	Nees ex Engelmann
<i>Cuscuta ceanothii</i>	Behr
<i>Cuscuta cephalanthii</i>	Engelmann
<i>Cuscuta compacta</i>	Jussieu
<i>Cuscuta corylii</i>	Engelmann
<i>Cuscuta cuspidata</i>	Engelmann

(continued)

Appendix 5-1 (continued)

<i>Cuscata decipiens</i>	Yuncker
<i>Cuscata dentatasquamata</i>	Yuncker
<i>Cuscata denticulata</i>	Engelmann
<i>Cuscata epilinium</i>	Weihe
<i>Cuscata epithymum</i>	(Linnaeus) Linnaeus
<i>Cuscata erosa</i>	Yuncker
<i>Cuscata europaea</i>	Linnaeus
<i>Cuscata exalta</i>	Engelmann
<i>Cuscata fasciculata</i>	Yuncker
<i>Cuscata glabrior</i>	(Engelmann)Yuncker
<i>Cuscata globulosa</i>	Bentham
<i>Cuscata glomerata</i>	Choisy
<i>Cuscata gronovii</i>	Willdenow
<i>Cuscata harperi</i>	Small
<i>Cuscata howelliana</i>	Rubtzoff
<i>Cuscata indecora</i>	Choisy
<i>Cuscata jepsonii</i>	Yuncker
<i>Cuscata leptantha</i>	Engelmann
<i>Cuscata mitriformis</i>	Engelmann
<i>Cuscata nevadenis</i>	I.M.Johnston
<i>Cuscata obtusiflora</i>	Humbolt, Bonpland, & Kunth
<i>Cuscata occidentalis</i>	Millsbaugh ex Mill & Nuttall
<i>Cuscata odontolepis</i>	Engelmann
<i>Cuscata pentagona</i>	Engelmann
<i>Cuscata planiflora</i>	Tenore
<i>Cuscata plattensis</i>	A.Nelson
<i>Cuscata polygonorum</i>	Engelmann
<i>Cuscata rostrata</i>	Shuttleworth ex Engelmann
<i>Cuscata runyonii</i>	Yuncker
<i>Cuscata salina</i>	Engelmann
<i>Cuscata sandwichiana</i>	Choisy
<i>Cuscata squamata</i>	Engelmann
<i>Cuscata suaveolens</i>	Seringe
<i>Cuscata suksdorfi</i>	Yuncker
<i>Cuscata tuberculata</i>	Brandege
<i>Cuscata umbellata</i>	Humboldt, Bonpland, & Kunth
<i>Cuscata umbrosa</i>	Beyrich ex Hooker
<i>Cuscata vetchii</i>	Brandege
<i>Cuscata warneri</i>	Yuncker
<i>Orobanche</i>	spp. (broomrapes),
<i>other than the following species:</i>	
<i>Orobanche bulbosa</i>	(Gray) G.Beck
<i>Orobanche californica</i>	Schlechtendal & Chamisso
<i>Orobanche cooperi</i>	(Gray) Heller
<i>Orobanche corymbosa</i>	(Rydberg) Ferris
<i>Orobanche dugessi</i>	(S.Watson) Munz

(continued)

Appendix 5-1 (continued)

<i>Orobanche fasciculata</i>	Nuttall
<i>Orobanche ludoviciana</i>	Nuttall
<i>Orobanche multicaulis</i>	Brandegee
<i>Orobanche parishii</i>	(Jepson) Heckard
<i>Orobanche pinorum</i>	Geyer ex Hooker
<i>Orobanche uniflora</i>	Linnaeus
<i>Orobanche valida</i>	Jepson
<i>Orobanche vallicola</i>	(Jepson) Heckard
<i>Striga</i>	spp. (witchweeds)

3. Terrestrial weeds:

<i>Ageratina adenophora</i>	(Sprengel) King & Robinson	crofton weed
<i>Alternanthera sessilis</i>	(Linnaeus) R. Brown ex de Candolle	sessile joyweed
<i>Asphodelus fistulosus</i>	Linnaeus	onionweed
<i>Avena sterilis</i>	Linnaeus	
including <i>Avena ludoviciana</i>	Durieu	animated oat, wild oat
<i>Borreria alata</i>	(Aublet) de Candolle	
<i>Carthamus oxyacantha</i>	M. Bieberstein	wild safflower
<i>Chrysopogon aciculatus</i>	(Retzius) Trinius	pilipiliula
<i>Commelina benghalensis</i>	Linnaeus	Benghal dayflower
<i>Crupina vulgaris</i>	Cassini	common crupina
<i>Digitaria scalarum</i>	(Schweinfurth) Chiovenda	African couchgrass, fingergrass
<i>Digitaria velutina</i>	(Forsskal) Palisot de Beauvois	velvet fingergrass, annual conchgrass
<i>Drymaria arenarioides</i>	Humboldt & Bonpland ex Roemer & Schultes	lightning weed
<i>Emex australis</i>	Steinhell	three-cornered jack
<i>Emex spinosa</i>	(Linnaeus) Campdera	devil's thorn
<i>Euphorbia prunifolia</i>	Jacquin	painted euphorbia
<i>Galega officinalis</i>	Linnaeus	goatsrue
<i>Heracleum mantegazzianum</i>	Sommier & Levier	giant hogweed
<i>Imperata brasiliensis</i>	Trinius	Brazilian satintail
<i>Imperata cylindrica</i>	(Linnaeus) Raeuschel	cogongras
<i>Ipomoea triloba</i>	Linnaeus	little bell, aiea morning-glory
<i>Ischaemum rugosum</i>	Salisbury	murainogras
<i>Leptochloa chinensis</i>	(Linnaeus) Nees	Asian sprangletop
<i>Lycium ferocissimum</i>	Miers	African boxthorn
<i>Melastoma malabathricum</i>	Linnaeus	
<i>Mikania cordata</i>	(Burman f.) B.L. Robinson	mile-a-minute
<i>Mikania micrantha</i>	Humboldt, Bonpland, & Kunth	
<i>Mimosa invisa</i>	Martius	giant sensitive plant
<i>Mimosa pigra</i>	Linnaeus var. <i>pigra</i>	catclaw mimosa
<i>Nassella trichotoma</i>	(Nees) Hackel ex Arechavaleta	serrated tussock
<i>Opuntia aurantiaca</i>	Lindley	jointed prickly pear
<i>Oryza longistaminata</i>	A. Chevalier & Roehrich	red rice

(continued)

Appendix 5-1 (continued)

<i>Oryza punctata</i>	Kotschy ex Steudel	red rice
<i>Oryza rufipogon</i>	Griffith	red rice
<i>Paspalum scrobiculatum</i>	Linnaeus	Kodomillet
<i>Pennisetum clandestinum</i>	Hochstetter ex Chiovenda	kikuyugrass
<i>Pennisetum macrourum</i>	Trinius	African feathergrass
<i>Pennisetum pedicellatum</i>	Trinius	kyasumagrass
<i>Pennisetum polystachion</i>	(Linnaeus) Schultes	missiongrass, thin napiergrass
<i>Prosopis alata</i>	R.A.Philippi	
<i>Prosopis argentina</i>	Burkart	
<i>Prosopis articulata</i>	S.Watson	
<i>Prosopis burkartii</i>	Munoz	
<i>Prosopis caldenia</i>	Burkart	
<i>Prosopis calingastana</i>	Burkart	
<i>Prosopis campestris</i>	Griseback	
<i>Prosopis castellanosi</i>	Burkart	
<i>Prosopis denudans</i>	Bentham	
<i>Prosopis elata</i>	(Burkart) Burkart	
<i>Prosopis farcta</i>	(Solander ex Russel) Macbride	
<i>Prosopis ferox</i>	Grisebach	
<i>Prosopis fiebrigii</i>	Harms	
<i>Prosopis hassleri</i>	Harms	
<i>Prosopis humilis</i>	Gilles ex Hooker & Arnott	
<i>Prosopis kuntzei</i>	Harms	
<i>Prosopis pallida</i>	(Humboldt, Bonpland ex Willdenow)	
	Humboldt, Bonpland, & Kunth	
<i>Prosopis palmeri</i>	S.Watson	
<i>Prosopis reptans</i>	Bentham var. reptans	
<i>Prosopis rojasiana</i>	Burkart	
<i>Prosopis ruizlealii</i>	Burkart	
<i>Prosopis ruscifolia</i>	Grisebach	
<i>Prosopis sericantha</i>	Gillies ex Hooker & Arnott	
<i>Prosopis strombulifera</i>	(Lamarck) Bentham	
<i>Prosopis torquata</i>	(Cavanilles ex Lagasca y Segura) de Candolle	
<i>Rottboellia exaltata</i>	Linnaeus f.	itchgrass, raoulgrass
<i>Rubus fruticosus</i>	Linnaeus (complex)	wild blackberry
<i>Rubus moluccanus</i>	Linnaeus	wild raspberry
<i>Saccharum spontaneum</i>	Linnaeus	wild sugarcane
<i>Salsola vermiculata</i>	Linnaeus	wormleaf salsola
<i>Setaria pallide-fusca</i>	(Schumacher) Stapf & Hubbard	cattail grass
<i>Solanum torvum</i>	Swartz	turkeyberry
<i>Tridax procumbens</i>	Linnaeus	coat buttons
<i>Urochloa panicoides</i>	Beauvois	liverseed grass

INSTALLATION:	COMPLIANCE CATEGORY: NATURAL AND CULTURAL RESOURCES MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		

Section 6

Pesticide Management

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SECTION 6
PESTICIDE MANAGEMENT

A. Applicability

This section applies to CDC facilities which use, store or handle pesticides. Pesticides are regulated on the Federal level and the state level.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

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, transportation, storage, 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.
- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards*. This EO, dated 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.

C. State/Local Requirements

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, storage facilities
5. operational requirements for selected application methods
6. recordkeeping and applicator certification requirements.

D. CDC Regulations/Requirements

- This section includes a description of the applicable Agency regulations, policies, and requirements. None are currently available.

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.
- 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 which is not near food or feed, and in containers in good condition with plainly visible labels. There should be decontamination facilities and the local fire department, hospitals, public health officials, and police departments should be notified in writing that the pesticides are being stored (MP).
- Pesticide Disposal - Facilities are required to dispose of any pesticides, pesticide container, or pesticide residue in a manner consistent with labeling, not including open dumping or burning. Organic pesticides other than organic mercury, lead, cadmium, and arsenic compounds, should be disposed according to specific procedures. Options include incineration at an incinerator that meets air quality standards for gaseous emissions. Metallo-organic pesticides should be disposed of in a manner that facilitates the recovery of heavy metals (40 CFR 165.7).

F. Responsibility for Compliance

- Grounds Maintenance. This group is responsible for applying pesticides on facility grounds, and storing, mixing, and disposing of pesticides in a safe manner.
- Training Activity. This group is responsible for ensuring that employees of CDC who engage in pesticide application receive the proper training.
- Medical Services. This service is responsible for monitoring the health of all CDC employees applying pesticides.

G. Key Compliance Definitions

- *Acute LD₅₀* - 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))).
- *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 is 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)).
- *Imminent Hazard* - a situation that exists when the continued use of a pesticide during the time required for cancellation proceedings would be likely to result in unreasonable adverse effects on the environment or will involve unreasonable hazard to the survival of a species declared endangered by the Secretary of the Interior (SOI) under PL 91-135 (40 CFR 165.1).
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *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.
- *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).
- *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

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS:*	REFER TO PAGE NUMBER:
All Facilities	6-1 through 6-6	(1)(14)(21)	6-9
Pesticide Application	6-7 through 6-13	(1)(5)(9)(14)(21)	6-13
Storage, Mixing, or Preparation Areas	6-14 through 6-21	(1)(5)(6)(14)(21)	6-15
Highly and Moderately Toxic Pesticides	6-22 through 6-29	(1)(5)(6)(14)(21)	6-17
Disposal	6-30 through 6-35	(1)(14)(21)	6-21
Dining Facilities	6-36	(1)(14)(20)(21)	6-25

***CONTACT/LOCATION CODE:**

- (1) Environmental Program Manager
- (5) Industrial Hygiene Section
- (6) Radiation Protection and Fire Safety Section
- (9) Medical Services
- (14) Grounds Maintenance Section
- (20) Food Service Manager
- (21) Health and Safety Officer



PESTICIDE MANAGEMENT

Records To Review

- Records of pesticides purchased by the facility (purchase orders, inventory)
- Pesticide application records
- Description of the facility's pest control program
- Certification status of pesticide applicators
- Pesticide disposal manifests
- Contract files
- Any emergency exemption granted to the Federal agency by the USEPA
- Recent ventilation rating for pesticide fume hood and pesticide mixing/storage areas

Physical Features To Inspect

- Personnel protection equipment
- Pesticide application equipment
- Pesticide storage areas, including storage containers

People To Interview

- Environmental Program Manager
- Industrial Hygiene Section
- Radiation Protection and Fire Safety Section
- Medical Services
- Grounds Maintenance Section
- Food Service Manager

**COMPLIANCE CATEGORY:
PESTICIDE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>6-1. 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>6-2. Copies of all relevant Federal, Agency, state, and local regulations and guidance documents on pesticide management should be available at the facility (MP).</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. (1)(21)</p> <p>Verify that the following documents are maintained and kept current at the facility: (1)(21)</p> <ul style="list-style-type: none"> - EO 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 29 CFR 1910, <i>Occupational Safety and Health Standards.</i> - 40 CFR 152, <i>Pesticide Registration and Classification Procedures.</i> - 40 CFR 165, <i>Regulations for the Acceptance of Certain Pesticides and Recommended Procedures for the Storage and Disposal of Pesticides and Pesticide Containers.</i> - 40 CFR 166, <i>Exemption of Federal and State Agencies for Use of Pesticides Under Emergency Conditions.</i> - 40 CFR 171, <i>Certification of Pesticide Applicators.</i> - 50 CFR 402, <i>Interagency cooperation - Endangered Species Act of 1973, as amended.</i> - Applicable state and local pesticide regulations.

(1) Environmental Program Manager (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section (9) Medical Services (14) Grounds Maintenance Section (20) Food Service Manager (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
PESTICIDE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>6-3. Facilities are required to comply with state and local pesticide regulations concerning pesticide management (EO 12088, Section 1-1).</p> <p>6-4. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of finding).</p>	<p>Verify that the facility is abiding by state and local requirements. (1)(14)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies. (1)(14)(21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - applicator certification - restricted use pesticides - application procedures - banned pesticides - disposal methods - emergency application of pesticides due to public health threats.) <p>Determine if any new regulations have been issued since the finalization of the manual. (1)(14)(21)</p> <p>Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(14)(21)</p> <p>Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(14)(21)</p>
<p>6-5. 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>Verify that pesticide products at the facility are registered unless the facility or product is considered exempt, such as the following: (1)(14)(21)</p> <ul style="list-style-type: none"> - certain biological control agents - certain human drugs - treated articles or substances such as paint treated with a pesticide - pheromones and pheromone traps - preservatives for biological specimens - vitamin hormone products - pesticide transferred between registered establishments operated by the same producer - a pesticide distributed or sold under an experimental use permit - a pesticide transferred solely for export - a pesticide distributed or sold under an emergency exemption.

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**COMPLIANCE CATEGORY:
PESTICIDE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>6-6. All facilities must comply with pesticide use requirements unless an emergency exemption has been granted by the USEPA (40 CFR 166.1, 166.2, 166.20, 166.28, 166.32, 166.45, and 166.50).</p>	<p>Verify that pesticide use requirements are followed unless one or more of the following emergency conditions exist: (1)(14)(21)</p> <ul style="list-style-type: none"> - specific exemptions may be authorized to avoid conditions of: <ul style="list-style-type: none"> - significant economic loss - significant risk to threatened or endangered species - significant risk to beneficial organisms - significant risk to the environment - 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 - public health exemptions may be authorized to control a pest that imposes significant risk to human health - 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. <p>Verify that applications for exemptions are submitted to the Regional Administrator in writing and include: (1)(14)(21)</p> <ul style="list-style-type: none"> - a description of the pesticide - the proposed use - any alternative means of control and why those means are not feasible. <p>Verify that exemptions are issued for a specific length of time, as follows: (1)(14)(21)</p> <ul style="list-style-type: none"> - no more than 1 yr for specific and public health exemptions - for no longer than 3 yr for a quarantine permit, but it may be renewed - no longer than 15 days (unless an application for another type of exemption has been submitted) for an crisis exemption. <p>Verify that any unexpected adverse affects from the use of a pesticide under exemption conditions are be reported to the USEPA. (1)(14)(21)</p> <p>Verify that a report summarizing the use of a pesticide under an exemption was submitted within 6 mo after the expiration of the exemption to the agency (3 mo for a crisis exemption). (1)(14)(21)</p>

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**COMPLIANCE CATEGORY:
PESTICIDE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PESTICIDE APPLICATION</p> <p>6-7. Persons applying restricted use pesticides must be certified to apply restricted use pesticides (40 CFR 171.9).</p> <p>6-8. Personnel routinely applying any pesticides should be trained in safety procedures and application procedures (MP).</p> <p>6-9. Health monitoring should be provided for government personnel applying pesticides other than bug bombs, space sprays, and no-pest strips (MP).</p> <p>6-10. Equipment used for the application or transportation of pesticides should be labeled to indicate the use or presence of pesticides (MP).</p>	<p>Determine if facility personnel apply restricted use pesticides (see Appendix 6-1). (1)(14)(21)</p> <p>Determine if pesticide applicators are trained and/or certified. (1)(14)(21)</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. (1)(14)(21)</p> <p>Verify the certification status of contractors used for pest management through interviews or contract review. (1)(14)(21)</p> <p>Determine if personnel at the facility routinely apply pesticides. (1)(14)(21)</p> <p>Verify that personnel are trained in appropriate handling and use procedures. (1)(14)(21)</p> <p>Verify that all pest management personnel have received baseline physical examinations within 30 days of starting pest management work. (1)(9)(14)(21)</p> <p>Verify that pest management personnel receive additional physical examinations once each year. (1)(9)(14)(21)</p> <p>Verify that cholinesterase tests are given to pest management personnel working regularly with pesticides which contain organophosphates or N-alkyl-carbamates. (1)(9)(14)(21)</p> <p>Verify that applicators and vehicles used to apply or transport pesticides are labeled to indicate the use or presence of pesticides. (1)(14)(21)</p>

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>6-11. Public safety should be ensured when applying or using pesticides (MP).</p> <p>6-12. Records should be maintained of each application of a pesticide, whether performed by hired labor or contract, and retained at the facility (MP).</p> <p>6-13. Facilities must ensure that the use of pesticides does not jeopardize the existence of threatened or endangered species (50 CFR 402.01).</p>	<p>Verify the elimination of hazardous exposure to the general public by checking for the following: (1)(5)(14)(21)</p> <ul style="list-style-type: none"> - appropriate signs for treatment area are posted - scheduling for low use periods or restricted usage for a number of days - water use restrictions and reentry times are followed according to the pesticide labels. <p>Verify that records are kept on file for a minimum of 2 yr. (1)(14)(21)</p> <p>Determine if surveys have been conducted to identify the presence of threatened or endangered species in areas where pesticides are used. (1)(14)(21)</p> <p>Determine what measures are taken to ensure that threatened or endangered species are not impacted. (1)(14)(21)</p> <p>Verify that applications are made according to label instructions regarding the protection of endangered species. (1)(14)(21)</p> <p>(NOTE: Refer to the checklist items on endangered species in Natural and Cultural Resources Management.)</p>

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>STORAGE, MIXING, OR PREPARATION AREAS</p> <p>6-14. Facilities are required to store any pesticide, pesticide container, or pesticide residue according to specific restrictions (40 CFR 165.7).</p> <p>6-15. Pesticide storage, mixing and preparation facilities must provide structures and procedures to ensure safety of personnel (29 CFR 1910.133).</p> <p>6-16. Security measures should assure that only authorized persons can access pesticide storage, mixing, and preparation areas (MP).</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 pesticide, pesticide container, and/or pesticide residues are stored such that it is not inconsistent with labeling. (1)(14)(21)</p> <p>Determine if a ventilation system is specifically provided for all indoor pesticide mixing/preparation areas. (1)(14)(21)</p> <p>Verify that an emergency deluge shower and eyewash station are located to provide immediate access to all personnel performing mixing. (1)(14)(21)</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: (1)(14)(21)</p> <ul style="list-style-type: none"> - respirators - masks - gloves - safety shoes - coveralls - specialized personal protective equipment for fumigation. <p>Verify that operations include health and safety procedures emphasizing good work habits, reduction or elimination of hazards, and use of personal protective equipment. (1)(14)(21)</p> <p>Verify that a climb-resistant fence completely encloses the storage, mixing, and preparation areas. (1)(14)(21)</p> <p>Verify that vehicles used to transport pesticides have locking compartments. (1)(14)</p>

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>6-17. 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. (1)(14)(21)</p> <p>Determine if there are drains and cracks in floors. (1)(14)(21)</p> <p>Determine if pest management shop personnel are familiar with spill response procedures. (1)(14)(21)</p> <p>Verify that spill response procedures are written and understood by the staff. (1)(14)(21)</p>
<p>6-18. 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. (1)(5)(14)(21)</p>
<p>6-19. 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. (1)(6)(14)(21)</p> <p>Verify that the drainage systems are separated from the regular systems. (1)(6)(14)(21)</p>
<p>6-20. 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. (1)(6)(14)(21)</p>
<p>6-21. Mixing/formulation areas should meet specific standards (MP).</p>	<p>Determine if the facility has any mixing/formulation areas. (1)(14)(21)</p> <p>Verify that enclosed mixing areas have a local exhaust ventilation with a minimum face velocity of 100 linear feet per minute to control toxic vapors. (1)(14)(21)</p> <p>Verify that drainage systems are separate from the regular system. (1)(14)(21)</p>

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>HIGHLY AND MODERATELY TOXIC PESTICIDES</p> <p>6-22. Storage facilities for pesticides and excess pesticides classed as highly toxic or moderately toxic which are required to be labeled with DANGER, POISON, WARNING, or the skull and crossbones symbol should meet specific structural requirements (MP).</p> <p>6-23. The storage of pesticides and excess pesticides classed as highly toxic or moderately toxic which are required to be labeled with DANGER, POISON, WARNING, or the skull and crossbones 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. (14)(21)</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. (14)(21)</p> <p>Verify that pesticides are not stored near food or feed. (14)(21)</p> <p>(NOTE: These MPs are based on recommendations found in 40 CFR 165.10(c)(1).)</p> <p>Verify that pesticide containers are stored with the label plainly visible. (14)(21)</p> <p>Verify that all containers are in good condition. (14)(21)</p> <p>Verify that the lids and bungs on metal or rigid plastic containers are tight. (14)(21)</p> <p>Verify that the pesticides are segregated. (14)(21)</p> <p>Verify that a complete inventory is kept indicating the number and identity of containers in a storage unit. (14)(21)</p> <p>Verify that containers are regularly inspected for corrosion and leaks and that absorbent material is available for spill cleanup. (14)(21)</p> <p>Verify that diluted oil based pesticides are stored separately from other materials since they are flammable. (14)(21)</p> <p>Verify that excess pesticides and containers are segregated. (14)(21)</p> <p>(NOTE: These MPs are based on recommendations found in 40 CFR 165.10(d).)</p>

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS

REVIEWER CHECKS:

6-24. Pest management programs which use pesticides classed as toxic or moderately toxic and are required to use the signal words DANGER, POISON, WARNING, or the skull and crossbones symbol on the label should have decontamination facilities (MP).

Determine if facilities are available for personnel decontamination and where they are located. (1)(5)(14)(21)

Determine if facilities are available for the decontamination of equipment, including vehicles which have been used for pesticide applications. (1)(5)(14)(21)

Verify that berms, curbing, surfaces, and catchment drains which are used to impound washwater resulting from decontamination are impervious. (1)(5)(14)(21)

Verify that drains impound washwater and do not connect to sanitary sewer or stormwater systems. (1)(5)(14)(21)

Verify that the procedure for disposal of washwater resulting from decontamination activities is the same as for excess pesticides. (1)(5)(14)(21)

NOTE: These MPs are based on recommendations found in 40 CFR 165.10(c)(3) and 165.10(c)(4).

6-25. Equipment used for pesticides application may not be removed from a decontamination site until thoroughly decontaminated (MP).

Verify that prior to removal from a site, vehicles are decontaminated. (1)(5)(14)(21)

Note: This MP is based on recommendations found in 40 CFR 165.10(c)(2) and 65.101(v).

6-26. 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 the skull and crossbones symbol should meet requirements (M)

Verify that the site location, where possible, is in an area where flooding is unlikely and hydrogeologic conditions prevents contamination of any water system by runoff or percolation by: (1)(14)(21)

- inspecting area surrounding facilities and determine proximity to surface water
- noting location relative to floodplains, depth of groundwater, and general soil types and typical permeabilities
- verifying that the spill management system is in existence.

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: (1)(14)

- note approximate quantity of pesticides and location of sensitive environmental receptors
- check whether groundwater, or surface water, or air monitoring program exists to determine any effects caused by pesticide storage, mixing, and preparation
- inspect facility operations and layout to determine if operations are likely to allow runoff of water which may have contacted pesticides.

(1) Environmental Health Services (2) Industrial Hygiene Section (3) Radiation Protection and Fire Safety Section (4) Facilities and Maintenance Section (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section (7) Environmental Health Services (8) Environmental Health Services (9) Medical Services (10) Environmental Health Services (11) Environmental Health Services (12) Environmental Health Services (13) Environmental Health Services (14) Environmental Health Services (15) Environmental Health Services (16) Environmental Health Services (17) Environmental Health Services (18) Environmental Health Services (19) Environmental Health Services (20) Food Service Manager (21) Health and Safety Officer

(1) Environmental Health Services (2) Industrial Hygiene Section (3) Radiation Protection and Fire Safety Section (4) Facilities and Maintenance Section (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section (7) Environmental Health Services (8) Environmental Health Services (9) Medical Services (10) Environmental Health Services (11) Environmental Health Services (12) Environmental Health Services (13) Environmental Health Services (14) Environmental Health Services (15) Environmental Health Services (16) Environmental Health Services (17) Environmental Health Services (18) Environmental Health Services (19) Environmental Health Services (20) Food Service Manager (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
PESTICIDE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>6-28. Pesticide storage facilities and equipment which contain or use pesticides classed as highly toxic or moderately toxic and are labeled DANGER, POISON, WARNING, or the skull and crossbones symbol should have signs and safety procedures posted (MP).</p> <p>6-29. Where large quantities of pesticides classed as highly toxic or moderately toxic and are labeled DANGER, POISON, WARNING, or 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 DANGER POISON, PESTICIDE STORAGE, are placed on or near entries to storage facilities. (1)(14)(21)</p> <p>Verify that safety precautions and accident prevention measures are posted. (1)(14)(21)</p> <p>Verify that an inventory of pesticides is displayed outside of the storage facility identifying all chemicals in storage. (1)(14)(21)</p> <p>Verify that mobile equipment used for pesticide applications is labeled CONTAMINATED WITH PESTICIDES. (1)(14)(21)</p> <p>(NOTE: These MPs are based on recommendations found in 40 CFR 165.10(c)(2) through 165.10(c)(3), 165.10(e), and 165.10(g)(2).)</p> <p>Verify that notification has been submitted and includes a statement of the hazards that pesticides may present during a fire. (1)(6)(14)(21)</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. (1)(6)(14)(21)</p> <p>Verify that the fire chief has the home telephone numbers of the person(s) responsible for the pesticide storage facility. (1)(6)(14)(21)</p> <p>(NOTE: These MPs are based on recommendations found in 40 CFR 165.10(g)(1).)</p>

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>DISPOSAL</p> <p>6-30. Facilities are required to dispose of any pesticide, pesticide container, or pesticide residue according to specific restrictions (40 CFR 165.7).</p> <p>6-31. Organic pesticides, except organic mercury, lead, cadmium, and arsenic compounds should be disposed of according to specific procedures (MP).</p> <p>6-32. Metallo-organic pesticides, except organic mercury, lead, cadmium, or arsenic compounds should be disposed of according to specific procedures (MP).</p> <p>6-33. Organic mercury, lead, cadmium, arsenic, and all inorganic pesticides should be disposed of according to specific procedures (MP).</p>	<p>Verify that pesticide, pesticide container, and/or pesticide residues are disposed of such that: (1)(14)(21)</p> <ul style="list-style-type: none"> - disposal is not inconsistent with labeling - open dumping of pesticides or pesticide containers is not done - open burning is not done except when allowed by state and local regulation - water dumping or ocean dumping does not occur. <p>Determine if the facility uses organic pesticides. (1)(14)(21)</p> <p>Verify that the 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. (1)(14)(21)</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>(NOTE: These MPs are based on guidelines found in 40 CFR 165.8 and 165.9.)</p> <p>Determine if the facility uses metallo-organic pesticides. (1)(14)(21)</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. (1)(14)(21)</p> <p>Verify that metallo-organic pesticides are disposed of through incineration at an approved incinerators, or in a specially designated landfill, or by another approved method. (1)(14)(21)</p> <p>(NOTE: These MPs are based on guidelines found in 40 CFR 165.8 and 165.9.)</p> <p>Determine if the facility uses organic mercury, lead, cadmium, arsenic, or any inorganic pesticides. (1)(14)(21)</p> <p>Verify that these pesticides are converted to a nonhazardous compound and the heavy metal resources are recovered. (1)(14)(21)</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. (1)(14)(21)</p>

(1) Environmental Program Manager (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section (9) Medical Services (14) Grounds Maintenance Section (20) Food Service Manager (21) Health and Safety Officer

COMPLIANCE CATEGORY:
PESTICIDE MANAGEMENT
Centers for Disease Control and Prevention

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>6-33. (continued)</p> <p>6-34. 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. (1)(14)(21)</p> <p>(NOTE: These MPs are based on guidelines found in 40 CFR 165.8 and 165.9.)</p> <p>Determine which of the following types of containers the facility has onsite: (1)(14)(21)</p> <ul style="list-style-type: none"> - Group I Containers: combustible containers which formerly contained organic or metallo-organic pesticides - Group II Containers: noncombustible containers which formerly held organic or metallo-organic pesticides - Group III Containers: containers (both combustible and noncombustible) which formerly held organic mercury, lead, cadmium, or arsenic or inorganic pesticides. <p>Verify that Group I containers are disposed of in an incinerator or buried in a specially designated landfill. (1)(14)(21)</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. (1)(14)(21)</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. (1)(14)(21)</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. (1)(14)(21)</p> <p>Determine if rinsed Group II containers are crushed and disposed of in a landfill according to state or local requirements. (1)(14)</p> <p>Verify that unrinsed Group II containers are disposed of in a specially designated landfill or incinerated. (1)(14)(21)</p> <p>Verify that Group III containers which are not rinsed are encapsulated and disposed of in a specially designated landfill. (1)(14)(21)</p> <p>(NOTE: Group III containers which are rinsed may be disposed of in a sanitary landfill.)</p> <p>(NOTE: These MPs are based on guidelines found in 40 CFR 165.8 and 165.9.)</p>

(1) Environmental Program Manager (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section (9) Medical Services (14) Grounds Maintenance Section (20) Food Service Manager (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
PESTICIDE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>6-35. 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. (1)(14)(21)</p> <p>Verify that if they are not reused they are disposed of according to their pesticide type. (1)(14)(21)</p> <p>(NOTE: These MPs are based on guidelines found in 40 CFR 165.8 and 165.9.)</p>

(1) Environmental Program Manager (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section (9) Medical Services (14) Grounds Maintenance Section (20) Food Service Manager (21) Health and Safety Officer

COMPLIANCE CATEGORY:
PESTICIDE MANAGEMENT
Centers for Disease Control and Prevention

**REGULATORY
REQUIREMENTS:**

REVIEWER CHECKS:

DINING FACILITIES

6-36. Dining facilities should be notified at least 24 h in advance of pesticide application (MP).

Verify that food services personnel are notified of scheduled applications.
(1)(14)(20)(21)

(1) Environmental Program Manager (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section
(9) Medical Services (14) Grounds Maintenance Section (20) Food Service Manager (21) Health and Safety Officer

Appendix 6-1

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.

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
Acrolein	As sole active ingredient. No mixtures registered.	All uses.	Restricted	Inhalation hazard to humans Residue effects on avian species and aquatic organisms
Acrylonitrile	In combination with carbon tetrachloride. No registrations as the sole active ingredient.	*do	do	Other hazards-accident history of acrylonitrile and carbon tetrachloride products.
Aldicarb	As sole active ingredient. No mixtures registered.	Ornamental uses (indoor and outdoor). Agricultural crop uses.	do Under further evaluation.	Other hazards-accident history.
Allyl alcohol	All formulations.	All uses.	Restricted	Acute dermal toxicity.
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%.	do	do	do
	All other formulations.	do	Under further evaluation.	
Calcium cyanide	As sole active ingredient. No mixture registered.	do	Restricted	do
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification¹	Criteria Influencing Restriction
Carbofuran	All concrete suspensions and wettable powders 40% and greater.	do	do	Acute inhalation toxicity.
	All granular formulations.	Rice	Under evaluation.	
	All granular and fertilizer formulations.	All uses except rice.	do	
Chlorfenvinphos	All concentrate solutions or emulsifiable or concentrates 21% and greater.	All uses (domestic and nondomestic).	Restricted	Acute dermal toxicity.
Chloropicrin	All formulations greater than 2%.	All uses.	Restricted	Acute inhalation toxicity
	All formulations.	Rodent control.	Restricted	Hazard to non-target 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	
Cycloheximide	All formulations greater than 4%.	All uses.	Restricted.	Acute dermal toxicity.
	All formulations 0.027% to 4%	All uses.	Under evaluation.	
	All formulations 0.027% and less.	Domestic uses.	Unclassified	
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
Demeton	1% fertilizer formulation, 1.985% granular.	All uses including domestic uses.	Restricted	Domestic uses: Acute oral toxicity. Acute dermal toxicity. Nondomestic outdoor uses. Residue effects on avian and mammalian species.
	All granular formulations emulsifiable concentrates and concentrated solutions.	All uses.	do	Acute dermal toxicity. Residue effects on mammalian and avian species.
Dicrotophos	All liquid formulations 8% and greater.	All uses.	Restricted	Acute dermal toxicity; residue effects on avian species (except for tree injections).
Dioxathion	All concentrate solutions or emulsifiable concentrates ² greater than 30%.	All uses.	Restricted	Acute dermal toxicity.
	Concentrate solutions or emulsion concentrates ² 30% and less and wettable powders 25% and less.	Livestock and agricultural uses (non-domestic uses only).	Unclassified	
	All solutions ² 3% and greater.	Domestic	Restricted	do
	3% and greater 2.5% solutions ² with toxaphene and malathion.	All uses.	Under evaluation.	
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
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.
	Non-aqueous solution 95% and greater.	Commercial seed treatment.	Restricted	Acute dermal toxicity.
	Granular formulations 10% and greater.	Indoor uses (greenhouse).	do	Acute inhalation toxicity.
Endrin	All emulsions, dusts, wettable powders, pastes, and granular formulations 2% and above.	All uses.	Restricted	Acute dermal toxicity. Hazard to nontarget organisms.
	All concentrations less than 2%.	do	do	Hazard to non-target organisms.
EPN	All liquid and dry formulations greater than 4%.	All uses.	Restricted	Acute dermal toxicity; acute inhalation toxicity; residue effects on avian species.
		Aquatic uses.	Restricted	Effects on aquatic organisms.
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
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. Residue effects or mammalian, aquatic, avian species. Inhalation hazard to humans.
	Smoke fumigants.	do	do	Other hazards-accident history.
	Dust and granular formulations 2% and below.	do	do	
Fenamiphos	Emulsifiable concentrates 35% and greater.	do	do	Acute dermal toxicity.
Fensulfothion	Concentrate solutions 63% and greater, all emulsifiable concentrates and concentrate solutions 43% and greater with disulfoton 21% and greater all emulsifiable concentrates 32% and greater in combination with disulfoton 32% and greater.	do	Restricted.	do Acute inhalation toxicity.
	Granular formulations 10% and greater.	Indoor uses (greenhouse).	do	do
Fluoroacetamide/1081	As sole active ingredient in baits. No mixtures registered.	All uses.	Restricted.	Acute oral toxicity.
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
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	
Hydrocyanic acid	As sole active ingredient. No mixtures registered.	do	do	Inhalation hazard to humans.
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.
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
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	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	Unclassified	
	All granular formulations.	do	do	
	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	

*do means same as above.

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
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.
Mevinphos	All emulsifiable concentrates and liquid concentrates.	do	do	do
	Psycodid filter fly liquid formulations.	do	do	Acute dermal toxicity.
	2% dusts.	do	do	Residue effects on mammalian and avian species.
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
Monocrotophos	Liquid formulations 19% and greater.	do	do	Residue effects on avian species. Residue effects on mammalian species.
	Liquid formulations 55% and greater.	do	do	Acute dermal toxicity. Residue effects on avian species. Residue effects on mammalian species.
Nicotine (alkaloid)	Liquid and dry formulations 14% and above.	Indoor (greenhouse)	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	
Paraquat (dichloride) and paraquat bis(methylsulfate)	All formulations and concentrations except those listed below.	All uses.	Restricted	Other hazards. Use and accident history, human toxicological data.
	Pressurized spray formulations containing 0.44% Paraquat bis(methyl sulfate) and 15% petroleum distillates as active ingredients.	Spot weed and grass control.	do	
	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.	All uses.	Unclassified	
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
Phorate	Liquid formulations 65% and greater.	do	Restricted	Acute dermal toxicity. Residue effects on avian species (applies to foliar applications only). Residue effects on mammalian species (applies to foliar application only).
	All granular formulations.	Rice	Restricted	Effects on aquatic organisms.
Phosacetim	Baits 0.1% and greater.	All uses.	Restricted	Hazard to non-target species. Residues effects on mammalian species. Residue effects on avian species.
Phosphamidon	Liquid formulations 75% and greater.	do	do	Acute dermal toxicity. Residue effects on mammalian species. Residue effects on avian species.
	Dust formulations 1.5% and greater.	do	do	Residue effects on mammalian species.
Picloram	All formulations and concentrations except tordon 101R.	do	do	Hazard to non-target organisms (specifically nontarget plants both crop and noncrop).
	Tordon 101 R forestry herbicide containing 5.4% picloram and 20.9% 2, 4-D.	Control of unwanted trees by cut surface treatment.	Unclassified	
Sodium cyanide ³	All capsules and ball formulations.	All uses.	Restricted	Inhalation hazard to humans.
*do means same as above.				

(continued)

Appendix 6-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification ¹	Criteria Influencing Restriction
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%.	do	do	Acute oral toxicity. Hazard to nontarget avian species. Use and accident history.
	All dry baits pellets and powder formulations.	All uses calling for burrow builders.	do	Hazard to nontarget organisms.
	All dry baits, and pellets, and powder formulations 0.5% and below.	All uses except subsoil.	do	do
	do	All subsoil uses.	Unclassified	do
Sulfotepp	Sprays and smoke generators.	All uses.	Restricted	Inhalation hazard to humans.
Tepp	Emulsifiable concentrate formulations.	do	do	Inhalation hazard to humans. Dermal hazard to humans. Residue effects on mammalian and avian species.
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 uses.	Restricted	Acute inhalation toxicity.
	All bait formulations	Nondomestic outdoor uses (other than around buildings).	Restricted	Hazard to nontarget organisms.
	All dry formulation 10% and greater.	Domestic uses.	Restricted	Acute oral toxicity.
*do means same as above.				

INSTALLATION:	COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		

Section 7

Petroleum, Oil, and Lubricant (POL) Management

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SECTION 7

PETROLEUM, OIL, AND LUBRICANT MANAGEMENT

A. Applicability

This section applies to CDC facilities which store, transport, dispose of, or utilize petroleum based fuels, oils, or lubricants (POL). The 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. Specifically this section addresses spill prevention plans, POL transfer operations, POL storage in containers other than tanks, and used oil.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

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.
- Executive Order (EO) 12088, *Federal Compliance with Pollution Standards.* This EO, dated 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.

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) and the Spill Prevention, Control and Countermeasures (SPCC) plans, where appropriate, and review them for those differences before conducting the evaluations. In particular, the assessor 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. CDC Regulations/Requirements

- This section includes a description of the applicable Agency regulations, policies, and requirements. None are available at this time.

E. Key Compliance Requirements

- The SPCC Plan - 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 the potential for an oil spill. Each SPCC Plan and any amendments must be certified by a 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)).
- 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 - Facilities are required to have appropriate containment and/or diversionary structures and cleanup equipment readily available to prevent discharged petroleum products from reaching navigable water courses (40 CFR 112.7(c)).

Loading and Unloading Racks - Onshore tank car and tank truck loading/unloading racks are required to have containment and some method to prevent vehicles from leaving before the transfer lines have been disconnected. Personnel at these sites are required to survey drains and outlets of vehicles prior to their departure to ensure that there is no leakage (40 CFR 112.7(e)(4)).

- Used Oil - Although used oil has not been declared a hazardous waste at the Federal level, it does need to be stored and handled in a manner similar to hazardous waste.

F. Responsibility for Compliance

- Facilities Operations Branch (Engineering Services Office). This office is responsible for receiving and utilizing petroleum products in a safe and efficient manner, and for operating and maintaining operational storage tanks.

Key Compliance Definitions

- *Container* - any portable device in which materials is stored, transported, treated, disposed of, or otherwise handled (40 CFR 279.1).

- *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 (40 CFR 110.1):
 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).

- *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).

- *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 includes (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 intrastate 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.

- *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 (40 CFR 110.2).

- **Off-Specification Oil** - Used oil burned for energy recovery and any fuel produced from used oil that exceed the following allowable limits (40 CFR 279):

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 relation 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 (40 CFR 110.2).
- **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 (40 CFR 110.2).
- **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 112.2 and 40 CFR 401.11(d)).
- **Sheen** - an iridescent appearance on the surface of the water (40 CFR 110.2).
- **Sludge** - an accumulation of soil or oil and other matter of any kind in any form other than dredged spoil, having a concentration of specific gravity equivalent to or greater than water (40 CFR 110.2).
- **Spill Event** - discharge of oil into or upon the navigable waters of the United States or adjoining shorelines in significant 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 the management at a level with authority to commit the necessary resources (40 CFR 112.3).
- **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 Aggregation Point** - any site or facility that accepts, aggregates, and/or stores used oil collected or generated at 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 208.20 L. Used oil aggregation points may also accept used oil from household DIYs (40 CFR 279.1).

- *Used Oil Burner* - a facility where used oil not meeting the specification requirements is burned for energy recovery (40 CFR 279.1).
- *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 [208.20 L]. Used oil collection centers may accept used oil from household DIYs (40 CFR 279.1).
- *Used Oil Fuel Marketer* - any person who conducts either of the following activities (40 CFR 279.1):
 1. directs a shipment of off-specification used oil from their facility to a used oil burner, or
 2. first claims that used oil that is to be burned for energy recovery meets 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).
- *Used Oil Processor/Rerefiner* - a facility that processes used oil (40 CFR 279.1).
- *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).
- *Used Oil Transporter* - any person who transports used oil, any persons who collect used oil from more than one generator and transport 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).
- *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).

PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS:*	REFER TO PAGE NUMBER:
All Facilities	7-1 through 7-6	(1)(2)(3)(21)	7-11
Spill Plans	7-7 through 7-13	(1)(2)(3)(8)(21)	7-13
Discharges/Spills	7-14 and 7-15	(1)(2)(3)(21)	7-19
POL Storage	7-16 through 7-18	(1)(2)(3)(21)	7-21
POL Loading and Unloading	7-19 and 7-20	(1)(2)(3)(21)	7-25
Used Oil	7-21	(1)(2)(3)(21)	7-27
Used Oil Generators	7-22 through 7-28	(1)(2)(3)(21)	7-29
Used Oil Collection Centers and Aggregation Points	7-29 through 7-31	(1)(2)(3)(21)	7-33
Used Oil Transportation	7-32 through 7-40	(1)(2)(3)(21)	7-35
Used Oil Burners	7-41 through 7-47	(1)(2)(3)(21)	7-39
Used Oil Marketing	7-48 through 7-52	(1)(2)(3)(21)	7-43
Dust Suppression With Used Oil	7-53	(1)(2)(3)(21)	7-45

***CONTACT/LOCATION CODE:**

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (3) Facilities Operation Branch
- (8) Training Activity
- (21) Health and Safety Officer

PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

Records To Review

- Records of all spills, leaks, and associated site assessment/cleanup activities (for 3 yr)
- Official correspondence with state implementing agency
- Spill Prevention and Response Plan
- Records of spill response training programs
- Records of all spills, leaks, and associated site assessment/cleanup activities (for 3 yr)
- Oil transfer procedures

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
- Sites where oil is stored in containers other than tanks
- Grease racks

People To Interview

- Environmental Program Manager
- Facility Supervisor/Director
- Facilities Operation Branch
- Industrial Hygiene Section
- Training Activity
- Health and Safety Officer

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 Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>7-1. 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>7-2. Copies of all relevant Federal, Agency, state, and local regulations and guidance documents on POL management should be available at the facility (MP).</p> <p>7-3. Facilities are required to abide by state and local regulations concerning POL management (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. (1)(2)(3)(21)</p> <p>Verify that copies of the following regulations are available and kept current: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - EO 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 40 CFR 110, <i>Discharge of Oil.</i> - 40 CFR 112, <i>Oil Pollution Prevention.</i> - 40 CFR 266, <i>Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities.</i> - 40 CFR 279, <i>Standards for the Management of Used Oil.</i> - Applicable state and local regulations. <p>Verify that the facility is abiding by state and local requirements. (1)(2)(3)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies. (1)(2)(3)(21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - spill management - containment - used oil.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-4. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of finding).</p> <p>7-5. Facilities should have a plan for the management of reclaimed, recoverable and waste liquid petroleum products (MP).</p> <p>7-6. Petroleum products which are not utilized for their intended purpose should be reclaimed, recovered, and disposed of as waste (MP).</p>	<p>Determine if any new regulations have been issued since the finalization of the manual. (1)(2)(3)(21)</p> <p>Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(2)(3)(21)</p> <p>Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(2)(3)(21)</p> <p>Verify that a Management of Recoverable and Waste Liquid Petroleum Products Plan has been prepared. (1)(2)(3)(21)</p> <p>Verify that containers are properly marked and in good condition at accumulation points. (1)(2)(3)(21)</p> <p>Verify that used crankcase oils/lubricants are being collected at motor pools and vehicle maintenance shops. (1)(2)(3)(21)</p> <p>Determine if contaminated used crankcase oil is regulated as hazardous and disposed of according to applicable RCRA regulations. (1)(2)(3)(21)</p> <p>Verify that mixed petroleum liquids which are contaminated by halogenated contaminants or industrial chemicals are disposed of as hazardous waste according to applicable RCRA regulations. (1)(2)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>SPILL PLANS</p> <p>7-7. Facilities that store, transport, or dispense petroleum products are required to prepare a SPCC Plan (40 CFR 112.3).</p> <p>7-8. The SPCC plan is required to contain specific information (40 CFR 112.7).</p>	<p>Verify that the facility has a SPCC Plan. (1)(2)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).) <p>(NOTE: This applies to onshore and offshore sites 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: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - command approval - spill reporting procedures - prespill planning for major potential spill areas - spill containment and cleanup equipment/facilities - oil spill contingency plan - training procedures - spill response exercises - plan review and update procedures.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-8. (continued)</p>	<p>Verify that the SPCC Plan contains: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - general information about the facility including: <ul style="list-style-type: none"> - name - type of function - location of facility drainage patters - location maps - name and title of designated coordinator - inventory of all storage, handling, and transfer facilities that could produce a significant spills, including: <ul style="list-style-type: none"> - predictions of direction and rate of flow - total quantities of oil that could be spilled as a result of major failure. <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).)
<p>7-9. Each SPCC plan must be reviewed at least once every 3 yr (40 CFR 112.5(b)).</p>	<p>Verify that the SPCC plan has been reviewed at least once every 3 yr. (1)(2)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-10. The SPCC must be reviewed and/or amended under specific circumstances (40 CFR 112.4 and 112.5(a)).</p>	<p>Verify that the plan was amended if there was a material change in the facility design, construction, operations, or maintenance that alters the potential for an oil spill. (1)(2)(3)(21)</p> <p>Verify that the plan was sent to the USEPA for review if the facility: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - discharged oil of more than 1000 gal [3785.41 L] into navigable waters in a single spill event - discharged oil in harmful quantities into navigable waters in two reportable spill events within any 12 mo period. <p>Verify that the plan was amended and recertified by a professional engineer. (1)(2)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-11. Each SPCC Plan and any amendments must be certified by a professional engineer and the plan and each amendment must be prepared according to sound engineering practices (40 CFR 112.3(d) and 112.5(c)).</p>	<p>Verify that the SPCC Plan has been certified. (1)(2)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).)
<p>7-12. 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 112.3(e)).</p>	<p>Verify that a copy of the SPCC is available at sites that have personnel onsite at least 8 h a day. (1)(2)(3)(21)</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:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-13. All facility personnel involved with the management and handling of oil must take part in periodic training in spill prevention and response (40 CFR 112.7 (e)(10)).</p>	<p>Verify that proper training has been conducted by reviewing training records and interviewing the staff. (1)(2)(3)(8)(21)</p> <p>Verify that training addresses the procedures to follow when a spill occurs, such as: (1)(2)(3)(8)(21)</p> <ul style="list-style-type: none"> - notification - containment - safety practices. <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>DISCHARGES/SPILLS</p> <p>7-14. 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 through 110.10).</p> <p>7-15. Facilities are not allowed to add dispersants or emulsifiers to oils that are discharged (40 CFR 110.8).</p>	<p>Determine if the facility has had any discharges of oils. (1)(2)(3)(21)</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 NRC was notified as soon as possible after discovery of a discharge as defined in the above NOTE. (1)(2)(3)(21)</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: Discharges of oil from a properly functioning vessel engine are not considered harmful, but discharges of oil from a vessel's bilge are not allowed.)</p> <p>Verify that facilities do not add dispersants or emulsifiers to discharges. (1)(2)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>POL STORAGE</p> <p>7-16. Appropriate containment and/or diversionary structures, and cleanup equipment to prevent discharged petroleum products from reaching navigable water course are required to be readily available at the facility (40 CFR 112.7 (c)).</p>	<p>(NOTE: These requirements apply to the storage of petroleum products in containers other than tanks. For the storage of POL in storage tanks please see the section titled Aboveground/Underground Storage Tank (AST/UST) Management.)</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>Determine that at onshore facilities one of the following prevention systems or an equivalent is used: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - absorbent material - dikes, berms, or retaining walls sufficiently impervious to contain spilled oil - curbing devices - culverting gutters or other drainage systems - weirs, booms, or other barriers - spill diversion ponds - retention ponds. <p>Verify that at offshore facilities (see definitions), one of the following, or an equivalent, is available: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - curbing - drip pans - sumps - collection systems. <p>Determine the following for spill equipment in each oil storage area: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - adequacy of material types and quantity - accessibility of storage locations - condition of equipment. <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-18. 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 112.7(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. (1)(2)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)). <p>(NOTE: This checklist item refers to storage other than in a tank.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>POL LOADING AND UNLOADING</p> <p>7-19. Onshore tank car and tank truck loading/unloading racks are required to meet specific structural standards (40 CFR 112.7(e)(4)(ii) and 40 CFR 112.7(e)(4)(iii)).</p> <p>7-20. Specific operational procedures are required to be performed at facility tank car and tank truck loading/unloading sites (40 CFR 112.7(e)(iv)).</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. (1)(2)(3)(21)</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(1)(2)(3)(21)</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. (1)(2)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT - both of the following criteria are met: <ul style="list-style-type: none"> - the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil - the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).) <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. (1)(2)(3)(21)</p> <p>(NOTE: Facilities are exempt from the requirements outlined in 40 CFR 112 if:</p> <ul style="list-style-type: none"> - the facility, equipment, or operation is not subject to the jurisdiction of the USEPA as follows: <ul style="list-style-type: none"> - 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 which are subject to the authority of the DOT

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
7-20. (continued)	<ul style="list-style-type: none">- both of the following criteria are met:<ul style="list-style-type: none">- the underground buried storage capacity of the facility is 42,000 gal [15,987.30 L] or less of oil- the storage capacity which is not buried at the facility is 1320 gal [4996.74 L] of oil or less and no single container exceeds a capacity of 660 gal [2498.37 L] (40 CFR 112.1(d)(2)).

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL</p> <p>7-21. Depending on the constituents of the used oil, (see Appendix 7-1), facilities are required to handle used oil as a hazardous waste or according to specific used oil requirements (40 CFR 279.10).</p>	<p>Determine which types of the used oils listed in Appendix 7-1 are generated at the facility. (1)(2)(3)(21)</p> <p>Verify that used oil is handled according to its classification as one of the following (see flow chart): (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - a hazardous waste - used oil that falls under the requirements of 40 CFR 279 (see checklist items 7-21 through 7-53) - used oil that is not subject to the requirements of 40 CFR 279 and neither is it a hazardous waste unless testing indicates it does contain hazardous constituents.

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Centers for Disease Control and Prevention

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL GENERATORS</p> <p>7-22. Used oil generators that detect a release (other than a UST release) after the effective date of the authorized used oil program for the state in which the release is located must meet specific requirements (40 CFR 279.22(d)).</p> <p>7-23. Generators are allowed to burn used oil in used oil-fired space heaters if specific parameters are met (40 CFR 279.23).</p>	<p>(NOTE: The requirements for used oil generators do not apply to the following:</p> <ul style="list-style-type: none"> - household DIY used oil generators - vessels at sea or at port (in these cases generation occurs when it is transported ashore) - mixtures of used oil and diesel fuel mixed by the generators for use in the generators own vehicles - farmers who generate an average of 25 gal/mo [94.64 L/mo] or less of used oil from vehicles or machinery used on the farm in a calendar year.) <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 when a release is detected the following is done: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - the release is stopped - the released used oil is contained - the released used oil is cleaned up and properly managed - any leaking used oil storage containers or tanks are repaired or replaced prior to returning them to service. <p>Determine if the facility operates any used oil-fired space heaters. (1)(2)(3)(21)</p> <p>Verify that the following parameters are met: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - the heater burns only used oil that the facility generates or used oil received from household DIY used oil generators - the heater is designed to have a maximum capacity of not more than 0.5 MBtu/h [0.15 W/h] - the combustion gases from the heater are vented to the ambient air.

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**COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-24. 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).</p>	<p>Determine if the facility is transporting used oil or contracting the transportation of used oil. (1)(2)(3)(21)</p> <p>Verify that the transporter has an USEPA identification number except when: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - the generator does not transport more than 55 gal [208.20 L] at any time, the vehicle used is owned by the generator or an employee of the generator, and the used oil is going to a used oil collection center that is permitted - the generator is transporting the used oil to an aggregation point owned and/or operated by the same generator in a vehicle owned by the generator or an employee and no more than 55 gal [208.20 L] is transported - 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: <ul style="list-style-type: none"> - the type of used oil and frequency of shipments - verification that the vehicle used for transportation is owned by the used oil processor/refiner - verification that reclaimed oil will be returned to the generator.
<p>7-25. Used oil generators are not allowed to mix hazardous waste with used oil unless specific parameters are met (40 CFR 279.21(a)).</p>	<p>Verify that the facility does not mix hazardous waste with used oil unless: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - the resulting mixture does not exhibit any characteristics of hazardous waste - the waste is hazardous solely because it exhibits the characteristic of ignitability and is not a listed hazardous waste.
<p>7-26. Containers used to store used oil at used oil generators must be in good condition and not leaking (40 CFR 279.22(b)).</p>	<p>Verify that containers are not leaking, bulging, rusting, damaged, or dented. (1)(2)(3)(21)</p> <p>Verify that used oil is transferred to a new container or managed in another appropriate manner when necessary. (1)(2)(3)(21)</p>
<p>7-27. The label USED OIL must be clearly marked on containers used to store used oil and fill pipes used to transfer used oil into underground storage facilities (40 CFR 279.22(c)).</p>	<p>Verify that containers and fill pipes used to transfer used oil are clearly marked with the phrase USED OIL. (1)(2)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-28. Containers of used oil at used oil generators should be managed in accordance with good management practices (MP).</p>	<p>Verify the following by inspecting containers and storage areas: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - containers are not stored more than two high and have pallets between them - at least 3 ft [0.91 m] of aisle space is provided between rows of containers.

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 Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL COLLECTION CENTERS AND AGGREGATION POINTS</p> <p>7-29. Do-It-Yourselfer (DIY) used oil collection centers are required to meet the same standards as used oil generators (40 CFR 279.30).</p> <p>7-30. Used oil collection centers are required to be licensed/permitted and operated according to specific standards (40 CFR 279.31).</p> <p>7-31. Used oil aggregation points are required to be operated according to the standards for used oil generators (40 CFR 279.32).</p>	<p>Verify that DIY used oil collection centers such as the auto hobby shop meet the requirements outlined in the section titled Used Oil Generators. (1)(2)(3)(21)</p> <p>Determine if the facility operates a used oil collection center. (1)(2)(3)(21)</p> <p>Verify that the collection center meets the requirements for used oil generators outlined in the section titled Used Oil Generators. (1)(2)(3)(21)</p> <p>Verify that the collection center is registered/licensed/permitted/ recognized by a state/county/ municipal government to manage used oil. (1)(2)(3)(21)</p> <p>Verify that the used oil aggregation point is operated according to the standards outlined in the section titled Used Oil Generators. (1)(2)(3)(21)</p>

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**COMPLIANCE CATEGORY:
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 Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL TRANSPORTATION</p> <p>7-32. 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(b) through 279.40 (c)).</p> <p>7-33. Used oil transporters can consolidate or aggregate loads of used oil (40 CFR 279.41).</p> <p>7-34. Used oil transporters are required to have a USEPA identification number (40.CFR 279.42).</p> <p>7-35. Transporters must meet specific requirements for deliveries and shipments of used oil (40 CFR 279.43(a) through 279.43(b)).</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"> - onsite transportation - generators who transport shipments of used oil totaling 55 gal [208.20 L] or less from the generator to a used oil collection center - generators who transport shipments of used oil totaling 55 gal [208.20 L] or less from the generator to a used oil aggregation point owned by the generator - transportation of used oil generated by household DIYs from the initial generator to a regulated generator, collection center, aggregation point, processor/refiner, or burner.) <p>Verify that used oil is contaminated with hazardous waste is transported as a hazardous waste according to the standards in the Hazardous Waste Management section. (1)(2)(3)(21)</p> <p>(NOTE: Facilities that transport used oil imported from abroad or exported outside of the United States must meet these requirements while in the boundaries of the United States.)</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 refiners. (1)(2)(3)(21)</p> <p>Verify that, if the facility is transporting used oil, it has a USEPA identification number. (1)(2)(3)(21)</p> <p>Verify that all used oil is delivered to: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - another used oil transporter if the transporter has a USEPA identification number - a used oil processing/rerefining facilities with a USEPA identification number - an off-specification used oil burner facility with a USEPA identification number - an on-specification used oil burner facility. <p>Verify that DOT labeling, packaging, and placarding requirements are met.(21)</p>

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COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-36. Transporters are required to take specific actions if there is a discharge of used oil during transportation (40 CFR 279.43(c)).</p> <p>7-37. 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).</p> <p>7-38. Used oil transporters are required to keep records for used oil shipments and deliveries (40 CFR 279.45).</p>	<p>Verify that if there is a discharge the following are done: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - notification of authorities (the NRC) - containment of the discharge - submit a written report to the DOT - cleanup. <p>Verify that the transporter determines the total halogen content of the used oil by one of the following methods: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - testing the used oil - applying knowledge of halogen content of the used oil in light of the materials or processes used. <p>Verify that records of analyses are kept for 3 yr. (1)(2)(3)(21)</p> <p>Verify that the following records are kept for each shipment accepted for transport: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - name and address of the generator, transporter, or processor/rerefiner who provided the used oil for transport - USEPA identification number - the quantity of oil accepted - the day of acceptance - signature of receipt. <p>Verify that the following records are kept for each delivery to another used oil transporter or to a used oil burner, processor/rerefiner, or disposal facility and for export/import activities: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - the name and address of the receiving facility or transporter - the USEPA identification number of the receiving facility or transporter - the quantity of used oil delivered - the date of delivery - the signature, dated upon receipt of the used oil, of a representative of the receiving facility or transporter. <p>Verify that records are maintained for 3 yr. (1)(2)(3)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-39. 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)).</p> <p>7-40. Specific steps must be followed in response to a release at a transfer facility (40 CFR 279.45 (h)).</p>	<p>Verify that the tanks and containers at transfer facilities meet the requirements outlined in the section Used Oil Generators. (1)(2)(3)(21)</p> <p>Verify that containers and ASTs used to store used oil have secondary containment that meets the following minimum requirements: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - dikes, berms, or retaining walls - a floor that covers the entire area within the dikes, berms, or retaining walls - the system is impervious. <p>Verify that containers and aboveground tanks are labeled with the phrase USED OIL. (1)(2)(3)(21)</p> <p>Verify that fill pipes used to transfer used oil into underground storage tanks at transfer facilities are labeled USED OIL. (1)(2)(3)(21)</p> <p>Verify that the following steps are taken: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - the release is stopped - the release is contained - the release is cleaned up and properly managed - necessary repairs and replacements are done.

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COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL BURNERS</p> <p>7-41. Off-specification used oil fuel may be burned for energy recovery in industrial furnaces and boilers (40 CFR 279.12(c), 279.60(a), and 279.61(a)).</p> <p>7-42. Used oil burners are required to have an USEPA identification number (40 CFR 279.60(a) and 279.62).</p> <p>7-43. Used oil burners are required to determine if used oil is a hazardous waste (40 CFR 279.60(a) and 279.63).</p> <p>7-44. Used oil burners are required to store used oil in containers that meet specific requirements (40 CFR 279.60(a), 279.64(a) through 279.64(f)).</p>	<p>Determine if the facility burns used oil fuel for the purpose of energy recovery. (1)(2)(3)(21)</p> <p>Verify that off-specification used oil fuel is only burned for energy recovery in one of the following: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - an industrial furnace - a boiler that is identified as one of the following: <ul style="list-style-type: none"> - 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 - utility boilers used to produce electric power steam, heated or cooled air, or other gases or fluids for sale - used oil-fired space heaters - hazardous waste incinerators. <p>(NOTE: The following are exempt from meeting these requirements:</p> <ul style="list-style-type: none"> - the burning of used oil by a generator in an onsite space heater - the burning of used oil by a processor/rerefiner for purposes of processing.) <p>Verify that the facility has an USEPA identification number. (1)(2)(3)(21)</p> <p>(NOTE: The following are exempt from meeting these requirements:</p> <ul style="list-style-type: none"> - the burning of used oil by a generator in an onsite space heater - the burning of used oil by a processor/rerefiner for purposes of processing.) <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. (1)(2)(3)(21)</p> <p>Verify that copies of analyses are maintained for 3 yr. (1)(2)(3)(21)</p> <p>Verify that the containers at used oil burners meet the requirements outlined in the section titled Used Oil Generators. (1)(2)(3)(21)</p> <p>Verify that containers used to store used oil have secondary containment that meets the following minimum requirements: (1)(2)(3)(21)</p> <ul style="list-style-type: none"> - dikes, berms, or retaining walls - a floor that covers the entire area within the dikes, berms, or retaining walls - the system is impervious.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>7-47. Before a burner can accept the first shipment of off-specification used oil fuel from a generator, transporter, or processor/rerefiner, the burner must provide a one-time written notice (40 CFR 279.60(a) and 279.66).</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. (1)(2)(3)(21)</p> <p>Verify that the certification is maintained for 3 yr from the date of the last shipment received. (1)(2)(3)(21)</p> <p>(NOTE: The following are exempt from meeting these requirements: - the burning of used oil by a generator in an onsite space heater - the burning of used oil by a processor/rerefiner for purposes of processing.)</p>

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**COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>USED OIL MARKETING</p> <p>7-48. 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(b) and 279.71).</p> <p>7-49. Generators, transporters, processor/refiners, or burners must determine if the fuel oil is off or on-specification (40 CFR 279.70(b) and 279.72).</p> <p>7-50. Used oil fuel marketers are required to have a USEPA identification number (40 CFR 279.70(b) and 279.73).</p>	<p>Determine if the facility is marketing off-specification used fuel oil. (1)(2)(3)(21)</p> <p>Verify that it is going to an appropriate used oil burner. (1)(2)(3)(21)</p> <p>(NOTE: These requirements do not apply to the following:</p> <ul style="list-style-type: none"> - 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.) <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. (1)(2)(3)(21)</p> <p>Verify that records of analyses are maintained for 3 yr. (1)(2)(3)(21)</p> <p>(NOTE: These requirements do not apply to the following:</p> <ul style="list-style-type: none"> - 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.) <p>Verify that the facility has a USEPA identification number. (1)(2)(3)(21)</p> <p>(NOTE: These requirements do not apply to the following:</p> <ul style="list-style-type: none"> - 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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**COMPLIANCE CATEGORY:
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**REGULATORY
REQUIREMENTS:**

REVIEWER CHECKS:

**DUST SUPPRESSION
WITH USED OIL**

7-53. Used oil cannot be used for dust suppression unless allowed by the state (40 CFR 279.82).

Verify that used oil is not used for dust suppression at the facility. (1)(2)(3)(21)

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Appendix 7-1

Used Oil Classifications (40 CFR 279.10 and 279.11)

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 than refrigeration units and the generator has demonstrated that the used oil does not contain hazardous waste.
4. Materials produced from used oil that are burned for energy recovery.
5. Mixtures of used oil and hazardous waste if the resultant mixture does not exhibit any characteristics of hazardous waste.
6. Mixtures of used oil and a waste that is hazardous solely because it exhibits the characteristic of ignitability and is not a listed waste.
7. Mixtures of used oil and conditionally exempt small quantity generator (CESQG) hazardous waste.
8. 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.
9. 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

10. Materials containing or otherwise contaminated with used oil that are burned for energy recovery.
11. Used oil drained or removed from materials containing or otherwise contaminated with used oil.
12. 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).

(continued)

Appendix 7-1 (continued)

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 that is 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.

INSTALLATION:	COMPLIANCE CATEGORY: POL MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		



Section 8

Solid Waste Management

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SECTION 8

SOLID WASTE MANAGEMENT

A. Applicability

This section addresses the collection, storage and disposal of solid waste at Centers for Disease Control and Prevention (CDC) facilities. Solid waste is considered to be nonhazardous trash, rubbish, garbage, bulky wastes, liquids, or sludges generated by any facility's operations and activities.

Recycling activities are also included in this section because they are considered a form of solid waste management.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

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* 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, dated 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.
- EO 12780, *Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy*. This EO, dated 31 October 1991, requires Federal agencies to promote cost-effective waste reduction and recycling of reusable materials from wastes generated at their activities. Federal agencies are required to initiate a program to promote cost-effective waste reduction through: 1) prac-

tices that reduce waste generation, and 2) the recycling of recyclable materials such as paper, plastic metals, glass, used oil, lead acid batteries, and tires and the composting of organic materials such as yard waste.

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. 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.

States are required to incorporate revised criteria for municipal solid waste landfills (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 an facility's 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.

D. CDC Regulations/Requirements

- This section includes a description of the applicable Agency regulations, policies, and requirements. None available at this time.

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 the equipment is 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).
- **Solid Waste Containers** - Facility personnel should be periodically informed about materials that are prohibited from disposal in solid waste receptacles (MP).
- **Recycling** - 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 [10,160.5 kg] or more of waste corrugated containers per month is required to segregate or collect them separately for recycling or alternate energy use (40 CFR 246.200-1 and 246.202-1).

- **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 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)).

F. Responsibility for Compliance

- Sanitation Maintenance (Facilities Operation Branch).

G. Key Compliance Definitions

- *Blood* - human blood, human blood components, and products made from human blood (29 CFR 1910.1030(a)).
- *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).
- *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).
- *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).
- *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)).
- *Corrugated Container Waste* - discarded corrugated boxes (40 CFR 246.101).
- *Groundwater* - water present in the unsaturated zone of an aquifer (40 CFR 241.101).
- *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).

- *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).
- *Industrial Solid Waste* - the solid waste generated by industrial processes and manufacturing that is not a hazardous waste (40 CFR 243.101).
- *Infectious Waste* - this includes (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.
- *Leachate* - liquid that has percolated through solid waste and has extracted dissolved or suspended materials from it (40 CFR 241.101).
- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
- *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).
- *Municipal Solid Waste* - residential and commercial solid wastes generated within a community (40 CFR 240.101).
- *Open Burning* - burning of solid wastes in the open, such as in an open dump (40 CFR 240.101(r)).
- *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).
- *Recoverable Resource* - materials that still have useful physical, chemical, or biological properties after serving their original purpose and can, therefore, be reused or recycled for the same or other purposes (40 CFR 245.101).
- *Recycled Material* - a material that is utilized in place of a primary, raw, or virgin material in manufacturing a product (40 CFR 245.101).
- *Recycling* - the process by which recovered materials are transformed into new products (40 CFR 245.101).
- *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).
- *Runoff* - the portion of precipitation that drains from an area as surface flow (40 CFR 241.101).
- *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).
- *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).
- *Sludge* - the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins (40 CFR 240.101).
- *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).
- *Source Separation* - the setting aside of recyclable materials at their point of generation by the generator (40 CFR 246.101).
- *Special Wastes* - nonhazardous solid wastes requiring handling other than that normally used for municipal solid wastes (40 CFR 240.101).
- *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).
- *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)).
- *Vector* - a carrier, usually an arthropod, that is capable of transmitting a pathogen from one organism to another (40 CFR 240.202).

SOLID WASTE MANAGEMENT
GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS	REFER TO PAGE NUMBER:
All Facilities	8-1 through 8-4	(1)(2)(21)	8-11
Storage/Collection of Solid Waste	8-5 through 8-12	(1)(2)(5)(10)(17)(21)	8-13
Recycling	8-13 through 8-16	(1)(2)(17)(21)	8-17
Medical Waste	8-17 through 8-22	(1)(2)(9)(10)(17)(21)	8-19

- (1) Environmental Program Manager
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- (10) Biosafety Branch
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- (21) Health and Safety Officer

SOLID WASTE MANAGEMENT

Records To Review

- Record of current nonhazardous solid waste management practices
- Estimated generation rates
- Documentation of locations (map) and descriptions of all nonhazardous waste storage, and disposal sites
- Records of operational history of all active and inactive disposal sites
- State and Federal inspection reports
- Environmental monitoring procedures or plans
- Records of resource recovery practices, including the sale of materials for the purpose of recycling
- Solid waste removal contracts and inspection records
- Operating record for onsite MSWLFs
- Groundwater monitoring well data
- Regional solid waste management plan

Physical Features To Inspect

- Resource recovery facilities
- Incineration and land disposal sites (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

People To Interview

- Environmental Program Manager
- Facility Supervisor/Director
- Industrial Hygiene Section
- Medical Services
- Biosafety Branch
- Sanitation Maintenance Section (Facilities Operation Branch)
- Health and Safety Officer

**COMPLIANCE CATEGORY:
SOLID WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>8-1. 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>8-2. Copies of all relevant Federal, CDC, state, and local regulations and guidance documents on solid waste management should be available at the facility (MP).</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. (1)(2)(21)</p> <p>Verify that copies of the following regulations are available and kept current: (1)(2)(21)</p> <ul style="list-style-type: none"> - EO 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 7 CFR 330, <i>Federal Plant Pest Regulations, General, Plant Pests, Soil, Stone and Quarry Products, Garbage.</i> - 29 CFR 1910.1030, <i>Bloodborne Pathogens.</i> - 40 CFR 241, <i>Guidelines for the Land Disposal of Solid Wastes.</i> - 40 CFR 243, <i>Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste.</i>

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**COMPLIANCE CATEGORY:
SOLID WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:

REVIEWER CHECKS:

Facilities are required to comply with state and local solid waste regulations concerning solid waste management (42 CFR 191.688, Section 1-1).

Verify that the facility is abiding by state and local solid waste requirements. (1)(2)(21)

Verify that the facility is operating according to permits issued by the state or local agencies.(21)

- (NOTE: Issues typically regulated by state and local agencies include:
- license or permit requirements for existing onsite landfills
 - requirements for filing a closure plan for onsite landfills specifying monitoring and inspection procedures
 - design and operation specifications for solid waste receptacles
 - disposal of solid waste offsite only at licensed or permitted facilities
 - design and policy procedures of thermal processing of solid waste
 - 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
 - handling and disposal of medical, pathological, and infectious waste
 - recycling requirements
 - disposal of household wastes
 - yard waste
 - disposal of used tires.)

8-4. Facilities are required to comply with all applicable Federal regulations that are not contained in this checklist (e.g., this checklist does not have the citation of the applicable regulations of finding

Determine if any new regulations have been issued since the finalization of the manual. (1)(2)(21)

Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(2)(21)

Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(2)(21)

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**COMPLIANCE CATEGORY:
SOLID WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>STORAGE/ COLLECTION OF SOLID WASTE</p> <p>8-5. Facilities are required to store all solid wastes and all materials separated for recycling according to specific guidelines (40 CFR 243.200-1).</p> <p>8-6. 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 243.201-1).</p> <p>8-7. Facilities are required to maintain collection equipment according to certain standards if such equipment is considered to be operating in interstate or foreign commerce (40 CFR 243.202-1(a)).</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.)</p> <p>Verify that all solid wastes are stored so as not cause a fire, health or safety hazard. (1)(2)(17)(21)</p> <p>Verify that all solid waste containing food wastes are stored in covered or closed containers which are nonabsorbent, leakproof, durable, easily cleaned, and designed for safe handling. (1)(2)(17)(21)</p> <p>Verify that solid waste containers are of an adequate size and number to contain all waste generated between collections. (1)(2)(17)(21)</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. (1)(2)(17)</p> <p>Verify that reusable containers are capable of being serviced without the collector coming into contact with the waste. (1)(2)(17)(21)</p> <p>Verify that the collection system is operated safely. (1)(2)(17)(21)</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: (1)(2)(17)(21)</p> <ul style="list-style-type: none"> - <i>Motor Carrier Safety Standards</i> (49 CFR 390 through 396) - <i>Noise Emission Standards for Motor Carriers Engaged in Interstate Commerce</i> (40 CFR 202) - <i>Federal Motor Vehicle Safety Standards</i> (49 CFR 500 through 580) (Federally owned collection equipment only).

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**COMPLIANCE CATEGORY:
SOLID WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>8-8. All collection equipment is required to meet specific criteria (40 CFR 243.202-1(b) and 243.202-1(d)).</p> <p>8-9. Facilities are required to collect all solid wastes or all materials separated for recycling according to a certain schedule (40 CFR 243.203-1).</p> <p>8-10. Facilities are required to collect solid wastes in a safe, efficient manner (40 CFR 243.204-1).</p> <p>8-11. Facility industrial shop waste receptacles should be inspected quarterly to verify that hazardous wastes are not being deposited (MP).</p>	<p>Verify that all vehicles used for collection and transportation of solid wastes or materials separated for recycling are enclosed and have suitable cover to prevent spillage. (1)(2)(17)(21)</p> <p>Verify that equipment used in the compaction, collection, and transportation of solid waste or materials separated for recycling are constructed, operated, and maintained adequately. (1)(2)(17)(21)</p> <p>Verify that the following types of equipment meet that standards established by the American National Standards Institute (ANSI): (1)(2)(17)(21)</p> <ul style="list-style-type: none"> - rear-loading compaction equipment - side-loading compaction equipment - front-loading compaction equipment - tilt-frame equipment - hoist-type equipment - satellite vehicles - special collection compaction equipment - stationary compaction equipment. <p>Verify that solid wastes which contain food wastes are collected at a minimum of once during each week. (1)(2)(17)(21)</p> <p>Verify that bulky wastes are collected at a minimum of once every 3 mo. (1)(2)(17)(21)</p> <p>Verify that all wastes are collected with sufficient frequency to inhibit the propagation or attraction of vectors and the creation of nuisances. (1)(2)(17)(21)</p> <p>Verify that solid wastes or materials separated for recycling are collected in a safe efficient manner. (1)(2)(17)(21)</p> <p>Verify that the collection vehicle operator immediately cleans up any spillage caused by his operations. (1)(2)(17)(21)</p> <p>Verify that receptacles were inspected by reviewing records and interviewing personnel. (1)(2)(5)(10)(17)(21)</p> <p>Verify that corrective actions were taken where indicated. (1)(2)(5)(10)(17)(21)</p> <p>Verify that hazardous waste is not present in the solid waste receptacles at shops by a visual check. (1)(2)(5)(10)(17)(21)</p>

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**COMPLIANCE CATEGORY:
SOLID WASTE MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>8-12. Facility personnel should be periodically informed about materials that are prohibited from disposal in solid waste receptacles (MP).</p>	<p>Verify that a program exists at the facility to keep personnel informed about proper waste disposal practices. (1)(2)(5)(10)(17)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RECYCLING</p> <p>8-13. Facilities should participate in any state or local recycling programs and reduce the volume of solid waste materials at the source whenever practical (MP).</p> <p>8-14. Facilities with office facilities of over 100 office workers are required to recover high-grade paper (40 CFR 246.200-1).</p> <p>8-15. Facilities at which more than 500 families reside are required to recycle newspapers (40 CFR 246.201-1).</p> <p>8-16. Facilities generating 10 tons [10,160.47 kg] or more of waste corrugated containers per month are required to segregate/separately collect for recycling or alternative energy use (40 CFR 246.202-1).</p>	<p>Verify that a solid waste reduction program exists. (1)(2)(17)(21)</p> <p>Verify that recycling programs are in compliance with applicable state or local requirements. (1)(2)(17)(21)</p> <p>Verify that reusable or marketable materials are collected at regular intervals. (1)(2)(17)(21)</p> <p>Determine if the facility has over 100 office workers. (1)(2)(17)(21)</p> <p>Verify that high-grade paper is separated at the source of generation. (1)(2)(17)(21)</p> <p>Verify that high-grade paper is separately collected. (1)(2)(17)(21)</p> <p>Verify that high-grade paper is sold for recycling. (1)(2)(17)(21)</p> <p>Determine if the facility has more than 500 families residing on it. (1)(2)(17)(21)</p> <p>Verify that used newspapers are separated at the source of generation. (1)(2)(17)(21)</p> <p>Verify that used newspapers are separately collected. (1)(2)(17)(21)</p> <p>Verify that used newspapers are sold for recycling. (1)(2)(17)(21)</p> <p>Determine if the facility generates 10 tons [10,160.47 kg] or more of waste corrugated containers per month. (1)(2)(17)(21)</p> <p>Verify that waste corrugated containers are collected separately. (1)(2)(17)(21)</p> <p>Verify that waste corrugated containers are recycled or used as an alternative energy resource. (1)(2)(17)(21)</p>

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**COMPLIANCE CATEGORY:
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>MEDICAL WASTE</p> <p>8-17. 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>8-18. 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>8-19. 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: (1)(2)(9)(10)(17)(21)</p> <ul style="list-style-type: none"> - puncture resistant - labeled or color coded - leakproof on the sides and bottom. <p>Verify that reusable sharps that are contaminated with blood or other potentially infectious materials are not stored or processed in a manner that requires employees to reach by hand into the containers. (1)(2)(9)(10)(17)</p> <p>Verify that containers are: (1)(2)(9)(10)(17)(21)</p> <ul style="list-style-type: none"> - labeled and color coded - closed prior to being stored, transported, or shipped. <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. (1)(2)(9)(10)(17)(21)</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. (1)(2)(9)(10)(17)(21)</p> <p>Verify that contaminated sharps are placed in containers that are: (1)(2)(9)(10)(17)(21)</p> <ul style="list-style-type: none"> - closeable - puncture resistant - leakproof on sides and bottoms - labeled or color coded. <p>Verify that during use, containers for contaminated sharps are: (1)(2)(9)(10)(17)(21)</p> <ul style="list-style-type: none"> - easily accessible - maintained upright throughout use - replaced routinely and not be allowed to overfill.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>8-22. 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)(i)).</p>	<p>Verify that the labels: (1)(2)(9)(10)(17)(21)</p> <ul style="list-style-type: none"> - include the biohazard symbol - are fluorescent orange or orange-red or predominantly so, with lettering and symbols in contrasting color - are affixed as closely as possible to the container to prevent loss or removal. <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"> - 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 - individual containers of blood or other potentially infectious materials that is placed in a labeled container during storage, transport, shipment, or disposal.) <p>(NOTE: Regulated waste that has been decontaminated need not be labeled and color coded.)</p>

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INSTALLATION:	COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		

Section 9

Special Pollutants Management

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SECTION 9

SPECIAL POLLUTANTS MANAGEMENT

A. Applicability

This section is used to determine the compliance status of the management activities at Centers for Disease Control and Prevention (CDC) facilities associated with:

1. 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. environmental noise.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

B. Federal Legislation

- *The Toxic Substances Control Act (TSCA)*. This Act, as last amended in 1986, 15 U.S. Code (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 building is that the air within buildings in the United States 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 contamina-

tion in such buildings. Such 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)).

A recent 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. As of the publication of this manual, these regulations have not been finalized (15 USC 2681 though 2692).

- *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 which governs 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 which are transported for disposal at a landfill or other disposal facility must meet all applicable requirements.

- *The Noise Control Act of 1972*. This Act, Public Law (PL) 92-574 (42 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
 4. any other machinery or equipment designed for use in experimental work done by or for the Federal Government.
- *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 map 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 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).
 - *Executive Order (EO) 12088, Federal Compliance with Pollution Standards.* This EO, dated 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.

C. State/Local Regulations

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.

Environmental Noise - State and local governments may enact environmental noise control standards.

D. CDC Regulations/Requirements

- This section includes a description of the applicable Agency regulations, policies, and requirements.

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 contaminations 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.
- PCB Equipment Marking - The following equipment is required to be marked indicating that they contain PCBs (40 CFR 761.40 and 761.45):
 1. PCB Containers with PCBs in concentrations of 50 to 500 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
 - PCB Large Low-Voltage Capacitors at the time of removal from service
 - electric motors using PCB coolants with a concentration of 50 to 500 ppm
 - hydraulic systems using PCB hydraulic fluid with concentrations of 50 to 500 ppm
 - transfer systems (other than PCB Transformers) using PCB concentrations of 50 to 500 ppm
- PCB Containers - Containers containing any of the above
 - 1. Storage area used to store PCBs and PCB Items for disposal
 - 2. Transport vehicles loaded with PCB Containers that contain more than 45 kg (99.4 lb) of PCBs in the liquid phase with PCB concentrations of 50 to 500 ppm or one or more PCB Transformers with PCB concentrations of greater than 500 ppm: mark on each end and side
 - 12. Doors, machinery room doors, fences, hallways, or means of access, other than a manhole grate cover, to a PCB Transformer (500 ppm or greater).
- 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. 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. Storage and disposal facilities for PCBs shall maintain records for 3 yr (40 CFR 761.180(a), 761.180(d), and 761.180(f)).
- PCB Transformers - PCB Transformers with PCBs of 500 ppm or greater that are in use or in storage must not pose an exposure risk to food and feed and are subject to registration requirements. Combustible materials, including, but not limited to, paints, solvents, plastics, paper, and sawdust must not be stored by a PCB Transformer. 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 facility is required to immediately report the incident to the National Response Center (NRC) (40 CFR 761.120(a), 761.120(b), 761.120(c), 761.123(d)(2), and 761.125).

- PCB Spills - Facilities are required to report spills of more than 10 lb [4.56 kg] of PCBs of concentrations of 50 ppm to the USEPA regional office. Spills of greater than 1 lb [0.45 kg] must be cleaned up. 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).
- 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).
- 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 will assure the containment of PCBs. 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. Containers used for the storage of PCBs must comply with the shipping container specification of the Department of Transportation (DOT) (40 CFR 761.65; ER 1130-2-423).
- 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 with 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).
- 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 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 a USEPA approved PCB incinerator. PCB Capacitors must be disposed of either a solid waste landfill or an approved incinerator depending on the concentration of PCBs. PCB hydraulic machines containing PCBs at concentrations greater than 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. 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 (40 CFR 761.60 and 761.218).
- 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. 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 site 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 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).
- **Asbestos in Schools** - School buildings are required to be inspected for asbestos. An asbestos management plan is required and response action must be done in a timely manner. If there is friable asbestos in the school, there must be an O&M and repair program that limits the asbestos from becoming airborne and personnel exposure. Warning labels will be attached immediately adjacent to any friable and nonfriable asbestos containing building material (ACBM) and suspected ACBM assumed to be asbestos containing material (ACM). Staff at the school must receive training on the hazards involved (40 CFR 763).

F. Responsibility for Compliance

- **Electrical Section (Facilities Operations Branch)**. This section is responsible for the maintenance of all electrical equipment on CDC properties, including testing for the presence of PCBs and maintaining PCB records.
- **Asbestos Program Manager (Industrial Hygiene Section)**. This person is responsible for the asbestos program on CDC properties.

G. Key Compliance Definitions

- *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).
- *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).
- *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 one 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).
- *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 facility standards of 40 CFR 761.65, and who engages in storage activities involving PCB waste generated by others, or PCB waste that was removed while servicing the equipment owned by others and brokered for disposal. The receipt of a fee or any other forms of compensation for services is not necessary to qualify as a commercial storer of PCB waste. It is sufficient under this definition that the facility stores PCB waste generated by others or the facility removed the PCB waste while servicing equipment owned by others. If a facility's storage of PCB waste at no time exceeds 500 gal [1892.71 L] of PCBs, the owner or operator is not required to seek approval as a commercial storer of PCB waste (40 CFR 761.3).
- *Cutting* - to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching (40 CFR 61.141).
- *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).
- *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).
- *Double Wash/Rinse* - a minimum requirement to cleanse solid surfaces (both impervious and non-impervious) two times with an appropriate solvent or other material in which PCBs are at least 5 percent soluble (by weight) (40 CFR 761.123).
- *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 haz-

ard, 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 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.
- *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 by weight 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).
- *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 material 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).
- *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).
- *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).
- *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).
- *Non-PCB Transformers* - any transformer that contains less than 50 ppm PCB except 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).
- *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).
- *PCB or PCBs* - an 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-Contaminated Electrical Equipment* - any electrical equipment, including but not limited to transformers, capacitors, circuit breakers, reclosers, voltage, regulators, switches, electromagnets, and cable, that contain 50 ppm or greater PCB, but less than 500 ppm PCB (40 CFR 761.3).
- *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 Item* - any PCB Article, PCB Article Container, PCB Container, or PCB Equipment that deliberately or unintentionally contains or has as a part of it any PCB or PCBs (40 CFR 761.3).
- *PCB Transformer* - any transformer that contains 500 ppm PCB or greater (40 CFR 761.3).
- *PCB Waste* - those PCBs and PCB Items that are subject to the disposal requirements of Subpart D of 40 CFR 761 (40 CFR 761.3).
- *Particulate Asbestos Material* - finely divided particles of asbestos or material containing asbestos (40 CFR 61.141).

- *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).
- *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).
- *Radon-222* - a naturally occurring, inert, radioactive gas that is formed from the radioactive decay of uranium.
- *Regulated Asbestos-Containing Material (RACM)* - includes friable asbestos material; Category I nonfriable asbestos containing material that has become friable; Category I nonfriable ACM that has been subjected to grinding, casting, cutting, or abrading; and Category II nonfriable asbestos containing material 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).
- *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).
- *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).
- *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).
- *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).

SPECIAL POLLUTANTS MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS:*	REFER TO PAGE NUMBER:
All Facilities	9-1 through 9-4	(1)(2)(21)	9-15
PCB Management	9-5 through 9-7	(1)(2)(5)(18)(21)	9-17
PCB Records	9-8 through 9-10	(1)(2)(5)(18)(21)	9-19
PCB Transformers	9-11 through 9-19	(1)(2)(5)(6)(18)(21)	9-21
PCB Spills	9-20 through 9-22	(1)(2)(5)(18)(21)	9-25
PCB Items	9-23 through 9-26	(1)(2)(5)(18)(21)	9-29
PCBs in Research	9-27	(1)(2)(5)(18)(21)	9-31
PCB Storage	9-28 through 9-33	(1)(2)(5)(18)(21)	9-33
PCB Transportation	9-34 and 9-35	(1)(2)(5)(18)(21)	9-37
PCB Disposal	9-36 through 9-47	(1)(2)(5)(18)(21)	9-39
Asbestos	9-48	(1)(2)(19)(21)	9-45
Renovation and Demolition of Asbestos Containing Structures	9-49 through 9-57	(1)(2)(19)(21)	9-47
Asbestos Personnel Training	9-58	(1)(2)(19)(21)	9-53
Asbestos Disposal	9-59 through 9-62	(1)(2)(19)(21)	9-55
Radon Gas	9-63	(1)(2)(6)(21)	9-59
Environmental Noise	9-64	(1)(2)(21)	9-61

*** CONTACT/LOCATION CODE:**

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (5) Industrial Hygiene Section
- (6) Radiation Protection and Fire Safety Section
- (18) Electrical Section (Facilities Operation Branch)
- (19) Asbestos Program Manager (Industrial Hygiene Section)
- (21) Health and Safety Officer

SPECIAL POLLUTANTS MANAGEMENT

Records To Review

- Inspection, storage, maintenance, and disposal records for PCBs/PCB Items
- PCB Equipment inventory and sampling results
- Correspondence with regulatory agencies concerning noncompliance situations
- Annual reports
- Asbestos management plan and operating plan
- Notification to regulators concerning asbestos disposal
- Records of onsite disposal and transportation and offsite disposal of asbestos
- Regulatory inspection reports
- Documentation of asbestos sampling and analytical results
- Documentation of preventive measures or action
- Results of air sampling at the conclusion of response action
- Records of asbestos training program
- List of buildings insulated with asbestos or housing ACM
- Record of demolition or renovation projects in the past 5 yr that involved friable asbestos
- Decision documents/records of decision
- Administrative record
- Facility Master Plan Document
- Noise complaint log from local community
- Spill Prevention Control and Countermeasure (SPCC) Plan

Physical Features To Inspect

- PCB storage areas
- Equipment, fluids, and other items used or stored at the facility containing PCBs
- Pipe, spray-on, duct, and troweled cementitious insulation and boiler lagging
- Ceiling and floor tiles

People To Interview

- Environmental Program Manager
- Facility Supervisor/Director
- Industrial Hygiene Section
- Radiation Protection and Fire Safety Section
- Medical Services
- Electrical Section (Facilities Operation Branch)
- Asbestos Program Manager (Industrial Hygiene Section)
- Health and Safety Officer



**COMPLIANCE CATEGORY:
SPECIAL POLLUTANTS MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>9-1. 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>9-2. Copies of all relevant Federal, CDC, state, and local regulations and guidance documents on PCB, Asbestos, Radon Gas and Noise management should be available at the facility (MP).</p> <p>9-3. Facilities are required to comply with state and local regulations concerning PCB management, asbestos management, radon management, and environmental noise management (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. (1)(21)</p> <p>Verify that copies of the following regulations are available and kept current: (1)(2)(21)</p> <ul style="list-style-type: none"> - EO 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 40 CFR 61, Subpart M, <i>National Emission Standards for Hazardous Air Pollutants.</i> - 40 CFR 761, <i>PCB Manufacturing, Processing, Distribution in Commerce and Use Prohibitions.</i> - Applicable state and local regulations. <p>Verify that the facility is abiding by state and local requirements. (1)(2)(21)</p> <p>Verify that the facility is operating according to permits issued by the state or local agencies. (1)(2)(21)</p> <p>(NOTE: Issues typically regulated by state and local agencies include:</p> <ul style="list-style-type: none"> - 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.)

(1) Environmental Program Manager (2) Facility Supervisor/Director (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section (9) Medical Services (18) Electrical Section (Facilities Operations Branch) (19) Asbestos Program Manager (Industrial Hygiene Section) (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
SPECIAL POLLUTANTS MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-4. Facilities are required to comply with all applicable Federal regulatory requirements not contained in this checklist (a finding under this checklist item will have the citation of the applied regulation as a basis of finding).</p>	<p>Determine if any new regulations have been issued since the finalization of the manual. (1)(2)(21)</p> <p>Determine if the facility has activities or facilities which are Federally regulated, but not addressed in this checklist. (1)(2)(21)</p> <p>Verify that the facility is in compliance with all applicable and newly issued regulations. (1)(2)(21)</p>

(1) Environmental Program Manager (2) Facility Supervisor/Director (5) Industrial Hygiene Section (6) Radiation Protection and Fire Safety Section (9) Medical Services (18) Electrical Section (Facilities Operations Branch) (19) Asbestos Program Manager (Industrial Hygiene Section) (21) Health and Safety Officer

**COMPLIANCE CATEGORY:
SPECIAL POLLUTANTS MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCB MANAGEMENT</p> <p>9-5. 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>9-6. Certain equipment that contains PCBs must be marked with an M_L marking (40 CFR 761.40 and 761.45).</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. (1)(2)(5)(18)(21)</p> <p>Verify that the facility has an inventory/record of the following: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - 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 - total weight placed into storage for disposal or disposed of during the calendar year of: <ul style="list-style-type: none"> - PCBs in PCB Articles - contents of PCB Article Container - contents of PCB Containers - bulk PCB Waste - 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 <p>(NOTE: Marking Format Large PCB Mark (M_L) 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_s) may be used.)</p> <p>Verify that equipment containing PCBs is marked with an M_L marking that can be easily read by any person inspecting or servicing the equipment (see Appendix 9-1 for a sample of the marking): (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - PCB Containers with PCBs in concentrations of 50 to 500 ppm - PCB Transformers (500 ppm or greater) - PCB Large High Voltage Capacitors - equipment containing a PCB Transformer (500 ppm or greater) or a PCB Large High Voltage Capacitor at the time of removal from service - PCB Large Low Voltage Capacitors at the time of removal from service - electric motors using PCB coolants with a concentration of 50 to 500 ppm - hydraulic systems using PCB hydraulic fluid with concentrations of 50 to 500 ppm - heat transfer systems (other than PCB Transformers) using PCB concentrations of 50 to 500 ppm

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCB RECORDS</p> <p>9-8. 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 (500 ppm or greater), or 50 or more PCB Large, High- or Low-Voltage Capacitors (40 CFR 761.180(a)).</p>	<p>Verify that the annual document log and annual records (manifests certificates of disposal) are kept for at least 5 yr after the facility stops using or storing PCBs and PCB items in the listed quantities. (1)(2)(5)(18)(21)</p> <p>Review the written annual document log for the following: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - identification of facility - calendar year covered - manifest number for every manifest generated - 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 - total weight placed into storage for disposal or disposed of during the calendar year of: <ul style="list-style-type: none"> - PCBs in PCB Articles - contents of PCB Article Container - contents of PCB Containers - bulk PCB Waste - 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 - a record of each telephone call or other form of verification to confirm the receipt of PCB Waste transported by independent transport. <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: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - date removed from service for disposal (first date material placed in PCB Container) - date placed into transport for offsite storage/disposal - date of disposal (if known) - weight of PCB Wastes: <ul style="list-style-type: none"> - total bulk for PCB wastes - in each article for PCB Transformers or Capacitors - total in each container for PCB Containers - total weight of contents and of the PCB Article (in kg) in each PCB Article Container - serial number or other unique identification number (except for bulk wastes) - description of the contents for PCB Containers and Article Containers.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCB TRANSFORMERS</p> <p>9-11. Facilities with transformers on their property that they do not own or maintain should know whether or not the transformers are PCB-contaminated (MP).</p> <p>9-12. 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>9-13. PCB Transformers with concentrations of PCBs of 500 ppm or greater are subject to certain registration requirements (40 CFR 761.30(a)(1)(vi)).</p> <p>9-14. 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 either: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - the transformer are labeled - the facility has a letter from the transformers owners documenting the status of the transformers. <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. (1)(2)(5)(18)(21)</p> <p>Verify that all PCB Transformers, including those in storage for reuse, are registered with the facility fire department, or the fire department with jurisdiction, with the following information: (1)(2)(6)(18)(21)</p> <ul style="list-style-type: none"> - physical location of PCB Transformer(s) - principle constituent of dielectric fluid (i.e., PCBs, mineral oil, silicone oil, etc.) - name and telephone number of contact person knowledgeable of PCB Transformer(s). <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. (1)(2)(6)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-15. 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)).</p>	<p>Determine if there are any transformers located in or near commercial buildings by reviewing the inventory. (1)(2)(5)(18)(21)</p> <p>Verify that procedure/policy exists prohibiting installation of PCB Transformers which have been placed into storage for reuse or which have been removed from another location. (1)(2)(5)(18)(21)</p> <p>Verify that there are no network PCB Transformers with higher secondary voltages (equal to or greater than 430 V, including 480/277 V systems) in or near commercial buildings. (1)(2)(5)(18)(21)</p> <p>Determine where any of the following PCB Transformers are in use in or near commercial buildings or located in sidewalk vaults and if a plan exists to equip such PCB Transformers with electrical protection to avoid transformer failure that would result in release of PCBs: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - Radial PCB Transformers and lower secondary voltage network PCB Transformers (voltage less than 480 V) - Radial PCB Transformers with higher secondary voltages (greater than or equal to 480 V including 480/277 V system). <p>Determine if lower secondary voltage network PCB Transformers which have not been electrically protected are registered with the USEPA Regional Administrator and plans are being made to remove them from service by 1 October 1993. (1)(2)(5)(18)(21)</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 not located in sidewalk vaults in or near commercial buildings are equipped with: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - electrical protection such as current-limiting fuses to avoid transformer ruptures - disconnect equipment to insure complete de-energization of the transformer in case of a sensed abnormal condition. <p>Verify that all lower secondary voltage radial PCB Transformers, in use in or near commercial buildings, are equipped with electrical protection such as current limiting fuses or equivalent technology and provide for the complete de-energization of the transformer or complete de-energization of the faulted phase of the transformer within several hundredths of a second. (1)(2)(5)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-16. PCB transformers are required to be properly serviced (40 CFR 761.30(a)(2)).</p>	<p>Verify that servicing activities are properly conducted as follows by reviewing servicing records: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - transformers classified as PCB-contaminated Electrical Equipment (50 - 500 ppm PCBs) are only serviced with dielectric fluid containing less than 500 ppm PCB - the transformer coil is not removed during servicing of PCB Transformers with PCB concentrations of 500 ppm or greater - PCBs removed during servicing are captured and are either reused as dielectric fluid or disposed of properly - 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 - 500 ppm PCBs) - dielectric fluids containing less than 500 ppm PCBs 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 - 500 ppm PCBs). <p>(NOTE: PCB Transformers may be serviced with dielectric fluid at any concentration.)</p>
<p>9-17. Inspections must be performed once every 3 mo for all in-service PCB Transformers with greater than 500 ppm PCB (40 CFR 761.30(a)(1)(ix) and 761.30(a)(1)(xii) through 761.30(a)(1)(xiv)).</p>	<p>Verify that applicable transformers are inspected at least once every 3 mo by reviewing inspection records. (1)(2)(5)(18)(21)</p> <p>Determine whether any PCB Transformers have been leaking. (1)(2)(5)(18)(21)</p> <p>Verify that the following information is recorded for each PCB Transformer inspection: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - location of transformer - dates of each visual inspection - date when any leak was discovered - name of person conducting inspection - location and estimate of the dielectric fluid quantity for any leaks - data and description of any cleanup, containment, or repair performed - results of any daily inspections for transformers with uncorrected active leaks. <p>(NOTE: Reduced visual inspections of at least once every 12 mo is allowed for PCB Transformers with impervious, undrained secondary containment capacity of 100 percent of dielectric fluid and for PCB Transformers tested and found to contain less than 60,000 ppm PCBs.)</p> <p>(NOTE: Increased visual inspections of once a week is required for any PCB Transformer in use or stored for reuse which poses an exposure risk to food or feed.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-17. (continued)</p> <p>9-18. 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>9-19. 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>Verify that records of inspection and maintenance are kept for 3 yr after disposal. (1)(2)(5)(18)(21)</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. (1)(2)(5)(18)(21)</p> <p>Verify that leaking PCB Transformers are inspected daily. (1)(2)(5)(18)(21)</p> <p>Determine if plans exist to repair or replace transformers to eliminate the source of the leak. (1)(2)(5)(18)(21)</p> <p>Verify that cleaned up material is disposed of according to appropriate requirements. (1)(2)(5)(18)(21)</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. (1)(2)(5)(18)(21)</p> <p>Verify that the NRC was notified and the following measures were taken: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - floor drains were blocked - water runoff was contained.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCB SPILLS</p> <p>9-20. Facilities are required to report spills of more than 10 lb [4.53 kg] of PCBs of concentrations of 50 ppm or greater (40 CFR 761.120(a)(1), 761.123(d)(2), and 761.12(a)).</p> <p>9-21. Cleanup of low concentration spills of less than 1 lb [0.45 kg] of PCBs (less than 270 gal [1022.26 L] 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 when a spill of 10 lb [4.53 kg] or more directly contaminates surface water, sewers, or drinking water the facility notifies the regional USEPA office within 24 h after discovery of the spill and acts on the guidance given by the USEPA. (1)(2)(5)(18)(21)</p> <p>Verify that if a spill of 10 lb [4.53 kg] or more directly contaminates grazing land or a vegetable garden the facility notifies the USEPA regional office within 24 h after discovery and begins the cleanup of the spill. (1)(2)(5)(18)(21)</p> <p>Verify that when a spill of 10 lb [4.53 kg] or more occurs which does not directly contaminate surface waters, sewers, drinking water supplies, grazing land, or a vegetable garden the facility notifies the USEPA Regional office within 24 h after discovery of the spill and begins decontamination of the spill area. (1)(2)(5)(18)(21)</p> <p>(NOTE: Spills of greater than 1 lb [0.45 kg] 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>Verify that solid surfaces are double washed/rinsed and all indoor, residential surfaces other than vault areas are cleaned to 10 µg/100 cm² by standard commercial wipe tests. (1)(2)(5)(18)(21)</p> <p>Verify that all soil within the spill area (visible traces of soil and buffer of 1 lateral ft [3.28 lateral m] 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 PCBs). (1)(2)(5)(18)(21)</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. (1)(2)(5)(18)(21)</p> <p>Verify that the cleanup is documented with records and certification of decontamination and the records are maintained for 6 yr. (1)(2)(5)(18)(21)</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 ground-water contamination.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-22. Cleanup of high-concentration spills and low concentration spills involving 1 lb [0.45 kg] or more of PCBs by weight (270 gal [1022.64 L] 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: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - notification of the USEPA regional office and the NRC - 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 [0.91 m] buffer zone. If there are no visible traces the area of the spill may be estimated - clearly visible signs are placed advising persons to avoid the area - the area of visible contamination is recorded and documented, identifying the extent and center of the spill - cleanup of visible traces of the fluid from hard surfaces is initiated - removal of all visible traces of the spill on soil and other media such as gravel, sand, etc is started. <p>Verify that if the spill occurs in an outdoor substation: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - contaminated solid surfaces are cleaned to a PCB concentration of 100 µg/cm² (as measured by standard wipe tests) - 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 to notice is placed in the area indicating the level of cleanup - post-cleanup sampling is done. <p>Verify that if the spill occurs in a restricted access area other than an outdoor substation: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - high-contact solid surfaces are cleaned to 10 µg/100 cm² (as measured by standard wipe tests) - low-contact, indoor, impervious solid surfaces are decontaminated to 10 µg/100 cm² - low contact, indoor, nonimpervious surfaces are cleaned to either 10 µg or 100 µg/100 cm² and encapsulated at the option of the facility - low-contact, outdoor surfaces (both impervious and nonimpervious) are cleaned to 100 µg/100 cm² - soil contaminated by the spill is cleaned to 25 ppm PCBs by weight - post-cleanup sampling is done.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-22. (continued)</p>	<p>Verify that spills in nonrestricted access locations are decontaminated as follows: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - furnishings, toys, and other easily replaceable household items are disposed of and replaced - indoor solid surfaces and high-contact outdoor solid surfaces are cleaned to 10 µg/100 cm² (as measured by standard wipe tests) - indoor vault areas and low-contact, outdoor, impervious solid surfaces are decontaminated to 10 µg/100 cm² - at the option of the facility, low-contact, outdoor, nonimpervious solid surfaces are cleaned to either 10 or 100 µg/100 cm² and encapsulated - soil is decontaminated to 10 ppm PCBs by weight provided that the soil is excavated to a minimum depth of 10 in. [25 cm] and replaced with clean soil - post-cleanup sampling is done. <p>Verify that records documenting all cleanup and decontamination are maintained for 5 yr. (1)(2)(5)(18)(21)</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 ground-water contamination.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCB ITEMS</p> <p>9-23. 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)).</p> <p>9-24. Electromagnets, switches, and voltage regulators may contain PCBs at any concentration if certain requirements are met (40 CFR 761.30(h)).</p> <p>9-25. Capacitors may contain PCBs at any concentration subject to certain requirements (40 CFR 761.30(l)).</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. (1)(2)(5)(18)(21)</p> <p>Verify that no fluid containing greater than 50 ppm PCB is added to heat transfer or hydraulic systems. (1)(2)(5)(18)(21)</p> <p>Verify that results from analyses which are performed to demonstrate presence of less than 50 ppm PCB, are retained for confirmation for at least 5 yr. (1)(2)(5)(18)(21)</p> <p>Verify that heat transfer or hydraulic systems are free from leaks of dielectric PCBs. (1)(2)(5)(18)(21)</p> <p>Verify that no electromagnets are used or stored at the facility that contain greater than 500 ppm PCB and pose an exposure risk to food or feed. (1)(2)(5)(18)(21)</p> <p>Verify that electromagnets that contain greater than 500 ppm PCB and which pose an exposure risk to food or feed are inspected at least weekly to determine if they are leaking. (1)(2)(5)(18)(21)</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. (1)(2)(5)(18)(21)</p> <p>Verify that electromagnets, switches, and voltage regulators which contain between 50 and 500 ppm PCB (PCB-contaminated Electrical Equipment) are only serviced with dielectric fluid which that less than 500 ppm PCB. (1)(2)(5)(18)(21)</p> <p>Verify that PCBs removed or captured are either reused as dielectric fluid or disposed of properly. (1)(2)(5)(18)(21)</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. (1)(2)(5)(18)(21)</p> <p>Verify that all PCB Large, High- and Low-Voltage Capacitors that pose an exposure risk to food and feed have been removed. (1)(2)(5)(18)(21)</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. (1)(2)(5)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-25. (continued)</p> <p>9-26. 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>Verify that capacitors are free from leaks of dielectric PCBs. (1)(2)(5)(18)(21)</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. (1)(2)(5)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCBs IN RESEARCH</p> <p>9-27. The use of pigments containing PCBs in research or microscopy or in miscellaneous items is subject to certain conditions (40 CFR 761.30(g), 761.30(j), and 761.30(k)).</p>	<p>Verify that pigments used at the facility contain PCBs in concentrations less than 50 ppm. (1)(2)(5)(18)(21)</p> <p>Verify that pigments are handled in enclosed conditions. (1)(2)(5)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCB STORAGE</p> <p>9-28. PCBs and PCB Items at concentrations greater than 50 ppm that are to be stored before disposal must be stored in a facility that will assure the containment of PCBs (40 CFR 761.65(a) through 761.65(b) and 761.65(c)(8)).</p> <p>9-29. PCB Items may also be stored in other areas that do not comply with the storage area requirements when such storage is for a period of less than 30 days and when any such PCB items are marked with the date of removal from service (40 CFR 761.65(c)(1)).</p>	<p>Verify that the following provisions are present by inspecting the PCB storage area: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - 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 - a 6 in. [15.24 cm] tall containment curb circumscribes the entire area in which any PCBs or PCB Items are stored. Such curbing shall effectively provide containment for twice the internal volume of the largest PCB Article or 25 percent of the total internal volume of all PCB Articles or Containers stored, whichever is greater - drains, valves, floor drains, expansion joints, sewer lines or other openings that would allow liquids to flow from the curbed area are not present - floors and curbing are constructed of continuous, smooth, and impervious material - location is not below a 100 yr flood water elevation. <p>Verify that PCB Articles or PCB Containers are removed from storage and disposed of within 1 yr from the date they were placed in storage. (1)(2)(5)(18)(21)</p> <p>Verify that only the following items are stored and are properly marked in areas used as a 30 day storage area: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - nonleaking PCB Articles and PCB Equipment - leaking PCB Articles and PCB Equipment placed in a nonleaking PCB Container which contains sufficient sorbent material to absorb liquid contained on the PCB Article or equipment - PCB Containers in which nonliquid PCBs have been placed - PCB Containers in which liquid PCBs at a concentration between 50-500 ppm have been placed when containers are marked to indicate less than 500 ppm PCB. <p>Verify that area has been included in the facility Spill, Prevention, Control, and Countermeasure (SPCC) Plan. (1)(2)(5)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-30. 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 (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. (1)(2)(5)(18)(21)</p> <p>Verify that capacitors and equipment stored outside the storage facility are on pallets and inspected at least weekly. (1)(2)(5)(18)(21)</p>
<p>9-31. Specific operational procedures are required at PCB storage areas (40 CFR 761.65(c)(4), 761.65(c)(5), and 761.65(c)(8)).</p>	<p>Verify that the following practices are conducted at any area where PCBs or PCB Items are stored: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - movable equipment used for handling PCBs and PCB Items that directly contact PCBs is not removed from storage area unless decontaminated - inspections for leaks of all PCB Articles and PCB Containers in storage are done at least once every 30 days - any leaked PCBs are immediately cleaned up and any spill absorbent material properly disposed - PCB Articles and Containers are marked with the date when placed into storage - PCB Articles and PCB Containers are positioned so that they can be located by the date they were placed into storage - containers in which PCBs are accumulated have a record that includes quantity and date of each batch.
<p>9-32. 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)).</p>	<p>Verify that DOT specifications are on drums/containers. Typical specifications are 5, 5B, 17C. (1)(2)(5)(18)(21)</p> <p>(NOTE: Containers 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.)</p> <p>Verify that containers used for storage of liquid PCBs are containers without removable heads. (1)(2)(5)(18)(21)</p> <p>Verify that if the facility uses containers larger than DOT approved containers it has prepared a SPCC Plan covering its containers storing PCBs. (1)(2)(5)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-33. Commercial storers of PCB Waste must have final storage approval (40 CFR 761.65 (d)).</p>	<p>Determine if the facility is a commercial storer of PCB or has a commercial storer of PCB waste at the facility. (1)(2)(5)(18)(21)</p> <p>Verify that the commercial storer has final storage approval from the USEPA Regional Administrator for PCB waste. (1)(2)(5)(18)(21)</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 a final decision is made on approval.)</p> <p>(NOTE: The following storage facilities may be exempt from this requirements for storage approval:</p> <ul style="list-style-type: none"> - storage areas at transfer facilities unless the PCB waste is stored at the transfer facility for more than 10 consecutive days between destinations - 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 - 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.)

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCB TRANSPORTATION</p> <p>9-34. 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).</p> <p>9-35. 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)).</p>	<p>(NOTE: This applies to PCB wastes as defined in 40 CFR 761.3, and that contain greater than 50 ppm PCB unless the concentration was reduced below 500 ppm by dilution.)</p> <p>Verify that a manifest has been prepared when needed and that it contains (use USEPA Form 8700-22): (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - the identity of PCB waste, the earliest date of removal from service for disposal and the weight in kilogram of the waste for bulk load of PCBs - 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 - 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 kg of the PCB waste in each PCB Article. <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. (1)(2)(5)(18)(21)</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. (1)(2)(5)(18)(21)</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, an Exception Report is filed with the USEPA containing the following information: (1)(2)(5)(18)(21)</p> <ul style="list-style-type: none"> - a legible copy of the manifest for which the generator does not have confirmation of delivery - 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.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>PCB DISPOSAL</p> <p>9-36. For each shipment of manifested PCB waste that a disposal facility accepts, the owner or operator of the disposal facility must prepare a COD (40 CFR 761.218).</p> <p>9-37. PCB-contaminated fluids other than mineral oil dielectric fluid of concentrations greater than 50 ppm but less than 500 ppm are required to be disposed of according to specific requirements (40 CFR 761.60(a)(3)).</p>	<p>Verify that a COD has been prepared containing the following information: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - the identity of the disposal facility by name, address, and USEPA identification number - the identity of the PCB waste affected by the COD including reference to the manifest number for the shipment - a certification as defined in 40 CFR 761.3. <p>Verify that a copy of the COD was: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - sent to the generator identified on the manifest within 30 days of the date that disposal of the PCB waste was completed - retained at the facility with the annual report. <p>Determine if any PCB fluids meeting these criteria were processed for disposal in the last year. (1)(2)(18)(21)</p> <p>Verify that disposal was done at: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - a USEPA-approved incinerator - a USEPA-approved chemical waste landfill - a high efficiency boiler. <p>Verify that if the fluid is burned in an high efficiency boiler: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - the boiler is rated at a minimum of 50 MBtu/h [14.65 MW] - the CO concentration in the stack is 50 ppm or less and the excess O₂ is at least 3 percent when PCBs are being burned and the boiler uses natural gas or oil as the primary fuel - the CO concentration in the stack is 100 ppm or less and the O₂ content is at least 3 percent when PCBs are being burned and the boiler uses coal as the primary fuel - the waste does not compromise more than 10 percent (on a volume basis), of the total fuel feed rate. - the waste is not fed into the boiler unless the boiler is operating at its normal operating temperature <p>the operator of the boiler does one of the following:</p> <ul style="list-style-type: none"> - continuously monitors and records the CO concentrations and excess O₂ percentages in the stack gas while burning the waste fluid - measure and records the CO concentration and excess O₂ percentage in the stack gas at regular intervals of no longer than 60 min if the boiler will burn less than 30,000 gal/yr [113,562.36 L/yr] of waste fluid

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-39. Mineral oil dielectric fluid from PCB-Contaminated Electrical Equipment containing a PCB concentration greater than 50 ppm but less than 500 ppm is required to be disposed of according to specific methods (40 CFR 761.60 (a)(2)).</p>	<p>Verify that mineral oil dielectric fluid as described is disposed of in one of the following ways: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - an USEPA approved incinerator - an approved chemical waste landfill if written information proves that the fluid is not contaminated at greater than 500 ppm and is not an ignitable waste - an approved high efficiency boiler that is rated at a minimum of 50 MBtu/h [14.65 MW]. <p>Verify that if the fluid is burned in a high efficiency boiler: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - the boiler is rated at a minimum of 50 MBtu/h [14.65 MW] - the CO concentration in the stack is 10 ppm or less and the excess O₂ is at least 3 percent when PCBs are being burned and the boiler uses natural gas or oil as the primary fuel - the CO concentration in the stack is 100 ppm or less and the O₂ content is at least 3 percent when PCBs are being burned and the boiler uses coal as the primary fuel - the mineral oil dielectric fluid does not compromise more than 10 percent (on a volume basis), of the total fuel feed rate. - the mineral oil dielectric fluid is not fed into the boiler unless the boiler is operating at its normal operating temperature - the operator of the boiler does one of the following: <ul style="list-style-type: none"> - continuously monitors and records the CO concentrations and excess O₂ percentages in the stack gas while burning mineral oil dielectric fluid - measure and records the CO concentration and excess O₂ percentage in the stack gas at regular intervals of no longer than 60 min if the boiler will burn less than 30,000 gal [113,562.36 L] of mineral oil dielectric fluid per year - measure and record the primary fuel feed rates, the mineral oil dielectric fluid feed rates, and total quantities of both primary fuel and mineral oil dielectric fluid fed to the boiler at regular intervals of no longer than 15 min - checks the CO concentration and the excess O₂ percentage at least once every hour and if either measurement falls below the specified levels, the flow of the mineral oil dielectric fluid to the boiler stops immediately. <p>Verify that 30 days before burning mineral oil dielectric fluid, a written notice of the burning is given to the USEPA Regional Administrator. (1)(2)(18)(21)</p> <p>Verify that the following information is obtained by persons burning mineral oil dielectric fluid in a boiler and kept at the boiler location for 5 yr: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - emissions data - the quantity of mineral oil dielectric fluid burned in the boiler each month.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-40. Rags, soils, and other debris contaminated with PCBs at concentrations greater than 50 ppm must be disposed of in a PCB incinerator or in a chemical waste landfill (40 CFR 761.60(a)(4)).</p>	<p>Determine if any contaminated soil or debris has been disposed of, and verify that disposal was conducted at a properly licensed facility. (1)(2)(18)(21)</p>
<p>9-41. 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. (1)(2)(18)(21)</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 then drained thoroughly. (1)(2)(18)(21)</p>
<p>9-42. PCB Capacitors must be disposed of in accordance with certain requirements (40 CFR 761.60(b)(2)).</p>	<p>Verify that disposal of PCB Capacitors was done as follows: (1)(2)(18)</p> <ul style="list-style-type: none"> - PCB Small Capacitors (less than 1.36 kg (3 lb) of PCBs) are disposed of in a solid waste landfill - 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. <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 capacitors in storage are placed in DOT containers with absorbent material. (1)(2)(18)(21)</p>
<p>9-43. PCB hydraulic machines containing PCBs at concentrations greater than 50 ppm may be disposed of as municipal solid waste if specific conditions are met (40 CFR 761.60(b)(3)).</p>	<p>Verify that the machines are drained of all free-flowing liquid. (1)(2)(18)(21)</p> <p>Verify that if the machine contained PCB liquid of 1000 ppm PCB or greater, it is flushed prior to disposal with a solvent containing less than 50 ppm PCB. (1)(2)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-44. PCB-contaminated Electrical Equipment (50 - 500 ppm PCB), except capacitors, shall be disposed of by draining off the free-flowing liquid (40 CFR 761.60(b)(4)).</p>	<p>Verify that the free-flowing liquid is drained from electrical equipment prior to disposal. (1)(2)(18)(21)</p>
<p>9-45. PCB Articles shall be disposed of properly (40 CFR 761.60(b)(5)).</p>	<p>Verify that PCB Articles with concentrations at 500 ppm or greater are disposed of in either: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - a USEPA-approved incinerator - a chemical waste landfill if all free-flowing liquids have been removed. <p>Verify that PCB Articles with PCB concentration between 50 and 500 ppm are drained of all free-flowing liquid. (1)(2)(18)(21)</p>
<p>9-46. PCB Containers shall be disposed of properly (40 CFR 761.60(c)).</p>	<p>Verify that PCB Containers with concentrations of 500 ppm or greater are disposed of in one of the following ways: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - in a USEPA-approved incinerator - in a chemical waste landfill if first the container is drained of any liquid PCBs. <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. (1)(2)(18)(21)</p>
<p>9-47. PCB-contaminated fluids other than mineral oil dielectric fluid of concentrations greater than 50 ppm but less than 500 ppm shall be disposed of properly (40 CFR 761.60 (a)(3)).</p>	<p>Determine if any PCB fluids meeting these criteria were processed for disposal in the last year. (1)(2)(18)(21)</p> <p>Verify that disposal was done at: (1)(2)(18)(21)</p> <ul style="list-style-type: none"> - a USEPA-approved incinerator - a USEPA-approved chemical waste landfill - a high efficiency boiler, if: <ul style="list-style-type: none"> - the boiler is rated at a minimum of 50 MBtu/h - the boiler uses natural gas or oil. <p>Verify that such PCB fluids were disposed of by an approved method at a properly licensed facility. (1)(2)(18)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ASBESTOS</p> <p>9-48. Facility buildings with the potential to be contaminated with asbestos should be surveyed for asbestos and friable materials (MP).</p>	<p>Verify that an asbestos survey has been done. (1)(2)(19)(21)</p> <p>Determine if there is friable insulation, roofing, or flooring at the facility by inspection. (1)(2)(19)(21)</p> <p>Verify that friable materials with the potential for asbestos contamination that are located in areas of worker exposure are tested. (1)(2)(19)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RENOVATION AND DEMOLITION OF ASBESTOS CONTAINING STRUCTURES</p> <p>9-49. Facilities that demolish structures must meet certain notification requirements (40 CFR 61.145(a)(1), 61.145(a)(3), and 61.145(b)).</p>	<p>(NOTE: This applies to facilities that demolish structures containing at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m² (160 ft²) of RACM on other components or at least 1 m³ (35 ft³) 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 m² (160 ft²) of friable asbestos on other facility components and at least 1 m³ (35 ft³) off facility components.)</p> <p>Determine if the USEPA has been provided with written notice of intent to demolish or renovate at least 10 days before demolition begins and as early as possible before renovation begins. (1)(2)(19)(21)</p> <p>Verify that the written notice contains the following information: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - 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. <p>(NOTE: Facilities are also required to submit notifications following these guidelines 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.)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-50. Facilities demolishing a facility with RACM of less than 80 linear meters (260 linear feet) on pipes and less than 15 m² (160 ft²) on other facility components and less than 1 m³ (35 ft³) off facility components are required to submit notification of demolition (40 CFR 61.145(a)(2) and 61.145(b)).</p>	<p>Verify that a written notice of intent to demolish has been submitted to the Administrator at least 10 days before demolition and includes: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - the name and address of owner and operator - description of the facility being demolished including the size, age, and prior use - estimate of the approximate amount of friable asbestos present - location of the facility - schedule - procedures to be used.
<p>9-51. Facilities that demolish structures must 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>(NOTE: This requirements applies to facilities that demolish structures which contain at least 80 linear meters (260 linear feet) of RACM on pipes, or at least 15 m² (160 ft²) 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 m² (160 ft²) of friable asbestos on other facility components or 1 m³ (35 ft³) or more off facility components.)</p> <p>Verify that all RACM are removed from facilities being demolished or renovated before any wrecking or dismantling unless: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - it is a Category I nonfriable ACM that is not in poor condition and is not friable - the RACM is on a facility component that is encased in concrete or other similar material and is adequately wetted whenever exposed during demolition - 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 - it is Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder, during demolition. <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: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - they are adequately wetted when RACM is exposed during cutting and disjointsing operations - the units or sections are carefully lowered to ground level.

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-53. 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 m² (160 ft²) of RACM on other facility components or 1 m³ (35 ft³) 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: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - materials are adequately wet, and remain wet until collected for disposal - materials are carefully lowered to the ground or lower floor (not dropped or thrown) - 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 [15.24 m] above ground level.
<p>9-54. 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 m² (160 ft²) of RACM other facility components or at least 1 m³ (35 ft³) 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. (1)(2)(19)(21)</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. (1)(2)(19)(21)</p> <p>Verify that the temperature records are kept for 2 yr. (1)(2)(19)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-55. 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>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. (1)(2)(19)(21)</p>
<p>9-56. When a structure 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>Verify that complex removal is done before burning. (1)(2)(19)(21)</p>
<p>9-57. 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 fabric filter collection systems meet the following requirements: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - airflow permeability does not exceed $9 \text{ m}^3/\text{min}/\text{m}^2$ ($30 \text{ ft}^3/\text{min}/\text{ft}^2$) for woven fabrics or $11 \text{ m}^3/\text{min}/\text{m}^2$ ($35 \text{ ft}^3/\text{min}/\text{ft}^2$) for felted fabrics - the felted fabric weighs at least $475 \text{ g}/\text{m}^2$ ($14 \text{ oz}/\text{yd}^2$) and is at least 1.6 mm (1/16 in.) thick throughout - the use of synthetic fabrics containing fill yarn other than that which is spun is avoided.

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**COMPLIANCE CATEGORY:
SPECIAL POLLUTANTS MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ASBESTOS PERSONNEL TRAINING</p> <p>9-58. No RACM shall be stripped, removed, or otherwise handled or distributed unless at least one onsite representative trained in asbestos removal is present (40 CFR 61.145(c)(8)).</p>	<p>Verify that trained person is present. (1)(2)(19)(21)</p> <p>Verify that the individual receives refresher training every 2 yr. (1)(2)(19)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ASBESTOS DISPOSAL</p> <p>9-59. Asbestos-containing waste materials are required to be disposed of properly (40 CFR 61.150(a) through 61.150 (b)).</p> <p>9-60. Asbestos-containing waste must be transported according to specific parameters (40 CFR 61.150(c) through 61.150(e)).</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: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - the asbestos containing waste is adequately wetted - the asbestos containing waste is processed into nonfriable forms - an alternative method approved by the USEPA. <p>Verify that if the waste is wetted: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - asbestos waste from control devices is mixed with water to form a slurry and the other materials are adequately wetted - no visible emissions are discharged or air cleaning is used to control the emissions - the wetted materials are sealed in leaktight containers while wet and labeled with the phrase <i>CAUTION, Contains Asbestos - Avoid Opening or Breaking Container, Breathing Asbestos is Hazardous to Your Health</i> or a label approved by OSHA - materials that don't fit in containers are put into leaktight wrapping. <p>Verify that the waste generator deposits all ACM as soon as practical at one of the following: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - a properly operated waste disposal site - a USEPA approved site that converts RACM and asbestos-containing waste material into asbestos-free material. <p>Verify that vehicles used to transport asbestos-containing waste material are marked indicating an asbestos dust hazard. (1)(2)(19)(21)</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. (1)(2)(19)(21)</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 45 days after the waste was accepted by the initial transporter. (1)(2)(19)(21)</p>

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-61. Active waste disposal sites where ACM is being disposed 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>Determine if the facility is operating a landfill where asbestos is being disposed. (1)(2)(19)(21)</p> <p>Verify that there are no visible emissions from active asbestos-containing waste disposal sites, or that one of the following is done: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - 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 nonasbestos-containing material - a resinous or petroleum based dust suppression agent is applied, waste crank-case oil is not suitable for this purpose - an alternative method of control approved by the USEPA is used. <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: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - warning signs are displayed at all entrances at intervals of 100 m (330 ft) or less along the 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 - the area is adequately fenced. <p>Verify that a copy of waste shipment records are maintained for 2 yr. (1)(2)(19)(21)</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. (1)(2)(19)(21)</p> <p>Verify that upon closure, the administration receives a copy of all records. (1)(2)(19)(21)</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. (1)(2)(19)(21)</p>
<p>9-62. 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 inactive waste disposal sites meet one of the following: (1)(2)(19)(21)</p> <ul style="list-style-type: none"> - no visible emissions are discharged - 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. (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.) - cover the asbestos-containing waste material with at least 60 cm (2 ft) of non-ACM and maintain the cover to prevent exposure.

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**COMPLIANCE CATEGORY:
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Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>9-62. (continued)</p>	<p>Verify that unless a natural barrier exists, warning signs and a fence are installed to deter public access. (1)(2)(19)(21)</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. (1)(2)(19)(21)</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. (1)(2)(19)(21)</p>

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**COMPLIANCE CATEGORY:
SPECIAL POLLUTANTS MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>RADON GAS</p> <p>9-63. Levels of indoor radon gas in excess of 4 pCi/L are considered dangerous and mitigation should be done (MP).</p>	<p>Determine whether a geological survey has been conducted of the facility area and if any of the strata are composed of one or more of the following: (1)(2)(6)(21)</p> <ul style="list-style-type: none"> - granite - phosphate - shale - uranium. <p>Determine if radon gas survey has been done at the facility. (1)(2)(6)</p> <p>Determine if the facility has had any radon gas measurements exceeding 4 pCi/L in an occupied building and if preventive measures are being taken to reduce exposure. (1)(2)(6)</p> <p>Determine whether any radon gas measurements exceeding 4 pCi/L have been found in any underground facilities, or any other structures occupied 80 manhours or more per year. (1)(2)(6)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ENVIRONMENTAL NOISE</p> <p>9-64. A single facility point of contact should be identified for noise complaints (MP).</p>	<p>Verify that a point of contact has been identified. (1)(2)(21)</p> <p>Verify that the POC keeps a log of complaints on noises produced by activities and operations. (1)(2)(21)</p>

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Appendix 9-1

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. E.P.A. Office

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 9-2

Dielectric Fluid Trend Names and Manufacturers

1. U.S. Manufactured Dielectrics:

Name	Manufacturer
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:

Name	Manufacturer
Clophen	Bayer (Germany)
Fenclo	Caffaro (Italy)
Kennechlor	Mitsubishi (Japan)
Phenoclor	Prodelec (France)
DK	Caffaro (Italy)
Pyralene	Prodelec (France)
Solvol	USSR
Santotherm	Mitsubishi (Japan)

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.

INSTALLATION:	COMPLIANCE CATEGORY: SPECIAL POLLUTANTS MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		

Section 10

Water Quality Management

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SECTION 10

WATER QUALITY MANAGEMENT

A. Applicability

This section includes regulations, responsibilities and compliance requirements associated with wastewater discharge at CDC facilities. Wastewater discharge can include any of the following:

1. sanitary wastewater discharge directly to a receiving stream, or through a CDC treatment facility
2. sanitary or industrial wastewater discharge to a Publicly Owned Treatment Works (POTW) or other non-CDC treatment 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 CDC facilities have wastewater discharge of one kind or another, and therefore this section will be applicable to most facilities.

Assessors are required to review state and local regulations in order to perform a comprehensive assessment.

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, dated 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.

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 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 off-site POTW will be subjected to pre-treatment permits issued by the POTW, state, or USEPA as appropriate.

D. CDC Regulations/Requirements

- This section includes a description of the applicable CDC regulations, policies, and requirements. None available at this time.

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)).
- Discharge Limits for Photo Labs - Photo labs that process more than 150 m² per day of film must limit their discharges for silver, CN, and pH (40 CFR 459).

F. Responsibility for Compliance

- Biosafety Branch. This branch is responsible for the operation of the wastewater treatment facilities associated with Building 15 at the Clifton complex. This treatment facility is operated by a contractor.

G. Key Compliance Definitions

- *Blowdown* - the minimum discharge of recirculating water for the purpose of discharging materials contained in the water, the further buildup of which would cause concentrations in amounts exceeding limits established by best engineering practice (40 CFR 401.11(p)).
- *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).
- *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 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)).
- *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).
- *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)).
- *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)):
 1. facilities subject to storm water 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 (TSDF), 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 activities except operations that result in the disturbance of land less than 5 acres of total land area which are not part of a larger common plan of development or sale
 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, 4221-25, (and which are not otherwise included in categories 1 - 10).
- *Industrial User* - a source of indirect discharge (40 CFR 403.3(h)).
 - *Interference* - a discharge that, 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)).
 - *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.
 - *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:
 1. after promulgation of standards of performance under section 306 of CWA which are applicable to such sources, or
 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, or
 2. it totally replaces the process or production equipment that causes the discharge of pollutants at an existing sources, or
 3. its processes are substantially independent of an existing source at the same site (40 CFR 122.2 and 122.29(b)).
- *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)).
 - *Noncontact Cooling Water* - the water that is contained in a leak-free system, i.e., no contact with any gas, liquid, or solid other than the container for transport; the water shall have no net poundage addition of any pollutant over intake water levels (40 CFR 401.44(o)).
 - *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)).
 - *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)).
 - *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 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)).
 - *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)).
 - *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)).
 - *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)

- *Stormwater Discharge Associated with an Industrial Activity* - the discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at any industrial plant. This does not include discharges from facilities excluded from the NPDES program. For the categories of industries identified in the definition for Industrial Activities, the item numbers 1 through 10, 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 waste wastes; 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 finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. For item No. 11 in the definition for Industrial Activities the term only includes only storm water discharges from all the areas (except access roads and rail lines) that are listed in the previous sentence where materials handling equipment or activities, raw materials, intermediate products, final products, waste materials, byproducts, or industrial machinery are exposed to stormwater (40 CFR 122.26(b)(14)).
- *TTO* - total toxic organics (40 CFR 413.02).

**WATER QUALITY MANAGEMENT
GUIDANCE FOR CHECKLIST USERS**

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS:*	REFER TO PAGE NUMBERS:
All Facilities	10-1 through 10-4	(1)(2)(21)	10-11
Drinking Water	10-5	(1)(2)(21)	10-13
NPDES Permits	10-6 through 10-11	(1)(2)(15)(21)	10-15
Discharges to POTWs/FOTWs	10-12 through 10-18	(1)(2)(3)(4)(15)(21)	10-19
POTW/FOTW Operations	10-19	(1)(2)(3)(4)(15)(21)	10-23
Effluent Limitations for Photo Labs	10-20	(1)(2)(3)(21)	10-25

*** CONTACT/LOCATION CODE:**

- (1) Environmental Program Manager
- (2) Facility Supervisor/Director
- (3) Facilities Operation Branch
- (4) Section Chiefs
- (15) Engineering Services Office
- (21) Health and Safety Officer

WATER QUALITY 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
- Ash pond volume certification and supporting records
- Red water inspection records
- Special reports, certifications, etc., required by NPDES permit
- Spill Prevention Control and Countermeasure (SPCC) Plan
- All records required by SPCC Plan
- All notices of noncompliance
- All notices of violations
- NPDES state or Federal inspection reports
- Sewage treatment plant operator certification
- Administrative Orders
- Sewer and storm drain layout
- Local sewer ordinance
- Local service use permit
- Notification to local POTW
- Old Spill Reports
- Repair/Maintenance records for the wastewater treatment system
- As Built Drawings
- Federal Facility Compliance Agreements
- Stormwater pollution prevention plan
- Pretreatment Permits
- Design plans for wastewater and industrial waste treatment plants, including treatment basins
- Utility and general site maps, diagrams - plumbing (maintenance shops)

Physical Features To Inspect

- Discharge outfall pipes (maintenance shops, hardstands, and parking lots)
- 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 and other pretreatment devices such as sand and grit traps, grease traps, and sand interceptors
- Wastewater generation points
- Discharge to POTW/FOTW
- Stormwater ditches around motor pools

- Streams, rivers, open waterways
- Stormwater collection points (especially in industrial and maintenance areas)
- Fire Training Pit
- Nonpoint source discharge areas (parking lots and vehicle/aircraft hardstands)
- Motor pools and vehicle maintenance stands, plumbing, drains, and discharges (end of pipe)
- Wash racks (centralized facilities, individual and areas in vicinity of maintenance shop)
- Catch basins, drop inlets, holding/retention ponds
- Electrical grease racks and inspection racks
- Waste and sump collection points
- Detention ponds from vehicle washing operations (especially I.D. POL products)
- Vehicle maintenance inspection pits and ramps
- Ash disposal areas from incinerators (i.e., pathological)

People To Interview

- Environmental Program Manager
- Facility Supervisor/Director
- Facilities Operation Branch
- Section Chiefs
- Engineering Services Office
- Health and Safety Officer

**COMPLIANCE CATEGORY
WATER QUALITY MANAGEMENT
Centers for Disease Control and Prevention**

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>ALL FACILITIES</p> <p>10-1. 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>10-2. Copies of all relevant Federal, CDC, state, and local regulations and guidance documents on wastewater management should be made available at the facility (MP).</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. (1)(21)</p> <p>Verify that the following regulations on are available at the facility: (1)(2)(21)</p> <ul style="list-style-type: none"> - EO 12088, <i>Federal Compliance with Pollution Control Standards.</i> - 40 CFR 122, <i>EPA Administered Permit Programs: The National Pollutant Discharge Elimination System.</i> - 40 CFR 136, <i>Guidelines Establishing Test Procedures for the Analysis of Pollutants.</i> - 40 CFR 403, <i>General Pretreatment Standards for New and Existing Sources.</i> - 40 CFR 459, <i>Photographic Point Source Category.</i> - Applicable state and local regulations.

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**REGULATORY
REQUIREMENTS:**

REVIEWER CHECKS:

DRINKING WATER

10-5. Drinking water provided at the facility should be potable (MP).

Verify that potable water is available at the facility. (1)(2)(21)

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**COMPLIANCE CATEGORY
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>NPDES PERMITS</p> <p>10-6. 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 an USEPA approved NPDES permit program (40 CFR 122.1(b)(3)).</p> <p>10-7. Facilities which are dischargers of stormwater associated with an industrial activity (see definitions) 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 (40 CFR 122.26(c)).</p>	<p>Determine if the facility is located in a state with an USEPA approved NPDES permit program. (1)(2)(21)</p> <p>Verify that the facility has obtained the proper permits for point source discharges and/or treatment works treating domestic sewage. (1)(2)(21)</p> <p>Verify that the facility is operating according to permit requirements such as: (21)</p> <ul style="list-style-type: none"> - monitoring/sampling - concentrations of discharge constituents - recordkeeping - reports. <p>(NOTE: The Regional Administrator may require the facility to have a permit for the use/disposal of sewage sludge as necessary to protect public health.)</p> <p>(NOTE: Stormwater runoff may be addressed in the NPDES permit.)</p> <p>(NOTE: Look for oil/water separators and washracks that discharge directly to the environment.)</p> <p>Determine if the facility is discharging stormwater associated with an industrial activity. (1)(2)(15)(21)</p> <p>Verify that an application has been submitted for a permit. (1)(2)(15)(21)</p>

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**COMPLIANCE CATEGORY
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>10-8. Samples must be collected in accordance with proper collection, testing, preservation, and shipping procedures in <i>Standard Methods for Water Analysis</i> (40 CFR 136.1 through 136.4).</p>	<p>Verify that: (1)(2)(15)(21)</p> <ul style="list-style-type: none"> - proper sample containers are used - samples are refrigerated during compositing - proper preservation techniques are used - flow-proportioned samples are obtained where required by permit - sample holding times prior to analyses conform with requirements. - the chain of custody is maintained from sampling point through analytic testing to results (essential if litigation occurs).
<p>10-9. Analytical testing must be done in accordance with USEPA approved analytical procedures (40 CFR 136.3).</p>	<p>Determine if: (1)(2)(15)(21)</p> <ul style="list-style-type: none"> - an USEPA approved analytical testing lab was used - proper approval was obtained from state/USEPA if alternate analytical procedures are used - parameters other than those required by the permit are analyzed - satisfactory calibration and maintenance of instruments and equipment is done - quality control procedures are used - duplicate samples are analyzed - spiked samples are used - a commercial laboratory is used - the commercial laboratory is state certified (states with formal certification program).
<p>10-10. Facilities with NPDES permits are required to meet specific reporting requirements (40 CFR 122.41(1)).</p>	<p>Verify that the facility gives notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility when: (1)(2)(15)(21)</p> <ul style="list-style-type: none"> - the alteration or addition might meet one of the criteria for determining if the facility is a new source (see definitions) - the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged (this applies to pollutants which are not subject to requirements in the permit or other notifications) - the alteration or addition results in a significant change in the installations sludge use or disposal practices. <p>Verify that the facility notifies the Director of any planned changes at the permitted facility or activity which may result in noncompliance with permit requirements. (1)(2)(15)(21)</p> <p>Verify that monitoring is reported as required in the permit. (1)(2)(15)(21)</p> <p>Determine if the facility is monitoring more frequently than required. (1)(2)(15)(21)</p>

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**COMPLIANCE CATEGORY
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>DISCHARGES TO POTWs/FOTWs</p> <p>10-12. 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>10-13. Facilities shall not introduce specific pollutants into a POTW/FOTW (40 CFR 403.5(b)).</p>	<p>Determine the following: (1)(2)(3)(4)(15)(21)</p> <ul style="list-style-type: none"> - what point source discharges are at the facility - what drains in the facility lead to the treatment works - what do personnel pour down the drains leading to the treatment works - what types of materials are located in areas where spills may reach the drains to the treatment works. <p>Determine which drains are connected to the sanitary sewer draining to a POTW/FOTW and possible pollutants entering these drains. (1)(2)(3)(4)(15)(21)</p> <p>Verify that the facility is not discharging to a POTW/FOTW pollutants which would cause a pass through or interference (see definitions). (1)(2)(3)(4)(15)(21)</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. (1)(2)(3)(4)(15)(21)</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. (1)(2)(3)(4)(15)(21)</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. (1)(2)(3)(4)(15)(21)</p> <p>Verify that in no case are discharges with a pH below 5.0 released. (1)(2)(3)(4)(15)(21)</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: (1)(2)(3)(4)(15)(21)</p> <ul style="list-style-type: none"> - fish cleaning stations - pieces of metals, rubber, and wood from shops - sand and sediment. <p>Verify that no pollutants, including oxygen demand pollutants, are released at a flow rate or concentration that will cause interference with the POTW/FOTW. (1)(2)(3)(4)(15)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>10-16. Industrial users are required to notify the POTW/FOTW, the Regional Waste Management Division Director, and State hazardous waste authorities in writing of any discharges into the POTW/FOTW of a substance which would be a hazardous waste (40 CFR 403.12(p)).</p> <p>10-17. 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>10-18. Industrial users and POTWs/FOTWs are required to keep specific reports (40 CFR 403.12(o)).</p>	<p>Determine if the facility is discharging any substance to a POTW/FOTW which would be classified as a hazardous waste if disposed of in any other manner. (1)(2)(3)(4)(15)(21)</p> <p>Verify that if they are discharging a hazardous waste to the POTW/FOTW, the correct people have been notified of the following: (1)(2)(3)(4)(15)(21)</p> <ul style="list-style-type: none"> - the name of the waste - the type of discharge (batch, continuous, or other). <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: (1)(2)(3)(4)(15)(21)</p> <ul style="list-style-type: none"> - identification of the hazardous constituents - an estimate of the mass and concentrations of the constituents in the waste discharges during the calendar month. <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 the listed or characteristic hazardous wastes. (1)(2)(3)(4)(15)(21)</p> <p>Verify that the facility and the POTW/FOTW keeps records of all information resulting from monitoring activities. (1)(2)(3)(4)(15)(21)</p> <p>Verify that the records include for all samples the following information: (1)(2)(3)(4)(15)(21)</p> <ul style="list-style-type: none"> - the date, exact place, methods, and time of sampling and the names of the person or persons taking the samples - the dates analyses were performed - who performed analyses - the analytical techniques, methods used - the results of the analyses. <p>Verify that records are kept for 3 yr. (1)(2)(3)(4)(15)(21)</p>

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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>POTW/FOTW OPERATIONS</p> <p>10-19. Personnel engaged or employed in the operation and maintenance of water pollution control facilities should be trained in safety and occupational hazards (MP).</p>	<p>Determine if periodic refresher training is conducted by interviewing operating maintenance staff. (1)(2)(3)(4)(15)(21)</p> <p>Verify that training is conducted by reviewing training records. (1)(2)(3)(4)(15)(21)</p>

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**COMPLIANCE CATEGORY
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REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
<p>EFFLUENT LIMITATIONS FOR PHOTO LABS</p> <p>10-20. Facilities that have point source discharges resulting from the development or printing of paper prints, slides, negatives, enlargements, movie film, and other sensitized materials are subject to certain limitations (40 CFR 459.10 and 459.12).</p>	<p>Determine if the facility has point source discharges resulting from the development or printing of paper prints, slides, negatives, enlargements, movie film, and other sensitized materials. (1)(2)(3)(21)</p> <p>Verify that the photographic processing point source effluent is limited according to the specifications in Appendix 10-1. (1)(2)(3)(21)</p> <p>(NOTE: Photo labs processing 150 m² (16,000 ft²) per day or less are not covered.)</p>

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Appendix 10-1

**Effluent Standards Photographic Point Sources
(40 CFR 459.12)**

Effluent Limitations for Photographic Point Sources

Effluent characteristic	Effluent limitations Maximum for any 1 day	Maximum average values for 30 consecutive days
	Metric units (kg/1000 m² of product)	
Ag	0.14	0.07
CN	0.18	0.09
pH	*	*
	English units (lb per 1000 ft² of product)	
Ag	0.030	0.015
CN	0.038	0.019
pH	*	*

* Within the range 6.0-9.0

INSTALLATION:	COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Centers for Disease Control and Prevention	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWERS COMMENTS: DRAFT		