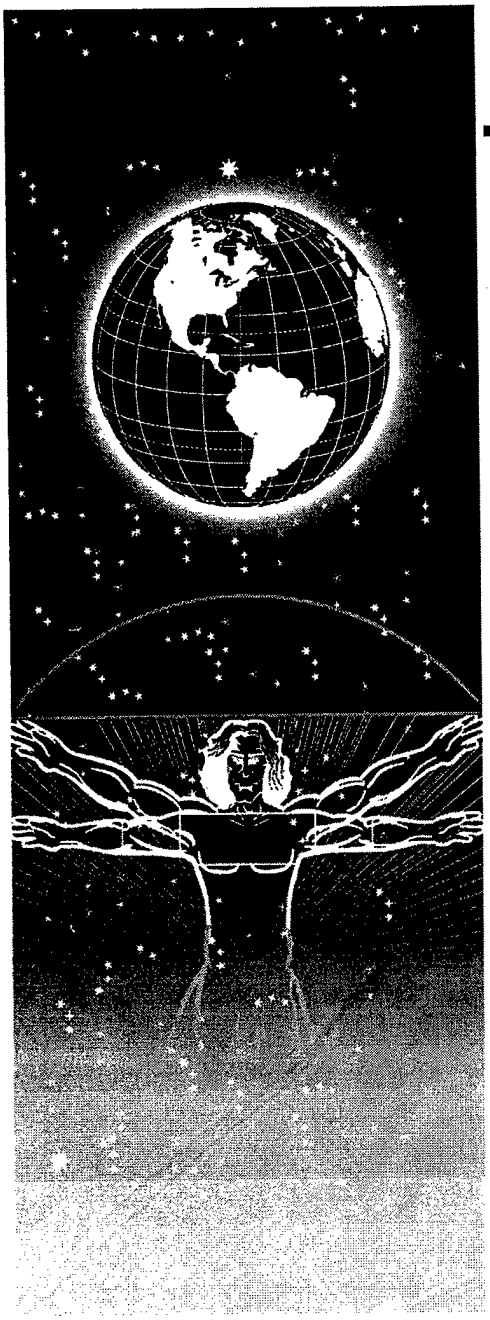
IERA-RS-BR-SR-2000-0007



UNITED STATES AIR FORCE
IERA

Hazardous Waste Management Plan, Travis Air Force Base, California

Parsons Engineering Science, Incorporated
2101 Webster Street, Suite 700
Oakland, CA 94612

December 1999

Approved for public release;

distribution is unlimited.

Air Force Institute for Environment, Safety and Occupational Health Risk Analysis
Risk Analysis Directorate
Environmental Analysis Division
2513 Kennedy Circle
Brooks Air Force Base TX 78235-5123

NOTICES

This report is published as received and has not been edited by the staff of the Air Force Institute for Environment, Safety and Occupational Health Risk Analysis (AFIERA).

Publication of this report does not constitute approval or disapproval of the ideas or findings. It is published in the interest of scientific and technical information (STINFO) exchange.

When Government drawings, specifications, or other data are used for any purpose other than in connection with a definitely Government-related procurement, the United States Government incurs no responsibility or any obligation whatsoever. The fact that the Government may have formulated or in any way supplied the said drawings, specifications, or other data, is not to be regarded by implication, or otherwise in any manner construed, as licensing the holder or any other person or corporation; or as conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

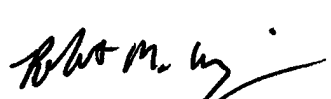
The mention of trade names or commercial products in this publication is for illustration purposes and does not constitute endorsement or recommendation for use by the United State Air Force.

The Office of Public Affairs has reviewed this report, and it is releasable to the National Technical Information Service, where it will be available to the general public, including foreign nationals.

This report has been reviewed and is approved for publication.

Government agencies and their contractors registered with Defense Technical Information Center (DTIC) should direct requests for copies to: Defense Technical Information Center, 8725 John J. Kingman Rd., STE 0944, Ft. Belvoir, VA 22060-6218.

Non-Government agencies may purchase copies of this report from: National Technical Information Services (NTIS), 5285 Port Royal Road, Springfield, VA 22161-2103.



ROBERT M. ENINGER, Capt, USAF, BSC
Consultant Engineer

MICHAEL G. ELLIOTT, Maj, USAF, BSC, Ph.D., P.E.
Chief, Environmental Analysis Division

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	December 1999	Final

4. TITLE AND SUBTITLE
Hazardous Waste Management Plan, Travis AFB, CA

5. FUNDING NUMBERS

6. AUTHOR(S)
Parsons Engineering Science, Inc

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Air Force Insitute for Environment, Safety & Occupational Health Risk Analysis
Environmental Analysis Division
Hazardous Waste and Pollution Prevention Branch
2513 Kennedy Circle
Brooks AFB, TX 78235-5123

8. PERFORMING ORGANIZATION REPORT NUMBER
IERA-RS-BR-SR-2000-0007

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
60 AMW/EM

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION AVAILABILITY STATEMENT
Approved for Public release; distribution is unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*
Report explains management procedures, organizational reponsibilities, characterization procedures, training requirements, reporting requirements, contingency procedures, and pollution prevention for hazardous waste generation at subject installation.

14. SUBJECT TERMS
Hazardous Waste, Environmental Management, Management Plan

15. NUMBER OF PAGES
184

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

THIS PAGE INTENTIONALLY LEFT BLANK

TRAVIS AIR FORCE BASE
Information and Emergency Contacts

ON-BASE EMERGENCIES
(Fires, Explosions, Releases, or Spills)

Base Fire Department	4-911

OFF-BASE EMERGENCIES INVOLVING AIR FORCE ASSETS
(Fires, Explosions, Releases, or Spills of Hazardous Waste Off-Base)

#1. Local Emergency Reporting Number	4-911
#2. Base Consolidated Command Post	4-2731/4-5517

CHEMICAL EMERGENCY INFORMATION AND ASSISTANCE

CHEMTREC	800- 424-9300

FEDERAL, STATE, AND LOCAL RELEASE NOTIFICATION/REPORTING

National Response Center	800-424-8802
State Office of Emergency Services	800-852-7550
U.S. Coast Guard	510-437-3076
Regional Water Quality Control Board, San Francisco Bay Region	510-286-1255
Bay Area Air Quality Management District	415-749-4979 800-334-6367
Department of Toxic Substances Control (Site Mitigation Branch)	916-323-3600
Office of Emergency Services, Emergency Response (Spills) — business hours	800-260-3972
Office of Emergency Services, Emergency Response (Spills) — 24 hours	800-852-7550
United States Fish and Wildlife Service	916-979-2110

AIR FORCE RELEASE REPORTING TO MAJCOM

HQ Spill Manager	DSN: 576-5764 ext. 604 or 245

ON-BASE ASSISTANCE AND INFORMATION

Environmental Manager	4-4321	Bioenvironmental Engineer	3-5490
Civil Engineer Service Call	4-2575	David Grant Medical Center ER	3-3825
Ground Safety	4-1113	Security Police	4-3293
Public Affairs	4-2011	Contracting Officer	4-7713
Staff Judge Advocate	4-3251		

OFF-BASE ASSISTANCE AND INFORMATION

EPA RCRA/Super-fund Hotline	*800-424-9346*
EPA Hazardous Waste Ombudsman Program	*800-262-7937*
EPA Region 9	*415-977-8884*

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

TRAVIS AIR FORCE BASE
HAZARDOUS WASTE MANAGEMENT PLAN

RECORD OF ANNUAL REVIEW

Review Date	Reviewers Name	Reviewer Organization	Comments

RECORD OF CHANGES

Change Number	Change Date	Posting Date	Signature & Organization

Security Instructions

This document is unclassified and does not come within the scope of directives governing the protection of information affecting national security in AFI 37-131. Commanders of all tasked organizations are authorized to reproduce this plan in its entirety or any portions necessary for planning and operational purposes.

LIST OF TABLES

LIST OF TABLES (continued)

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFEPPM	Air Force Energy Program Procedural Memorandum
AFFF	Aqueous film forming foam
AFI	Air Force Instruction
AFM	Air Force Manual
AFO	Accounting and Finance Officer
AFOSH	Air Force Occupational Safety and Health Standards
AFPAM	Air Force Pamphlet
AFPD	Air Force Policy Directive
AL	Armstrong Laboratory
AMC	Air Mobility Command
AMOG	Air Mobility Operations Group
AMW	Air Mobility Wing
ASTM	American Society of Testing Materials
BEE	Bioenvironmental Engineer
BTU	British Thermal Unit
CA	California
Cal-EPA	California Environmental Protection Agency
Capt	Captain
CAS	Chemical Abstract Service
CCR	California Code of Regulations
Cd	Cadmium
CE	Civil Engineering
CES	Civil Engineering Squadron
CEV	Civil Environmental Management
CEVP	Commander Environmental Planning
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
CLIN	Contract Line Item Number
CPR	Cardio-pulmonary Resuscitation
Cr	Chromium
CV	Vice Wing Commander
DEPPM	Defense Energy Program Procedural Memorandum
DoD	Department of Defense
DoT	Department of Transportation
DRMO	Defense Reutilization and Marketing Office
DRMS	Defense Reutilization and Marketing Service
DSN	Defense System Number
DTSC	Department of Toxic Substances Control
ECAMP	Environmental Compliance Assessment and Management Program
EHSC	Environmental Safety and Health Committee
EM	Environmental Management
EO	Executive Order

EPA	Environmental Protection Agency
EPC	Environmental Protection Committee
EPCRA	Emergency Planning and Community Right to Know Act
ESORTS	Environmental Status of Resources Training System
FFCA	Federal Facilities Compliance Act
FSO	Financial Services Office
HAZCOM	Hazard Communication
HAZMAT	Hazardous Material(s)
HCFCs	Hydrochlorofluorocarbons
Hg	Mercury
HMMS/IPT	Hazardous Material Management System Integrated Process Team
HOC	Halogenated Organic Compounds
HWAP	Hazardous Waste Analysis Plan
HWMP	Hazardous Waste Management Plan
IAW	In Accordance With
IERA	Institute for Environment, Safety, and Occupational Health Risk Analysis
ISWs	Industrial Shop Workers
JA	Staff Judge Advocate
l	Liter
lbs	Pounds
LG	Logistics Group
LS	Logistics
MAP	Management Action Plan
MDG/SGSLFE	Medical Group
mg	Milligram
mph	Mile per hour
MSDS	Material Safety Data Sheets
MSgt.	Master Sergeant
MSW	Municipal Solid Waste
NA	Not Applicable
Ni	Nickel
NOV	Notice of Violations
NTIS	National Technical Information Services
ODS	Ozone Depleting Substances
OG/CCE	Operations Group
OPLAN	Operations Plan
OPR	Office of Primary Responsibility
OSC	On-scene Commander
OSHA	Occupational Safety and Health Administration
PA	Public Affairs
Pb	Lead
PCB	Polychlorinated Biphenyl
pH	Photo-oxidation Hydrogen
POC	Point of Contact
POVs	Privately Owned Vehicles

PPE	Personal Protective Equipment
PPMP	Pollution Prevention Management Plan
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act of 1976 (Public Law 94-580, as amended by Public Law 95-609, 42 U.S.C. Chapter 6901, et seq.)
RRRP	Resource Recovery and Recycling Program
SARA	Superfund Amendments and Reauthorization Act
SAV	Staff Assistance Visits
SCBA	Self-contained Breathing Apparatus
SGPB	Bioenvironmental Engineering Services
Sgt	Sergeant
SMSgt	Senior Master Sergeant
SPR	Spill Prevention and Response
SPTG	Support Group
SSgt	Staff Sergeant
STLC	Soluble Threshold Limit Concentration
SVS	Services Squadron
TCLP	Toxicity Leaching Characteristic Procedures
TO	Technical Orders
TPH	Total Petroleum Hydrocarbons
Travis AFB	Travis Air Force Base
TRI	Toxic Release Inventory
TSCA	Toxic Substances Control Act
TSDF	Treatment, Storage, and Disposal Facility
TSgt	Technical Sergeant
TTLC	Total Threshold Limit Concentration
US	United States
USAF	United States Air Force
VOC	Volatile Organic Compounds
WET	Waste Extraction Test
ZHE	Zero Headspace Extraction

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

1.1.1 Objective

The United States Air Force (USAF) is committed to the proper management of hazardous and state-regulated wastes generated on its installations. The primary objective of this Hazardous Waste Management Plan (HWMP) is to assign responsibilities and explain procedures for the collection, analysis, transportation, record keeping and disposal of hazardous waste.

1.1.2 Regulatory Framework

On 19 May 1980, the U.S. Environmental Protection Agency (EPA) published the Hazardous Waste Management System Rules. Subtitle C of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976 (RCRA), directed the EPA to promulgate regulations to protect human health and the environment from the improper management of hazardous waste. The effective date of these far-reaching regulations was 19 November 1980. RCRA was again amended in 1984. The amendments require increased management of hazardous waste by all organizations on Travis Air Force Base (AFB).

EPA delegated RCRA implementation to the State of California in 1992. The agency with oversight of the hazardous waste program in California is the Department of Toxic Substances Control (DTSC), California Environmental Protection Agency (Cal-EPA). The Federal Facilities Compliance Act (FFCA) of 1992 requires Department of Defense (DoD) facilities to comply with all Federal, state, and local environmental regulations in the same manner as private facilities. The FFCA allows Federal and state agencies to assess DoD facilities with RCRA violation fines. The Air Force Pamphlet (AFPAM) 32-7043 provides guidance for managing hazardous waste at Air Force installations to meet Federal, state, DoD, Air Force, and local environmental, worker safety, and transportation requirements. The procedures of this HWMP will be used to comply with Federal and state legislation and regulations.

1.1.3 Revisions

Plan revisions shall reflect changes in hazardous waste management laws and regulations. Each revision to this HWMP will become effective immediately upon distribution unless otherwise noted herein. The HWMP requires an annual review, with amendments as needed. Plan reviews and amendments are generated by permit modifications, pertinent regulatory

changes, and the Travis AFB Environmental Protection Committee (EPC) or Travis AFB Hazardous Waste Subcommittee requests. These are recorded in the tables that precede the table of contents for this HWMP. Units are required to maintain a copy of this plan and document an annual review, IAW 60 AMW Index 5 par. 5.3. This plan replaces the Travis AFB HWMP, dated 15 April 1998.

1.1.4 Purpose

The purpose of the Travis AFB HWMP is to support and guide hazardous waste management operations on Travis AFB. It establishes an overall Hazardous Waste Management Program to track waste from generation to disposal. It also describes procedures which, when properly implemented, assure the proper collection, segregation, storage, treatment and disposal of hazardous waste in accordance with RCRA and State of California regulations. This plan establishes hazardous waste management and analysis procedures and guidance for all Travis AFB personnel who handle or manage hazardous waste.

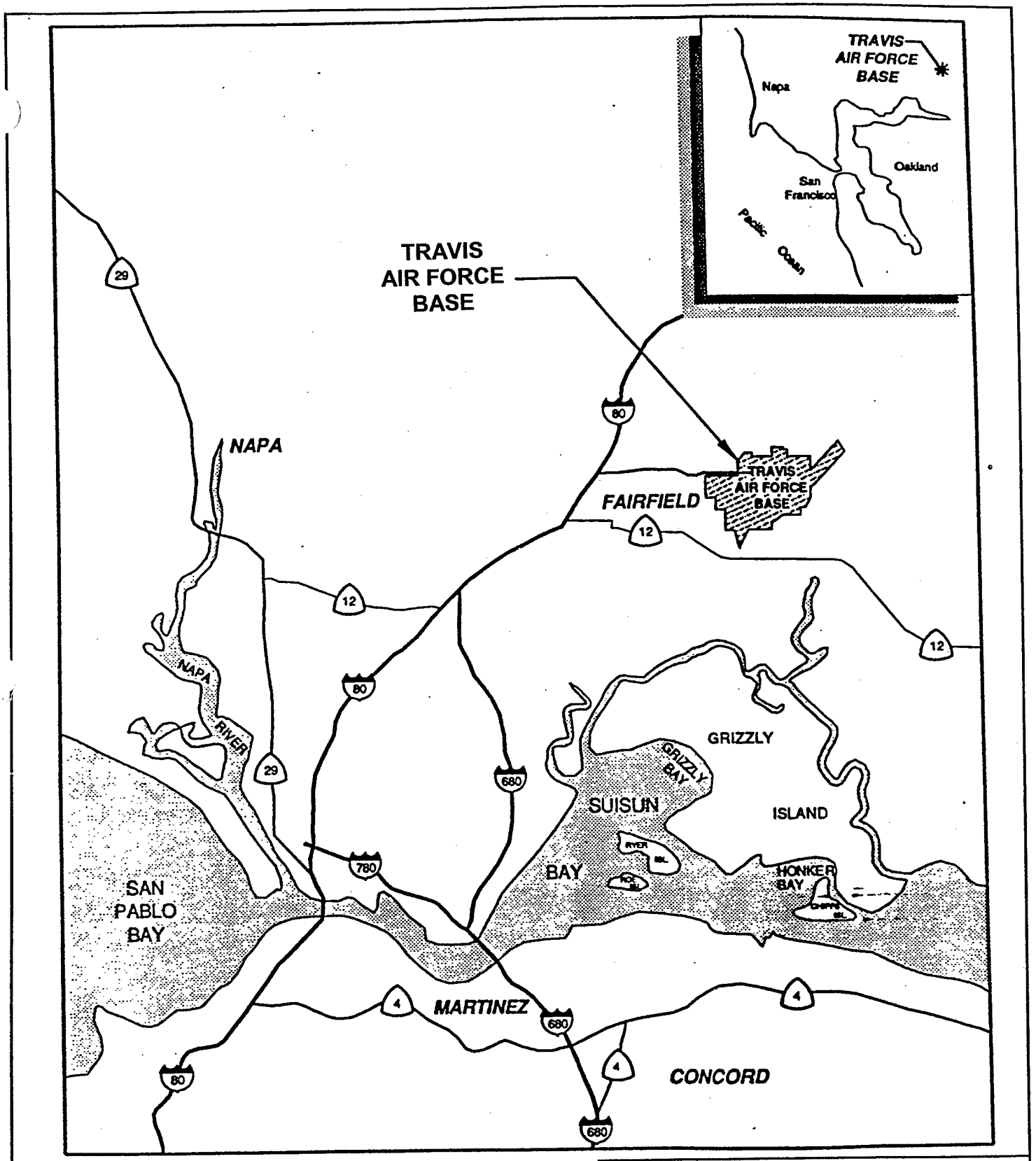
1.1.5 Implementation

Implementation of the comprehensive Hazardous Waste Management Program mandated by RCRA requires maximum cooperation of all activities on Travis AFB. It is the responsibility of the Installation Commander to ensure compliance with all RCRA requirements for Travis AFB. The 60th Civil Engineering Squadron/Environmental Flight (60 CES/CEV), working for the Installation Commander, submits permit applications, provides the reports required by the EPA and the State of California and ensures compliance with RCRA regulations and permit requirements for all installation activities, including tenants. The individual base organizations including tenants, contractors, and any activity that generates hazardous waste within the base, are accountable for conducting their activities in accordance with this Plan. Those base units, as well as the Defense Reutilization and Marketing Office (DRMO) activities and tenant activities, will provide necessary documentation to 60 CES/CEV.

1.1.6 Travis Air Force Base Location and Mission

Travis AFB, known as "The Gateway to the Pacific," is the busiest military air terminal in the United States. Travis AFB is located in northern California approximately 50 miles northeast of San Francisco and 40 miles southwest of Sacramento. The Base is within the eastern city limits of Fairfield in Solano County (Figure 1.1). Travis AFB covers 5,023 acres in a flat, predominantly agricultural area.

The host unit at Travis AFB is the 60th Air Mobility Wing (60 AMW). The mission of the 60 AMW is to provide quality services and support for America's Global Reach through a responsive and flexible combat-ready Air Mobility force. As the largest airlift organization in the Air Force, the 60 AMW operates a cargo fleet of C-5 Galaxy, and KC-10 Extender aircraft. The 60 AMW is responsible for implementing the command mission of strategic airlift, providing rapid and reliable airlift to any point in the world in support of national objectives. The Wing also fulfills the global logistics needs of the DoD. Today, the Travis Team includes approximately 7,260 active military, 3,770 civilians, and 4,250 reservists.



SOURCE: Radian, 1996

FIGURE 1.1

BASE LOCATION MAP

Travis AFB, California

PARSONS ENGINEERING SCIENCE, INC.

Oakland, California

\730486\07\REPORT\FIGS P8.CDR 4/18/98

1.2 COMPLIANCE STATUS

1.2.1 Hazardous Waste Generator Status

Travis AFB is a RCRA large quantity generator. It generates more than 1,000 kg of hazardous waste in a calendar month. Thus, the base is operated in accordance with EPA and State of California regulations pertaining to large quantity generators.

1.3 SCOPE OF THE HAZARDOUS WASTE MANAGEMENT PLAN

1.3.1 Applicability of Federal and State Requirements

The Travis AFB HWMP has been developed to assist those responsible for handling and managing hazardous wastes at Travis AFB to effectively meet the complex requirements of RCRA as enforced by the EPA and State of California. Travis AFB is subject to state regulations that implement RCRA requirements in California. This plan fulfills the requirements outlined in 40 Code of Federal Regulations (CFR) 264.13 and 268.7(a) as well as the California Code of Regulations (CCR), Title 22, Parts 66264.13 and 66268.7(a).

1.3.2 Applicability to Travis AFB

The Travis AFB HWMP addresses key points in implementing hazardous waste management procedures and practices required by RCRA as enforced by the EPA and the State of California. Federal facilities, such as Travis AFB, are not exempt from most requirements of this law. The Plan covers the control and management of hazardous waste at the point of generation of hazardous materials to the point of disposal. The Travis AFB HWMP implements the EPA's philosophy of "cradle-to-grave" management and control of hazardous waste.

The requirements and procedures provided in this plan are applicable and will be implemented at all times by 60 AMW, all base and tenant units, and other associated agencies and organizations on Travis AFB (including contractors) who generate, treat, transport or store hazardous waste. This plan must be in the Part B Permit application for the storage of waste at the base Treatment, Storage and Disposal Facility (TSDF), Building 1365.

1.4 HAZARDOUS WASTE OVERVIEW

Hazardous waste generated on Travis AFB includes flammable solvents, contaminated fuels and lubricants, stripping chemicals, waste oils, waste paint, absorbent materials, outdated materials, and asbestos. There are four types of activities that generate the vast majority of hazardous waste at Travis AFB: 1) aircraft maintenance, 2) transportation maintenance, 3) equipment, and 4) facilities maintenance. These activities generate approximately 95 percent of the total volume of hazardous wastes on base.

The base delegates authority for managing hazardous waste to the Group level. The appropriate Group Commander signs the appointment letter for all 90-Day Accumulation Point primary and alternate Crew Chiefs. The Squadron Commander or his designated

representative appoints all other primary and alternate Crew Chiefs. Training programs have been developed for these individuals and requirements are contained in Chapter 7.

The base has one facility permitted for long term storage of hazardous waste (Building 1365) and one facility permitted for long term storage of polychlorinated biphenyl (PCB) contaminated materials (Building 956). Building 956 is no longer used to store PCB-contaminated materials and is expected to undergo closure in the near future. The transfer and storage of hazardous wastes at Building 956 is not discussed further in the HWMP because it is no longer used for that purpose. Both facilities are managed by 60 CES/CEV.

Most hazardous waste at Travis AFB is collected in 55 gallon drums, stored for less than 90 days at various 90-Day Accumulation Points, then transported to the permitted TSDF at Building 1365. Government owned forklifts, flatbed trucks or other vehicles with cargo beds are used to transport containers. Loads are secured with aircraft cargo straps or other safe methods. Transportation is accomplished at speeds no greater 20 miles per hour (mph) for forklifts or 25 mph for flatbed trailers. Two-way communications are established when transporting hazardous waste. Vehicles require emergency and spill equipment. (See the turn-in checklist in Chapter 5.)

Wastes are removed from Buildings 1365 by contract to an approved disposal site. The Defense Reutilization and Marketing Office (DRMO) contracts for waste transportation and disposal off the base. Additionally, the 60 CES/CEV has an asbestos disposal contract with a local company.

1.5 REFERENCES

Some of the references consulted during the preparation of this HWMP include the following:

- Executive Order 12088, Federal Compliance with Pollution Control Standards
- Toxic Substances Control Act (TSCA) of 1976
- 40 CFR Parts 260-270, Hazardous Waste and Permit Regulations
- California Safety and Health Codes: Chapter 6.5 of Division 20, Hazardous Waste Control
- California Code of Regulations (CCR), Title 22, Division 4, Chapter 30, Minimum Standards for Management of Hazardous Waste and Extremely Hazardous Waste
- AFPD (Air Force Policy Directive) 32-70 Environmental Quality
- AFPD 23-3, Energy Management
- AFI (Air Force Instruction) 10-401, USAF Operation Planning Process
- AFI 32-2001, The Fire Protection Operation and Fire Protection Program
- AFI 32-7002, Environmental Information Management System

- AFI 32-7005, Environmental Protection Committees
- AFI 32-7042, Solid and Hazardous Waste Compliance
- AFI 32-7060, Interagency and Intergovernmental Coordinator for Environmental Planning
- AFI 32-7080, Pollution Prevention Program
- AFI 48-119, Medical Service Environmental Quality Programs
- AFM (Air Force Manual) 2-31, Aerospace Environmental Operations
- AFPAM 32-7043, Hazardous Waste Management Guide
- Air Force Occupational Safety and Health Standards

Many of the Air Force publications listed above are available on the internet at:

http://afpubs.hq.af.mil/elec-products/series.stm
or on the Travis Intranet at:
http://60cs.travis.af.mil/pubs.pdo.htm

For additional information on emergency procedures, prevention, and personnel safety, the following Travis AFB documents should be consulted:

- Travis AFB Spill Prevention Control and Countermeasure Plan
- Travis AFB Oil and Hazardous Substance Spill Prevention and Response Plan
- Travis AFB Site-Specific Spill Contingency Plans

CHAPTER 2

RESPONSIBILITIES

2.1 TASKED ORGANIZATIONS

Travis AFB consists of the 60 AMW, 615 Air Mobility Operations Group (AMOG), 349 AMW, Navy and various contractors and tenant organizations. An organizational chart for 60 CES/CEV functions is displayed as Figure 2.1.

All Base organizations that generate, accumulate, monitor, dispose of, or respond to, incidents involving hazardous waste are responsible for complying with this HWMP. Base compliance with Federal, the State of California, and local hazardous waste laws and regulations is the responsibility of the Installation Commander through the Base Environmental Protection Committee (EPC). Other parties tasked under this HWMP include, but are not limited to, the organizations and personnel listed in Section 2.2.

2.2 SPECIFIC RESPONSIBILITIES

2.2.1 Environmental Protection Committee (EPC)

AFI 32-7005, Environmental Protection Committees, established the EPC. The EPC is comprised of representatives from all activities involved in hazardous waste management and other environmental programs and issues. Table 2.1 lists the current Travis AFB EPC members. The EPC chairperson reports on EPC activities to the Installation Commander. The EPC:

- Oversees the Travis AFB Hazardous Waste Management Program, to include the review and coordination of the procedures, permits and required actions.
- Reviews hazardous waste summary data (generation and personnel exposure) ensuring its effective disposal.

2.2.2 Environmental Flight (60 CES/CEV)

The 60 CES/CEV is responsible for implementing the Travis AFB HWMP. The 60 CES/CEV acts as the installation liaison on environmental compliance matters with regulatory agencies on all hazardous waste issues. The 60 CES/CEV is responsible for the following:

FIGURE 2.1

ORGANIZATION CHART

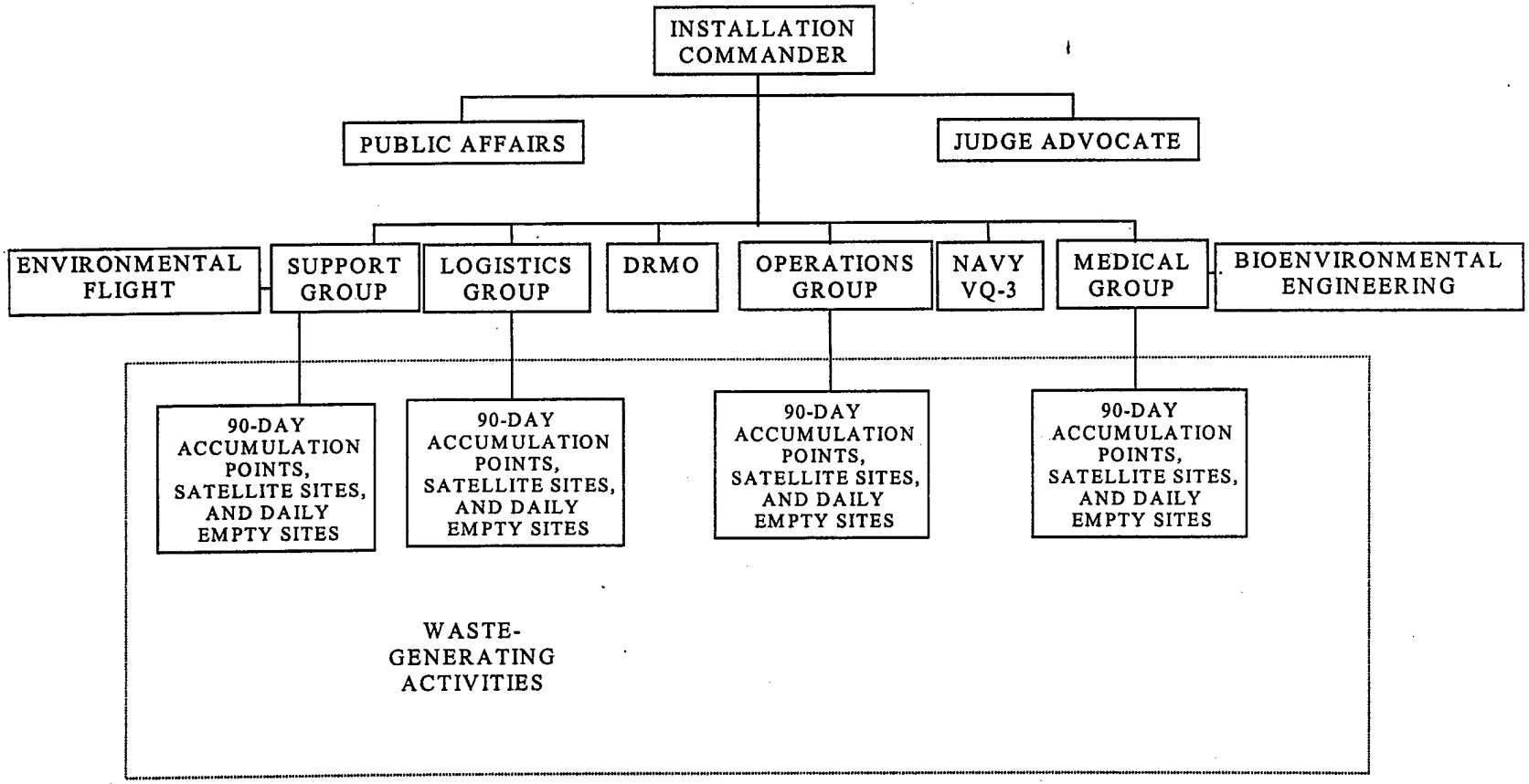


TABLE 2.1

ENVIRONMENTAL PROTECTION COMMITTEE

COMMITTEE CHAIR

Vice Wing Commander — 60 AMW
Col. Swickard

COMMITTEE MEMBERS

ORGANIZATION	PRIMARY DESIGNATE
60th Support Group	Col. Bird
60th Operations Group	Col. Selva
60th Logistics Group	Col. Blickley
60th Medical Group	Col. Loftus
349th Air Mobility Wing	Col. Black
615th Air Mobility Operations Group	Col. Coman

2.2.2.1 Agency Coordination

- Coordinates with Federal, the State of California, Solano County, and Fairfield authorities on hazardous waste management procedures.
- Provides all applicable records, and prepares and submits Annual Reports to the State of California.
- Acts as the Travis AFB and tenant liaison with HQ AMC, EPA, the State of California, and other regulatory agencies in regard to hazardous waste inspections, environmental compliance matters, rule interpretation, and problem resolution.

2.2.2.2 Hazardous Waste Turn-in Operations

- Maintains and operates the Travis AFB TSDF.
- Assists waste generating activities in hazardous waste identification, management, minimization, recycling, storage, and disposal.
- Certifies that hazardous waste is properly characterized, labeled, and packaged.
- Provides technical information on completion of hazardous waste turn-in documents to the 90-Day Accumulation Point, Satellite Site, and Daily Empty Site Crew Chiefs.
- Completes and updates Hazardous Waste Profile Sheet (DRMS Form 1930) for hazardous waste characterization prior to turn-in.
- Ensures that hazardous waste generated from the installation is weighed for all disposal actions in the presence of an authorized DoD representative.

2.2.2.3 Routine Inspections/Compliance Operations

- Performs hazardous waste management compliance surveys of Travis AFB.
- Inspects and, if necessary, has 60 Bioenvironmental Engineering Services (60 MDG/SGPB) sample and analyze hazardous waste before accepting for storage/transport.
- Performs 90-Day Accumulation Point, Satellite Site, and Daily Empty Site inspections.
- Conducts and documents daily inspections of Building 1365. Takes remedial action as required. Ensures that any violations are corrected on-the-spot as appropriate by the site supervisor.
- Conducts SAVs, and No-notice inspections to ensure that Travis AFB personnel are managing hazardous waste in accordance with all Federal, State of California, Air Force, and local regulations. No-notice inspections will be conducted in accordance with proposed Environmental Status of Resources Training System (ESORTS)

criteria (visits to 25% of 90-Day Accumulation Points and Satellite Sites per quarter, minimum).

2.2.2.4 Documentation and Recordkeeping

- Signs hazardous waste manifests, as designated by the Installation Commander and prepares hazardous waste reports and compliance documentation as required by EPA, State of California, and Air Force instructions.
- Maintains records for hazardous waste management surveys of Travis AFB.
- Files a completed SAV checklist or No-notice inspection report with the 90-Day Accumulation Point or Satellite Site Crew Chief, the unit's commander and 60 CES/CEV.

2.2.2.5 Other Responsibilities

- Prepares, reviews, and annually updates the Travis AFB HWMP, as required.
- Develops and implements Travis AFB HWMP and supporting plans and procedures.
- Prepares and applies for hazardous waste permits.
- Requests funds from the Accounting and Finance Officer (AFO), certifies fund availability for waste turned in to the DRMO, and reviews billings received by the AFO for accuracy, requesting adjustments when necessary.
- Coordinates with Group Environmental Representatives to implement hazardous waste policies and plans.
- Supplies Travis AFB Spill Team with required equipment and supplies.

2.2.3 Bioenvironmental Engineering Services (60 MDG/SGPB)

The 60 MDG/SGPB provides industrial hygiene and occupational health consultant services to all industrial shops and monitors hazardous materials processes for worker health and safety. Additionally, in accordance with AFI 48-119, 60 MDG/SGPB provides technical expertise on hazardous waste identification to Travis AFB and is responsible for the following:

2.2.3.1 Hazardous Waste Sampling

- Collects (or assists in collection of) samples for hazardous waste determination and forwards to one of the Travis AFB contract laboratories for analysis in accordance with the sampling and analytical requirements specified in EPA Publication SW-846 and the Hazardous Waste Analysis Plan (Chapter 4).
- Forwards analytical results to 60 CES/CEV.

- Assists Travis AFB generating activities and 60 CES/CEV in interpretation of analytical results.
- Monitors groundwater, surface water, and drinking water for contamination.

2.2.3.2 Safety and Health Related Responsibilities

- Receives and reviews hazardous Material Safety Data Sheets (MSDS).
- Informs Base Pharmacy of any special actions or assignments of issue exception codes.
- Specifies personal protective equipment (PPE) to be worn by personnel occupationally exposed to or who may otherwise manage hazardous waste.
- Participates in hazardous waste training programs and exercises.

2.2.3.3 Other Responsibilities

- Coordinates with Crew Chiefs, supervisors and managers, 60 CES/CEV, Base Fire Department, and Ground Safety on location of 90-Day Accumulation Points and Satellite Sites.
- Works with 60 CES/CEV to develop and update the Travis AFB waste stream inventory and Hazardous Waste Analysis Plan.

2.2.4 Staff Judge Advocate (60 AMW/JA)

- Reviews Federal, State of California, and local hazardous waste regulations and instructions and advises 60 AMW/CC, 60 CES/CEV, EPC and base organizations on compliance requirements.
- Assists in the development and review of all correspondence with regulatory agencies regarding hazardous waste management, including Notices of Violation (NOV), compliance letters, cease and desist orders, permit applications, permits and reports.
- Attends base meetings with regulatory agencies and provides legal advice to ensure proper interpretations of hazardous waste regulations.

2.2.5 Commanders of Units that Generate Hazardous Waste

Units that generate hazardous waste include but are not limited to: Support Group, Logistics Group, Operations Group, Medical Group, and various tenant organizations.

2.2.5.1 90-Day Accumulation Points and Satellite Sites

- Appoint a Group Environmental Representative to work closely with 60 CES/CEV and to manage the Group hazardous waste generating processes. Appoint a primary and alternate Crew Chief for each unit 90-day Accumulation Point. Appoint a primary and alternate Crew Chief for each unit Satellite Site.

- Provide spill response equipment and locations for 90-Day Accumulation Points and Satellite Sites. Coordinate each location with 60 CES/CEV, 60 MDG/SGPB, Base Fire Department, and Ground Safety.

- Ensure that management of the 90-Day Accumulation Points and Satellite Sites complies with Federal and State of California regulations.

2.2.5.2 Transportation of Hazardous Waste

- Each Group will coordinate with 60 CES/CEV for the safe transportation of hazardous waste on base from the 90-Day Accumulation Point(s) or Satellite Site(s) to the TSDF and make sure that the waste is contained in approved containers and the containers are in good condition.

2.2.5.3 Other Operational Responsibilities

- Submit requests to 60 CES/CEV and 60 MDG/SGPB to ensure that waste is evaluated and that hazardous waste is properly classified.

- Allow appropriate facilities, shops, and equipment to be inspected for hazardous waste management regulatory compliance by Base Fire Department, safety and health personnel, 60 CES/CEV and 60 MDG/SGPB personnel, Environmental Compliance Assessment and Management Program (ECAMP) team members, and authorized Federal or State inspectors.

- Maintains a hazardous waste file for each hazardous waste stream within the generating activity.

- Ensure all personnel that handle hazardous waste or who are otherwise involved in hazardous waste management receive initial, annual and refresher training.

- Ensure any abandoned hazardous waste found in organization's premises is managed in accordance with this HWMP.

- Ensure that Group Environmental Representative reports directly to 2-letter/unit commander, has appropriate hazardous waste training to perform duties, and has hazardous waste responsibilities included in Group Environmental Representative's job description, individual training plan, and performance plan as a primary duty.

- Provide a copy of the Group Environmental Representative's appointment letter to 60 CES/CEV.

2.2.6 Group Environmental Representatives

- Report to 60 CES/CEV on their Group's hazardous waste compliance status and processes.

- Ensure that HWMP has been implemented throughout their Group.

- Participate as active member of SAVs that conducts monthly inspections.

2.2.7 90-Day Accumulation Point, Satellite Site, and Daily Empty Crew Chiefs

Crew Chiefs are responsible for ensuring proper handling, storage, labeling, security, disposal, inspection and record keeping of hazardous waste accumulated in designated areas. They accomplish this in accordance with existing regulations and policy provided by 60 CES/CEV. They ensure that personnel involved in the hazardous waste generation process have completed appropriate training. Each respective site maintains all records of training for their 90-Day Accumulation Point, Satellite Site, or Daily Empty Site (Table 2.2).

- Manage the hazardous waste and Daily Empty sites associated with each 90-Day Accumulation Point.
- Maintain an operations log.
- Maintain a current spill plan on site, spill kit, and site markings.
- Ensure all personnel are properly trained for handling the hazardous waste of those activities.
- Inspect the site weekly, tanks daily and document findings and corrections.
- Adhere to guidance on handling, marking, labeling, segregating, collection, and storage.
- Ensure their sites (90-Day Accumulation Point, Satellite Site, or Daily Empty Site) are in regulatory compliance.
- Attend monthly meeting held by the 60 CES/CEV office.
- Prepare and transport hazardous waste to the TSDF, unless disposed of by contractor.

2.2.8 Work Center Supervisors, Satellite Site Crew Chiefs and Daily Empty Site Crew Chiefs

The supervisors and Crew Chiefs responsibilities are as follows:

2.2.8.1 Hazardous Waste Container Management

- Ensures that hazardous waste is collected, stored and managed properly in accordance with procedures described in Chapter 5 of this HWMP.

TABLE 2.2

TRAVIS AFB HAZARDOUS WASTE ACCUMULATION POINT CREW CHIEFS[1]

Building	Primary Manager	Alternate Manager
246 CES/CEV Hazardous Waste	TSgt Angel Santiago 4-4321/3371, 4-5105 fax Angel.Santiago@travis.af.mil	MSgt Dave Nickels 4-5109, 4-5105 fax Dave.Nickels@travis.af.mil
1365/956 CES/CEV TSDF	SSgt Carnes 4-5959, 4-2437 fax	SrA Hightower 4-0053, 4-2437 fax
576 SUPS/LGSH H/M Pharmacy	MSgt David Colletti 4-4926, 4-1322 fax	TSgt Gray 4-5079, 4-1322 fax
1026 LG/EM LG 90-day	SSgt Burrage 4-3825, 4-4105 fax William.Burrage@travis.af.mil	SrA Walker 4-4850, 4-4105 fax Robert.Walker@travis.af.mil
791 MDG/SGSLFE Hospital 90-Day	SSgt Mills 3-7340, 3-7516 fax	None
831 CES/CEOAP CE 90-Day	TSgt Cristobal 4-3033/1971, 4-0010 fax	D. Brandenburg
226 SVS/SVRA Auto Shop 90-Day	Mr. Antiogue 4-5300	Mr. Pagarigan
170 AAFES/SVE Midas 90-Day	Mike Gould 437-2678, 437-6772 fax	Yolanda Connely
170/172 AAFES/SVE Base Gas Station	Maggie Conlon 437-6606	Julian Concepcion
648 AAFES/SVE AAFES Photo 90-Day	Isabel Mehaffy 437-4633 ext. 211, 437-2135 fax	Joyce LeClair
235 CS/BVISC Base Photo	Heide Couch 4-5584, 437-9257 fax	Kathy Kruczek
828 SFS/SFTCA	SSgt Rominger 4-5559/2883, 4-2864 fax	None
2011 SVS/SVBG Golf Course	Mr. Golbronn 448-1098, 452-9961 fax	Mr. Hussein
724 DRMO/UDR DRMO	Ms. Shelia Hanney 4-3137, 4-4445 fax szch021@szca01.drms.dla.mil	Mr. Roger Waring 4-4444
50 60 OG/RM	TSgt. Farmer 4-0166,4-3915 fax	None
241 AMOG XPO	TSgt Mercier 4-7310, 4-7319 fax	None
237 349 AMW	Ist Lt Earle 4-2587, 4-1617 fax 420-2139 pager	None
1175 VQ-3 DET US Navy	AMSI Opolentisima 4-2998, 4-4188 fax	ABE2 Garcia 4-2999, 4-4188 fax

1 List is current as of August 1999. The 60 CES/CEV maintains an updated list of Crew Chiefs.

2.2.8.2 Training

- Schedules hazardous waste management training, including annual refresher training, to personnel handling hazardous waste. Supervisors/monitors are responsible for scheduling new employee training.

2.2.8.3 Documentation

- Documents employee training. Documentation includes:
  - — Job title for each position relating to hazardous waste and name of employee filling each job.
  - — A written description of type and amount of introductory and continued training.
  - — Documentation that hazardous waste management training has been given to and completed by appropriate personnel.
- Maintains Daily Empty Site operational logbook and keeps copies of any hazardous waste-related documentation received from 60 CES/CEV.
- Maintains hazardous waste documentation and correspondence for a minimum of 3 years.
- Documents weekly inspections of the 90-Day Accumulation Points or Satellite Sites.

2.2.8.4 General Supervisor/Monitor Responsibilities

- Ensures that the 90-Day Accumulation Points or Satellite Sites have warning signs and are separate from work area.
- Ensures that the 90-Day Accumulation Points or Satellite Sites have a spill kit and that workers are trained to use it properly.
- Ensures that an approved fire extinguisher is readily available if flammable hazardous waste is stored at the 90-Day Accumulation Points or Satellite Sites.
- Performs inspections of the 90-Day Accumulation Points or Satellite Sites. Inspections are performed weekly for containers and daily for tanks.
- Coordinates with 60 CES/CEV, 60 MDG/SGPB, Base Fire Department, and Ground Safety on relocation of the 90-Day Accumulation Points or Satellite Sites.
- Ensures corrective actions taken to correct violations noted in SAVs and No-notice inspections

2.2.8.5 Spill Response

- Implement remedial action in the event of a hazardous waste spill.

- Stop activity when a hazardous waste spill is detected, and contain the spill as effectively as possible given unit capabilities and resources.
- Activate the Base Spill Response Plan in the event that the hazardous waste 90-Day Accumulation Points or Satellite Sites staff cannot contain the spill.
- Completes 60 AMW Form 98 and turns in to 60 CES/CEV within 24 hours.

2.2.9 Treatment, Storage and Disposal Facility Manager (Building 1365)

- Ensures all hazardous waste transported off base is correctly labeled, marked, tagged, and weighed.
- Develops and follows a written schedule for inspecting all monitoring equipment, safety and emergency equipment, security devices, and for preventing, detecting, or responding to environmental or human health hazards at the TSDF.
  - — Submits the schedule to 60 CES/CEV.
  - — The schedule must identify the types of problems (e.g., malfunctions or deterioration) that are to be looked for during the inspection. Common problems include bulging containers, leaking fittings, eroding dikes, etc.
  - — The frequency of inspection may vary for the items on the schedule. However, it should be based on the rate of possible deterioration of the equipment and the probability of an environmental or human health incident if the deterioration, malfunction or any operator error goes undetected between inspections. Areas subject to spills, such as loading and unloading areas, must be inspected daily when in use. In general, Travis AFB will accomplish daily inspections on the TSDF.
  - — The TSDF Manager must remedy any deterioration or malfunction of equipment or structures that the inspection reveals that the problem does not lead to an environmental or human health hazard.
- Takes precautions to prevent accidental ignition or reaction of ignitables or reactives.
- Maintains required aisle space.
- Keeps a TSDF log as record of hazardous waste received at the TSDF.

2.2.10 Chief of Public Affairs (60 AMW/PA)

- Acts as the focal point for inquiries from the news media and concerned citizens regarding general hazardous waste questions and concerns, and for hazardous waste incidents or accidents.
- Assists the Base Commander and 60 CES/CEV during situations involving hazardous waste incidents by keeping interested news media and the public aware of events and curtailing rumors through the dissemination of coordinated, accurate information.

- NOTE: The presence of hazardous waste in a contained area will probably not constitute reasonable cause to forcibly deny access to the area by accredited news media representatives. Applicable security and safety provision will apply; however:

Under no circumstances, will 60 AMW/PA personnel escort news media representatives into a hazardous or potentially dangerous area.

2.2.11 Defense Reutilization and Marketing Office (DRMO)

- Provides contract scheduling, oversight and assistance as necessary to ensure proper review, documentation and expeditious disposal of hazardous waste prior to shipment for disposal.

- Provides contract scheduling, oversight and assistance as necessary to ensure proper review, documentation and expeditious removal of recyclable materials prior to shipment for disposal

- Administers contracts for hazardous waste disposal service at Travis AFB. DRMO inspects hazardous waste disposal turn-in documents to, ensure that all required disposal information is provided including, but not limited to proper hazardous waste characterization. DRMO provides blank DRMS 1930 forms to the hazardous waste generator and provides training for data documentation on the form. DRMO initiates and monitors compliance with hazardous waste disposal contracts and maintains hazardous waste disposal documentation. Specifically, DRMO is responsible for the following:

  — Receives paperwork for hazardous property and waste from 60 CES/CEV.

  — Disposes of hazardous property by reutilization, resale, or service contract.

  — Provides guidance on turn-in procedures to Travis AFB personnel.

  — DRMO ensures that hazardous waste cargo is adequately secured and safe for transport before moving off-base.

2.2.12 Base Hazmat Pharmacy

- Establishes hazardous waste identification numbers to track waste for shipping and handling from the waste generators to DRMO.

- Maintains computer records for all disposal actions for tracking of hazardous waste processed through Base Supply. Information is obtained from the DoD Form 1348-1.

- Processes turn-in and disposal documentation for the generating activity when disposal of hazardous waste is authorized.

- Base Supply is responsible for maintaining hazardous waste disposal action computer records.

- Base Supply does not accept physical custody of hazardous waste.

2.2.13 Financial Services Office (FSO)

The FSO obligates hazardous waste disposal funds based on a validated request (DoD Form 1348-1) from 60 CES/CEV. FSO gets a billing statement for hazardous waste disposal services and forwards the bill to 60 CES/CEV for verification and approval. Upon receipt of the approved bill, FSO processes hazardous waste disposal payments using the military standard billing system.

2.2.14 Contracting Officer

In the event Travis AFB no longer maintains a contract with DRMO for hazardous waste disposal services, then the Travis AFB contracting officer will be responsible for the following:

- Ensures all contracts having hazardous waste ramifications are administered in accordance with AFI 32-7042, Solid and Hazardous Waste Compliance, and Air Force Policy Letter, 6 June 1991 (Air Force Hazardous Waste Policy).
- Ensures qualified hazardous waste disposal contractors (not just the low price bidders) are awarded contracts.
- Responds to Travis AFB customer requirements, specifications, and funding for contractual needs for hazardous waste collections, transportation, analyses, and disposal.

2.2.15 Individuals Assigned, Attached to, or Working at Travis AFB

Each individual assigned, attached to, or working at Travis AFB is tasked to take every reasonable precaution to prevent the spillage of oil or hazardous substances and to report any spill of oil or hazardous substance to the Base Fire Department, 60 CES/CEV, and 60 MDG/SGPB. In addition, all contractors performing services on base shall take every reasonable precaution to prevent the spillage of oil or hazardous substances. Any spills of this nature shall be reported to the Base Fire Department.

2.2.15.1 General Requirements

- Ensure proper labeling, handling, segregation, collection and storage of hazardous waste as directed in the Travis AFB HWMP.
- Ensure all personnel are properly trained for handling hazardous waste at those activities.
- Ensure proper training and operational logs are maintained.
- Ensure their respective 90-Day Accumulation Point or Satellite Site Crew Chiefs perform inspections.

- Transport hazardous wastes from their respective 90-Day Accumulation Points to the TSDF (unless disposed of by contract/contractor) after coordination with 60 CES/CEV.

- Coordinate with 60 CES/CEV prior to transport of hazardous wastes from the respective contractor and tenant 90-Day Accumulation Points, to the disposal location for hazardous waste shipments off base.

2.2.15.2 Contractors

- Ensure proper labeling, handling, segregation, collection and storage of hazardous waste.

- Ensure all personnel are properly trained for handling the hazardous waste they generate.

- Ensure that their respective 90-Day Accumulation Point or Satellite Site Crew Chiefs maintain proper training (Chapter 7) and operational records as outlined in Chapter 5 of this plan.

- Ensure hazardous wastes are managed per 40 CFR and 22 CCR and transported in accordance with 49 CFR to a certified disposal facility.

- Ensure the 60 CES/CEV is given 24 hour notice when scheduling waste disposal requiring a manifest(s), before it is transported off base.

- Ensure personnel are trained per 29 CFR.

CHAPTER 3

HAZARDOUS WASTE INVENTORY

3.1 PRESENT STATUS OF WASTE STREAM INVENTORY

Travis AFB is a RCRA large quantity generator. Therefore, Travis AFB is operated in accordance with EPA and State of California regulations pertaining to large quantity generators that produce more than 1,000 kg of hazardous waste in a calendar month.

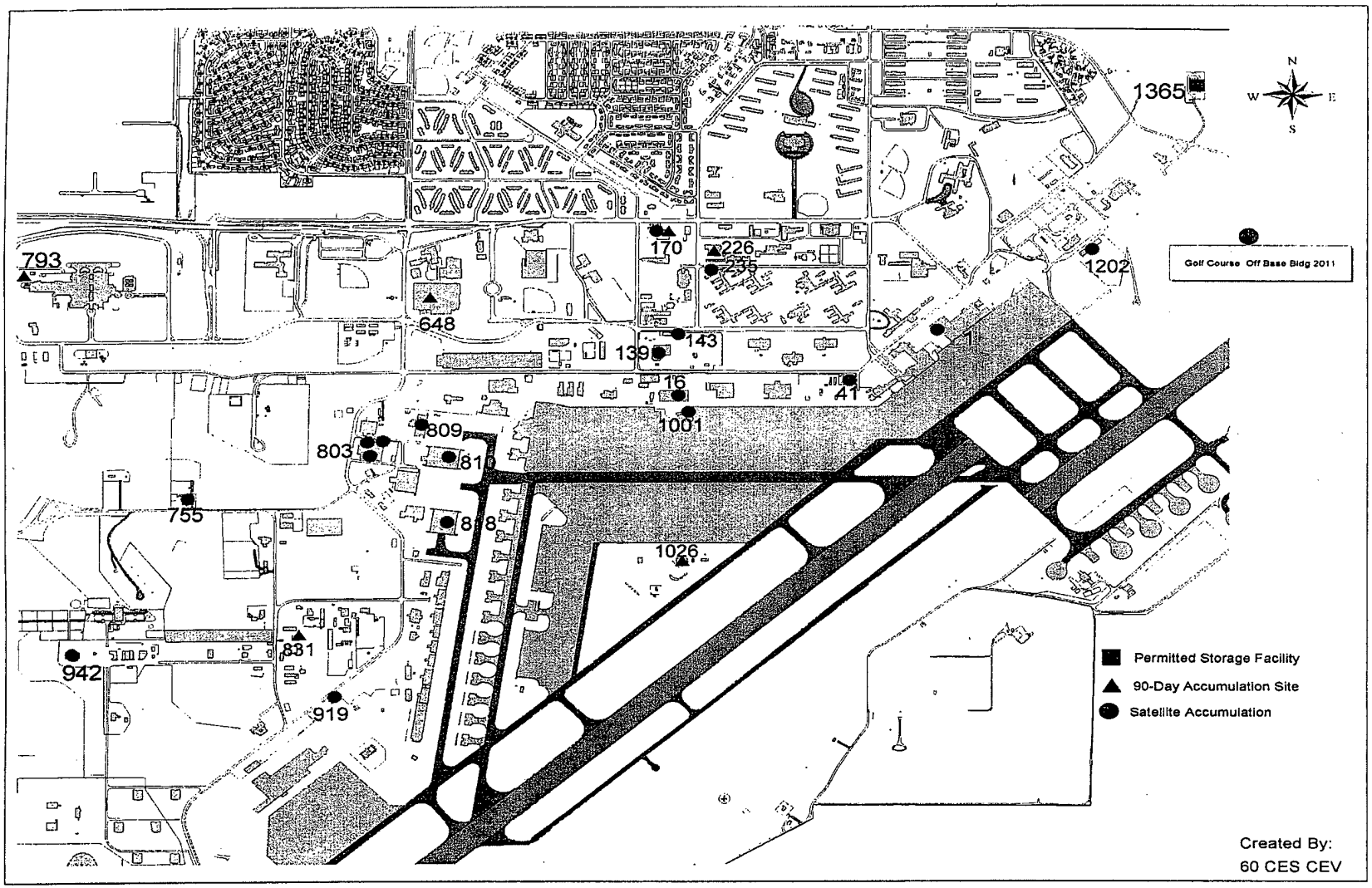
3.2 HAZARDOUS WASTE ACCUMULATION AND STORAGE FACILITIES

Table 2.2 lists and Figure 3.1 shows areas and buildings on Travis AFB where hazardous wastes are accumulated by the generating activities from the time the first volume of hazardous waste is placed in a container or moved into areas by the generating activities (90-Day Accumulation Points and Satellite Sites). Figure 3.1 also shows the location of the TSDF at Building 1365, where hazardous waste may be stored for up to 1 calendar year prior to shipment off base.

A 90-Day Accumulation Point or a Satellite Site is an area at or near the point of generation and is under the control of the shop supervisor of the process generating the waste (40 CFR 262.34 (c)(1)). If the waste is acutely hazardous, the container must not be larger than one (1) quart. Once the container is full, 60 CES/CEV must be contacted to schedule an appointment for waste turn-in. The container must be moved within three days to the TSDF. The waste may stay at the TSDF for no more than 1 calendar year before being shipped off base. The Travis AFB generator number is CA 5570024575.

3.3 RESPONSIBILITIES

Travis AFB maintains a hazardous waste stream inventory for every hazardous waste stream generated on base. The Bioenvironmental Engineer (BEE) is the Office of Primary Responsibility (OPR) for the Travis AFB hazardous waste stream inventory. Travis AFB will not handle, store, transport, dispose of, or inventory non-DoD owned hazardous wastes or materials except as authorized. Travis AFB will ensure that all wastes are properly characterized and classified as either hazardous or non-hazardous wastes in accordance with the Travis AFB Waste Analysis Plan (Chapter 4). Information from the Hazardous Waste Profile Sheet, DRMS Form 1930, will be used by the BEE to maintain and update the hazardous waste stream inventory. The Accumulation Point Crew Chief (Table 2.2) is responsible for quantifying all hazardous waste streams for the hazardous waste stream inventory.



NOTE: Numbers associated with the symbols on the map indicate the building number in which the 90-day Accumulation Point, Satellite Site or Hazardous Waste Storage Facility is located.

FIGURE 3.1

90-DAY ACCUMULATION POINTS, SATELLITE SITES, AND HAZARDOUS WASTE STORAGE FACILITY

Travis AFB, California

PARSONS ENGINEERING SCIENCE, INC.

Oakland, California

\735738\Draft Report\1999 Travis HWMP\Graphic1.CDR 9/23/99

Hazardous waste generating activities will identify and separately document wastes which are classified as non-hazardous because they are:

- Subject to solid or hazardous waste exclusions.
- Recycled, not subject to the generator waste determination requirements of 40CFR 262.11.
- Land disposal restricted waste that is excluded from the definition of solid or hazardous waste subsequent to the point of generation, to document the waste, its exclusion or exemption, and the disposition of the waste.

The hazardous waste generating activity of an area generating an excluded, exempt, or recycled waste will place a one-time notice documenting such generation, the subsequent exclusion from the definition of solid or hazardous waste or exemption from Subtitle C regulation, and the disposition of the waste in the generating activity's waste management file. A copy of the document will be forwarded to the Environmental Manager and maintained on-site for at least five years from the date the waste was last sent to on-site or off-site treatment, storage, or disposal.

3.4 HAZARDOUS WASTE STREAM INVENTORY

Hazardous waste is generated by numerous industrial shops at Travis AFB. It mostly consists of waste petroleum products, spent solvents and spilled or outdated chemicals. Large waste streams are accumulated in 55-gallon drums at 90-Day Accumulation Points, then stored at the TSDF prior to contract disposal. Waste streams are characterized before being transported to the TSDF. Wastes generated in 1998 by unit and type are shown in Table 3.1. Table 3.2 lists the most common wastes generated by unit and type. Instructions for characterizing the wastes are contained in Section 4.3 of this plan.

Primary waste producing processes include aircraft parts cleaning, fluid changes for routine aircraft and vehicle maintenance, aircraft corrosion control, facility and infrastructure maintenance. The 60th Air Mobility Wing's Logistics, Operations, and Support Groups produce a large percentage of Travis AFB waste.

Waste is generated in shops and transferred to nearby 90-Day Accumulation Points for up to 90 days before being transported to the TSDF, Building 1365. For example, oil, the largest waste stream on base, is generated in many shops before being transferred to a designated accumulation area. The oil is generated in small quantities at the shops and is transported in small containers to the 90-Day Accumulation Points where it is poured into drums or bowsers before final transportation to the TSDF. Hazardous waste may also be transported/disposed of by contractors.

The design capacity of the TSDF is permitted storage of 1,032 drums, or the equivalent volume in various sized containers. The tank storage design capacity is 15,000 gallons (six tanks, 2,500 gallons each). These tanks are used for recyclable oils and fuels storage.

Results of chemical and physical analysis are maintained for all wastes disposed by Travis AFB. These results are required to be submitted to our waste disposal contractor prior to disposal. Contractor requirements act as additional checks and balances to our local waste analysis program requirements.

The Institute for Environment, Safety, and Occupational Health Risk Analysis (IERA) has developed a waste tracking system for Travis AFB.

TABLE 3.1

1998 WASTE GENERATION BY UNIT AND TYPE (LBS)

	Ignitable	Corrosive	Reactive	Toxic	Misc/State*	Total
60 CES	3,227	45	—	307	2,973	6,552
60 LG	23,591	1,346	33	17,538	34,943	77,451
60 MDG	660	57	—	3,070	5,181	8,968
NAVY	—	—	—	625	340	965
60 SVS	488	—	—	1,910	1,548	3,946
DRMO	1,254	137	—	—	2,941	4,332
AAFES	—	—	—	278	—	278
60 CES/CEV	32	—	—	1,252	4,686	5,970
Total	29,252	1,585	33	24,980	52,612	108,462

* Excludes "Non-RCRA, Non-State" wastes in 1998 monthly reports.

TABLE 3.2

TRAVIS AFB COMMON WASTE STREAMS

Ignitable	Corrosive	Reactive	Toxic	Misc/State
Paint Sludge	Batteries (NiCad)	Batteries (Lithium)	Silver Recovery Sludge	Batteries (Alkaline)
Paint Debris	Battery Acid		Spent Degreaser	Used Oil
Mixed Fuel:			Spent Filters	Oil/Fuel Filters
JP-8			OWS Sludge	Adhesives/Resins
MOGAS			Rags w/ solvent	
Diesel Oil			Absorbents	
			Blast Media	

CHAPTER 4

HAZARDOUS WASTE ANALYSIS PLAN

4.1 INTRODUCTION

This Chapter describes Hazardous Waste Analysis Plan (HWAP) that provides standardized guidance for Travis AFB waste analysis. This plan is effective 30 September 1999 and replaces the 15 April 1998 plan. Included is guidance for the following:

- How to sample
- What to analyze and sample for
- How to interpret sample results

Most notable is guidance for the appropriate analysis of different waste streams described in Section 4.4. Guidance provided is intended for use in sampling and analysis by only State of California-certified waste analysis laboratories. Each laboratory must be certified for the particular analysis requested.

The HWAP is an analytical tool to classify waste as hazardous or non-hazardous. To fulfill requirements in AFI's 48-119, 32-7042, and AFM 32-7043, the waste analysis plan must address the following areas:

- Wastes evaluated and analyzed
- Hazardous waste sampling methods
- Description of analytical methods
- Sample documentation
- Sample quality assurance and quality control procedures
- Sample request procedures

The EPA has authorized 46 of the 50 states (including California) to administer hazardous waste generated within their boundaries. Each authorized State has promulgated implementing regulations that mirror (at least as stringent) or supplement (more stringent) RCRA hazardous waste regulations. This HWAP contains the procedures for identifying and evaluating hazardous waste streams in order to complete the DRMS Hazardous Waste Profile

Sheet (DRMS Form 1930) for each hazardous waste stream. This plan includes procedures for selecting waste parameters for analysis, selecting waste sampling methods, documenting samples, identifying analytical methods, selecting facilities for analyzing samples, and reevaluating hazardous waste streams. The plan complies with the California Code of Regulations Title 22, Division 4.5.

A flowchart detailing the steps involved in waste determination follows in Figure 4.1.

4.2 SAMPLING METHODOLOGY

4.2.1 Overview

The characterization and management of hazardous waste is properly addressed as a chemical identification problem. Management decisions are based on proper knowledge of the history and/or chemical composition of the waste. The chemical composition of a waste will determine how it is to be managed. Waste streams can be characterized either by user knowledge or by sampling and analysis. Analysis requires a sample volume representative of the whole and analyzed using standardized approved methods and procedures. These procedures and methods have been designed with the following considerations:

- Design of sampling and evaluation plans.
- Collection of samples for the various types of environments (e.g., pipes , drums, pits, tanks).
- Transportation of the samples for analysis.
- Chain of custody considerations to insure integrity of the data.
- Sample Analysis (Section 4.4).
- Safety in the waste sampling and testing.
- Quality Control and Quality Assurance of the procedures (Section 4.8).

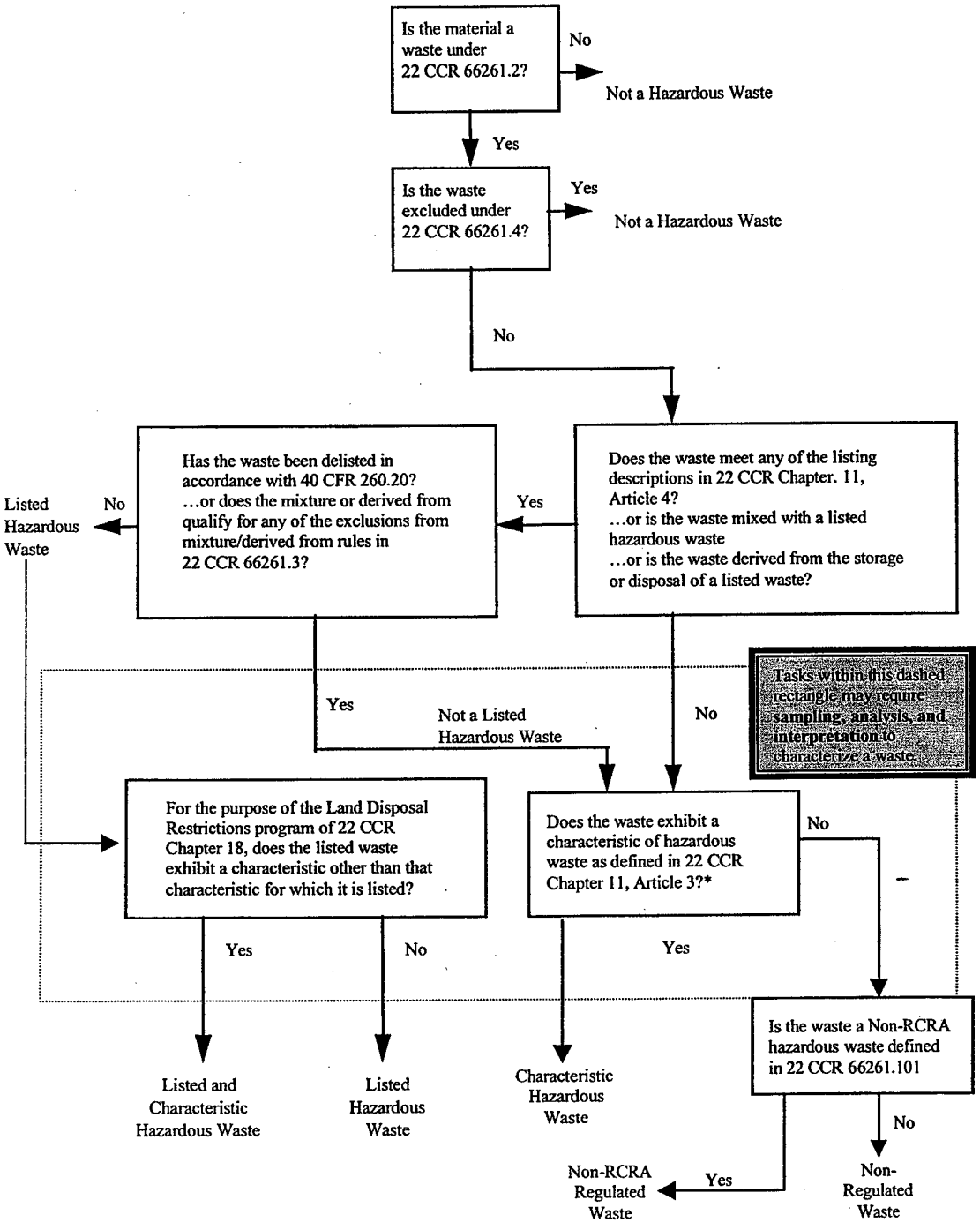
4.2.2 Sample Approach

Five key factors address sampling:

1. Is sampling required?
2. Determine appropriate sampling protocol.
3. Proper personal protective equipment.
4. Perform Sampling
5. Documentation

FIGURE 4.1

WASTE DETERMINATION



Source: USEPA, Waste Analysis at Facilities that Generate, Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual, PB94-963603

TABLE 4.1

AIR FORCE WASTE CODES

Code	Process	Examples
AB	Abrasive Blasting	Grit, paint chips, expended media
AC	Aircraft Cleaning	Cleaning compounds
BA	Battery Shops	Battery acid, lead
BH	Biological Hazard	Infectious waste, pathological waste
BO	Biological Operations	Pesticides, i.e., insecticides, herbicides, rodenticides, etc.
BL	Boiler Operations	Morpholine, nitrates
CP	Chemical Paint Stripping	Paint strippers, paint sludge
DE	Decarbonizers	Nitric acid, sulfuric acid, others
ER	Avionics/Electronics	Solvents
EP	Electroplating	Cleaning compounds, chromium, cyanide tank sludges contaminated with heavy metals
ES	Expired Shelf Life	Expired shelf life wastes such as paint, solvents, cleaning materials, etc.
FF	Fire-fighting Operations	Aqueous film forming foam (AFFF)
FC	Fluids Changeout/Purging	Oily waste, turbine oil, lube oil, hydraulic fluid, contaminated fuel, brake fluid, antifreeze, fluid containing filters
IM	Industrial and Facility Maintenance	Cleaning supplies, mercury vapor lamp bulbs, PCBs
IO	Industrial Operation	Tool and machine waste, cutting oils
IW	Industrial Waste Treatment	Wastewater treatment sludge, chlorine
IR	Installation Restoration	Waste from clean-up of IRP sites
LA	Laboratory/NDI	Samples, test chemicals, penetrant
ME	Medical	Mercury, test chemicals, chemotherapeutic drugs
MS	Miscellaneous	Only wastes which cannot possibly be attributed to any other process listed
OD	Ordnance, demol/disposal	Explosive, pyrotechnic, propellant, lead-contaminated water, soil, or dust
OO	One time only	Purging UST prior to replacement
OS	Oil Water Separators	Contaminated sludge, floating product
PO	Painting Operations	Paint, paint sludge, filters, surface preparation (solvents)
PP	Preservation & Packaging	Pentachlorophenol, copper arsenite
PX	Photo/X-ray	Fixer, developer
RD	Research & Development	Chemical testing, equipment testing
RF	Recovered Fuel	Energy recovery
SC	Spill Clean-up	Absorbents, rags, contaminated soil
SB	Stillbottoms	Distillation sludge
SK	Off-base Solvent Recovery	Safety Kleen-type contractors
SO	Solvents/Degreasing	Cold cleaning solvents, PD 680, MEK cleaning

4.2.2.1 Is Sampling Necessary?

The first step in identifying potential wastes to be sampled is to review industrial processes. Waste streams known to exhibit the characteristics defined in CCR Chapter 11, Article 3, Chapters 66261.20-66261.24 or having hazardous constituents listed in CCR Chapter 11, Article 4, undergo *baseline testing for characterization*. Following baseline characterization, **as long as the process generating waste stream has not changed, sampling is not necessary**. This characterization will provide sufficient detail to ensure compatible storage and proper disposal.

4.2.2.2 Determine Appropriate Sampling Protocol

Samples should be collected using standard collection methods as specified in Table 4.2. Table 4.3 provides suggested sampling equipment for different waste streams. Disposable equipment should be used whenever practical to minimize requirements for decontamination. Typical hazardous waste sampling equipment:

- Coliwasa: The coliwasa is one of the most important hazardous waste samplers. It permits the representative sampling of a wide variety of sample matrices. The design allows rapid collection and minimizes the potential for exposure to the waste. The coliwasa can be easily fabricated. The instructions for the coliwasa fabrication are found in EPA manual 600/2-80-018, "Samplers and Sampling of Hazardous Waste Streams." The coliwasa is used to sample most containerized liquid wastes. The material in the coliwasa determines the limitations of the sampler.
- Grain Sampler
- Sample Thief
- Trowel (Scoop or Shovel)
- Soil Auger
- Veihmyer Soil Sampler
- Dipper (Pond Sampler)
- Weighted Bottle Sampler

4.2.2.3 Personal Protective Equipment

An often overlooked aspect of sampling is safety and personal protection. A safe work environment will be accomplished by following safe work practices, which include donning with appropriate protective gear, as necessary, for the suspected hazard of the material being sampled. Bioenvironmental Engineering monitors the use of personal protective equipment on base and is the authority for determination of the level of protective gear required for a given situation.

TABLE 4.2

SAMPLING PROTOCOLS

Physical State of Waste	Protocols
Extremely viscous liquids and solids	ASTM Standard D140-88
Crushed or powdered material	ASTM Standard D346-78
Soil or rock-like material	ASTM Standard D420-87
Soil-like material	ASTM Standard D1452-80
Fly ash-like material	ASTM Standard D2234-82
Containerized Liquid Waste	US EPA SW-846-COLIWASA Procedure
Liquid wastes in pits, ponds, lagoons, reservoirs	US EPA SW-846-Pond Sampler
Other*	"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846

Taken from 22 CCR, Division 4.5, Chapter 11 Appendix I

Note: Contact the American Society for Testing and Materials (ASTM), (215) 299-5400, to obtain publications containing the standardized method Protocol. Web Site http://www.astm.org/

* Contact the National Technical Information Service (NTIS), (800) 553-6847 or (703) 487-4650, to obtain a copy of USEPA SW-846. Web Site **http://www.ntis.gov/** or access SW-846 at http://www.epa.gov/sw-846/

Additional sampling procedures may be found in USAF CDC 90750, Volume I, Chapter 7.2.

TABLE 4.3

APPLICABILITY OF SAMPLING EQUIPMENT TO WASTE STREAMS

	Waste Location or Container								
Waste Type	**Drum**	**Sacks and Bags**	**Open-Bed Truck**	**Closed-Bed Truck**	**Storage Tanks or bins**	**Waste Piles**	**Ponds, Lagoons, & Pits**	**Con-veyor Belt**	**Pipe**
Free flowing liquids and slurries	Coli-wasa	N/A	N/A	Coliwasa	Weighted Bottle[a]	N/A	Dipper	N/A	Dipper
Sludges	Trier	N/A	Trier	Trier	Trier	B	B	B	B
Moist powders or granules	Trier	Trier	Trier	Trier	Trier	Trier	Trier	Shovel	Dipper
Dry powder or granules	Thief	Thief	Thief	Thief	B	Trier	Thief	Shovel	Dipper
Sand or packed powders and granules	Auger	Auger	Auger	Auger	Thief	Thief	B	Dipper	Dipper
Large grained solids	Large Trier	Large Trier	Large Trier	Large Trier	Large Trier	Large Trier	Large Trier	Trier	Dipper

a When the tank is adequately agitated or a recirculation line is accessible, samples can be collected through a side tap

B This type of sampling situation can present significant logistical sampling problems, and sampling equipment must be specifically selected or designed based on site and waste conditions. No general statement about appropriate sampling equipment can be made.

Source: Table taken from *Waste Analysis: EPA Guidance Manual for Facilities That Generate, Treat, Store, and Dispose of Hazardous Waste*, USEPA Solid Waste and Emergency Response, Government Institutes, Inc., Rockville Maryland, 1994 (Document Number OSWER 9938.4-03)

Personnel should wear proper personal protective equipment (PPE) for their safety and to prevent incidental contamination. Available PPE should consist of impervious gloves, chemical safety goggles/glasses, Tyvek coveralls, and steel-toed boots. A minimum of level B protection (e.g., chemical splash suit, impervious gloves, impervious outer boots, and a positive pressure self-contained breathing apparatus) must be worn when sampling unknown waste streams. Table 4.4 details suggested PPE for various sampling scenarios.

4.2.2.4 Perform Sampling

Prior to any sampling event, the sampling location should be evaluated to ensure all required equipment and access is available. Additionally, the site should be inspected for adequate ventilation, protection from extreme weather and temperatures, access to stable power (if required), and provisions for water and gases of required purity.

4.2.2.5 Representative Sampling.

Sampling of hazardous waste requires the collection of a *homogenous representative sample* of adequate size. Since sampling situations vary so greatly, there is no universal sampling procedure. However, there are several general procedures outlined for various types of wastes in various states or containers. Proper sampling requires a plan of action. This plan is designed to *maximize the safety* of sampling personnel and increase the accuracy of the analysis while protecting the integrity of the sample after sampling. The following steps are recommended:

- Develop an appropriate strategy for the specific situation.
- Choose a sampling point.
- Determine number of samples to be taken.
- Determine the volume of samples.
- Observe samples properly.
- Handle samples properly.
- Identify samples and protect them from tampering.
- Record sample information in field notebook.
- Fill out chain of custody form.
- Ship sample to laboratory.

The primary goal is to collect a representative sample of what is to be treated, stored or disposed of. Sampling methods are discussed in detail in EPA Document SW-846, Chapters 1.1 and 1.2 (available at **http://www.epa.gov/sw-846/**). If there are any questions about sampling procedures, containers or labeling, consult with 60 MDG/SGPB or 60 CES/CEV.

TABLE 4.4

SAMPLING PROCEDURES

Waste Stream Type	Physical State	Sample Procedures	Safety Equipment
Waste Oil/ Fuel	Liquid	If the waste is contained in a drum, a COLIWASA should be used to collect a composite sample. If more than one drum of the same waste is present, a COLIWASA from each drum can be combined to make one sample. If the waste is contained in a storage tank, a weighted bottle should be used to collect a composite sample.	Impervious gloves, chemical safety goggles, coveralls, and suitable boots. Sample in a well ventilated area.
Used Solvent	Liquid	A COLIWASA should be used to collect a composite sample. If more than one drum of the same waste is present, a COLIWASA from each drum should be combined to make one sample.	Impervious gloves, chemical safety goggles, coveralls, and suitable boots. Sample in a well ventilated area. If respiratory protection is required when handling the material during the process, then the same level of protection should be worn when sampling the waste.
Paint Waste	Liquid	A COLIWASA should be used to collect a composite sample. If more than one drum of the same waste is present, a COLIWASA from each drum should be combined to make one sample.	Impervious gloves, chemical safety goggles, coveralls, and suitable boots. Sample in a well ventilated area. If respiratory protection is required when handling the material during the process, then the same level of protection should be worn when sampling the waste.

TABLE 4.4 (continued)

Waste Stream Type	Physical State	Sample Procedures	Safety Equipment
Granular Waste	Solid	A thief sampler should be used to collect a composite sample. If more than one drum of the same waste is present, a thief from each drum should be combined to make one sample.	Impervious gloves, chemical safety goggles, coveralls, and suitable boots. Sample in a well ventilated area.
Rags/ Absorbents	Solid	Follow sample procedures in Section 4.2 of this Plan	Impervious gloves, chemical safety goggles, coveralls, and suitable boots. Sample in a well ventilated area. If respiratory protection is required when handling the material during the process, then the same level of protection should be worn when sampling the waste.
Wastewater	Liquid	A COLIWASA should be used to collect a composite sample. If more than one drum of the same waste is present, a COLIWASA from each drum should be combined to make one sample.	Impervious gloves, chemical safety goggles, coveralls, and suitable boots. Sample in a well ventilated area.
Sludge	Semi-solid	A sampling trier should be used to collect a composite sample. If more than one drum of the same waste is present, a trier from each drum should be combined to make one sample.	Impervious gloves, chemical safety goggles, coveralls, and suitable boots. Sample in a well ventilated area.
Used Fiber Filters	Solid	Procedures similar to those in Section 4.2 of this Plan should be followed.	Impervious gloves, chemical safety goggles, coveralls, and suitable boots. Sample in a well ventilated area.
MSDS	N/A	None. The waste disposal manifesting and documentation should be completed based on MSDS information.	N/A

TABLE 4.4 (continued)

Waste Stream Type	Physical State	Sample Procedures	Safety Equipment
Unknown	Solid	A thief sampler should be used to collect a composite sample. Additional procedures are included in Section 4.2 of this Plan.	Chemical splash suit, impervious gloves, impervious outer boots, and a positive pressure self-contained breathing apparatus.
Unknown	Liquid	A COLIWASA should be used to collect a composite sample. Additional procedures are included in Section 4.2 of this Plan.	Chemical splash suit, impervious gloves, impervious outer boots, and a positive pressure self-contained breathing apparatus
Unknown	Semi-solid	A sampling trier should be used to collect a composite sample. Additional procedures are included in Section 4.2 of this Plan.	Chemical splash suit, impervious gloves, impervious outer boots, and a positive pressure self-contained breathing apparatus

Sampling will be performed by MDG/SGPB or by an authorized/trained sampling and analysis representative within the requesting organization. Trained personnel should follow these steps when sampling:

- Contact 60 CES/CEV to obtain sample containers and personal protective equipment if required.
- Document the sample(s) in the logbook.
- Take sample(s) to the 60 CES/CEV office.
- Fill out chain of custody and analysis request forms.
- Deliver the samples to the appropriate laboratory, and get a receipt for the samples.
- Ensure analysis for each sample per this analysis plan.

In addition to SW-846, the Code of Federal Regulations (CFR) contains information in 40 CFR 260, "Hazardous Waste Management Systems, General" and in 40 CFR 261, "Identification and Listing of Hazardous Waste." Additional sampling information and guidelines are found in the *Armstrong Laboratory Services Guide*, AL/OE-TR-1994-0136, pages 251-280 (hardcopies available at DSN 240 6019).

A laboratory accredited by the State of California will perform analysis of hazardous waste to the levels necessary to determine extent of hazard of the waste. Accreditation of the laboratory will be as specified in Chapter 25198 of the California Health and Safety Code.

If there are any questions about sampling procedures, containers or labeling, consult with 60 MDG/SGPB or 60 CES/CEV. Sample containers must be labeled clearly and completely. A label must contain the collector's name and organization symbol, the date collected, the generator's sample control number, and a descriptive name.

After samples are collected they will be stored in such a manner as to preserve their integrity. The 60 MDG/SGPB and 60 CES/CEV have storage to keep the samples cold and dry before they are sent to the laboratory. Currently samples are picked up by, or taken to, the state certified laboratory.

For the many sources of hazardous waste on Travis AFB, routine sampling of similar waste streams will insure proper characterization of wastes. Travis AFB conducts sampling of wastes. Samples are analyzed initially and any time the process changes at accumulation sites.

Proper sampling techniques will minimize the occurrence of spills. In the event of a spill, local spill kits will be used to contain and clean up the waste. Samplers will insure containment devices are available before sampling. Typical contents of local spill kits are listed in the Travis AFB Spill Prevention and Response Plan.

Personnel taking samples will attend sampling class to be trained regarding proper sampling procedures, including considerations, personal protective equipment and techniques to obtain

representative samples. The sampler will note the physical state of the waste and different layers of product of the material to be analyzed. Travis AFB personnel will use all available guidance and the advice of the laboratory to determine which layers need specific analyses.

By following guidelines in this plan and EPA publication SW-846, proper precision and accuracy will be attained. Sample collectors will always strive to collect a sample that will remain representative of the waste stream.

4.2.2.6 Drum Sampling

Special precautions will be taken when sampling a drum suspected of over pressurization or damage:

- Drums containing liquid wastes can be under pressure or a vacuum. A bulging drum usually means extreme pressure and should not be sampled until the pressure can be safely relieved.
- A heavily corroded or rusted drum can be easily ruptured and spill its contents, creating an accident. It should only be sampled with extreme caution and with the proper containment equipment.
- Opening the bung of a drum can cause a spark, which could ignite the waste. The situation is difficult to predict and should be considered before sampling the drum.
- The need for proper protective equipment cannot be overemphasized when sampling from a suspected drum.
- A drum is usually sampled through the bung after the drum's contents have settled.
- For bulging drums that are suspect, the Base Fire Department should be contacted and coordinated with prior to opening or sampling.

To obtain a statistically representative sample of a group of drums, random sampling will be performed. Twenty percent sampling will be used to characterize drums of similar waste. If physical conditions make it impractical to assume consistency of a group of drums, and the sampler is not sure of the contents of each drum, then all unknown drums require sampling and analysis. If the source and nature of the material are known, then the sampling and analysis is limited to the parameters of concern. In a situation where the waste is an unknown, a full spectrum of analysis may be required, consisting of analysis for the 129 priority pollutants.

4.2.2.7 Documentation

To ensure proper control, analysis of samples, the 60 CES/CEV keeps a record of waste sample analysis. This record is the chain of custody.

Once the sample has been properly obtained the following steps should be taken:

- The sample collector will fill out the chain of custody using a checklist.

- 60 CES/CEV will fill out the analysis request. The request may be in general terms when the waste is well characterized; but if specific information is needed, the request must be specific.

When the sample is picked up by the laboratory, 60 CES/CEV will relinquish the chain of custody form to the individual. The individual will sign the "received by" block and give a copy of the form as a receipt.

Contract laboratories will submit the waste sample analysis to 60 CES/CEV who will contact the Environmental Representative, to characterize their wastes in accordance with 22 CCR, Division 4.5, Chapter 11.

4.2.2.8 Labeling

Sample containers must be labeled clearly and completely. Labels must include the following:

- Collector's name and organization symbol
- Date collected
- Generator's sample control number
- Sample site (i.e., General Purpose Shop or Pneudraulics 90-Day Accumulation Point)
- Sample description (i.e., Used Oil or Spent Solvent)

The sample control number should be written upon the waste container for tracking purposes unless the container will be emptied prior to disposal (such as an oil bowser). Paint pens are ideal for this because of their durability. The sample container should have at minimum the following information:

- Collector's organization symbol (i.e., "Collected by SGPB" or "Collected by CEV")
- Date collected
- Generator's sample control number

This enables the sample result to be tied back to the correct container and correlating waste for proper management.

4.3 ANALYSIS

The generator must obtain an appropriate characterization of the waste. The characterization shall contain all information, that must be known to safely treat, store, recycle or dispose of the waste in accordance with appropriate regulatory guidelines.

The rationale for selecting the schemes listed in the HWMP is based on knowledge of the chemicals used, processes performed, and contaminants generated during these processes.

4.3.1 EPA Methods

Analytical method selection will be based on generator knowledge and generating process. Methods outlined in EPA publication SW-846 will be used for various analytical goals. The EPA methodologies have been designed primarily for trace determinations, and may not always be best suited for a given sample. If a method other than the EPA method is used to analyze a sample, the report must be annotated to indicate the method. Non-EPA methods must be documented and kept on file by the laboratory. This also applies to other standard procedures mandated by California law. Detection limits will be to levels necessary to prove whether waste is hazardous. Specific examples of detection limits from recent Travis AFB analyses are 0.1 mg/l for barium and beryllium and 0.1 mg/l for chromium. A summary of analytical methods follows. A comprehensive listing of test methods is included in Chapter 4.10. A summary is included here in Table 4.7.

Table 4.8 includes a matrix for recommended analysis of common waste streams. Recommended analytical suites are situation dependent — some scenarios may require more or less analysis than those suggested here.

4.3.2 Characterization For Other Routine Wastes

4.3.2.1 Batteries

- No chemical testing required.
- Segregate by battery class (i.e., lead-acid, nickel-cadmium, etc.) Disposal information will be obtained from a Material Safety Data Sheet (MSDS).
- Containerize by battery class and dispose of as hazardous waste or turn in to DRMO for recycle sale.

4.3.2.2 Outdated Hazardous Materials

- No chemical analysis required. Disposal information will be obtained from a Material Safety Data Sheet (MSDS) for the material.
- Unopened outdated hazardous materials by less than one year shall be turned into DRMO for resale. Outdated materials meeting this requirement will be turned in to DRMO by the owning organization or the accumulation point manager. A DoD Form 1348-1 is required to accompany each shipment of outdated materials.
- Opened outdated hazardous materials or unopened outdated hazardous materials by more than one year shall be containerized in a proper DOT-specified shipping drum and disposed of as hazardous waste.

4.3.3 Hazardous Waste Characterization

The total threshold limit concentration (TTLC) and soluble threshold limit concentration (STLC) are used when determining the hazardous waste characterization under California State regulations as outlined in Title 22 of the California Code of Regulations (CCR). The

TABLE 4.5

TEST METHOD SUMMARY

Analysis	Test Method
STLC	California WET Test
Full TCLP	SW 1311
TCLP Metals	SW 1311 / EPA 6010 / 7470
TCLP VOC	SW 1311 / EPA 8260
TCLP SVOC	SW 1311 / EPA 8270 / 3510
TCLP Pesticides	SW 1311 / EPA 8081
TCLP Herbicides	SW 1311 / EPA 8150
Total Metals	EPA 3050 / 3051 / 3015 / 6010 / 7740 / 7471
Total VOC	EPA 8260
Total SVOC	EPA 8270
Ignitability	EPA 1010 ASTM Std D-93-79 or D-93-80 (Pensky-Martens Closed Cup Tester) ASTM Std D-3278-78 (Setaflash Closed Cup Tester)
Corrosivity toward Steel	NACE Standard TM-01-69 as standardized in SW-846
Corrosivity, pH	EPA 9040 / 9045
Reactivity	See 40 CFR 261.23 for definition / SW-846
PCBs	EPA 8082
Total Halides	SW-846 5050
Energy Recovery Suite	Includes Arsenic, Cadmium, Chromium, Lead, Ignitability, and Total Halogens

TABLE 4.6

RECOMMENDED SAMPLING MATRIX

		Recommended Analysis[1]										
		STLC or TCLP as appropriate										
Type	Sample Media	Full	Pest/ Herb	Metals	VOC	SVOC	IGN	REAC	CORR	ER	Explosives	Other
Solids	Absorbent Pads-Fuel				x	x	2					
	Absorbent Pads-Oily			x	x	x						
	Adhesive-Hardened			x								chromium
	Amalgam			x								mercury/silver
	Blast Media			12								5
	Filter-Antifreeze Recycler			x								lead only
	Filter-Brake Washer			x	x	x			2			
	Filters-CW Masks			x								chromium only
	Filters, Fuel, Drained				x	x						11
	Filters, Fuel, Undrained				x	x	2					
	Filters, Oil, Drained			x								8
	Filters, Oil, Undrained	3					2					
	Filters-Paint Booth			x	9	9						
	Filters-Paint Can Crusher	3										
	Filters-Washrack Recycler	x					2		x			
	Fuel Cell Foam Baffles				x	x	2					
	Insulation/Building Materials											
	Paint-Hardened			12								
	Paint-Overspray Paper			12								
	Rags-Fuel				x	x	2					
	Rags-Oil			x	x	x						

TABLE 4.6 (continued)

		Recommended Analysis[1]										
		STLC or TCLP as appropriate										
Type	Sample Media	Full	Pest/ Herb	Metals	VOC	SVOC	IGN	REAC	CORR	ER	Explosives	Other
	Rags-Paint			x	x	x	2					
	Rags-Solvent			x	x	x	2					
	Sanding Debris			x								
	Soil-EOD Range	x						x			x	
	Solder Waste			x								silver/lead
	Speedy Dry	3					2					
	Unknown	x					2	x	2			
Semi-Solids	Paint Waste-Enamel			x	x	x	2					
	Paint Waste-Latex			x								
	Sludge-Antifreeze			x					2			lead only
	Sludge-OWS	x					2	x	2			
	Sludge-Vats/Parts Washers			x	x	x	2	x	2			
	Unknown	x					2	x	2			
Aqueous Liquids	Antifreeze			x								Pb, Cu
	Aqueous Layer- OWS			x	x	x	x		x			10
	Degreasing Detergents			x								
	Fixer Solution			x								silver only
	NDI-Rinse			x	x	x	x					10
	Paint Booth Wastewater			x	x	x						
	Unknown	x					2	x	2			10
	Washrack Wastewater	x					2		2			10
	Still Bottoms	3					2					10

TABLE 4.6 (continued)

Type	Sample Media	Recommended Analysis[1] STLC or TCLP as appropriate										
		Full	Pest/ Herb	Metals	VOC	SVOC	IGN	REAC	CORR	ER	Explosives	Other
Organic Liquids	NDI Emulsifier	3					2					10
	NDI Penetrant	3					2					10
	Paint Stripper	3					2					10
	Plating Solutions			x				x				10
	Unknown	x					2	x	2			
	Used Hydraulic Fluid									x		4 and 7
	Used Oil[7]									x		4 and 7
	Used Solvent/Degreaser	3					x					10
	Waste Fuel									x		
Phased Liquids		x					x	x	x			10

1. Analyses will not be requested in instances where the results can be assumed by generator knowledge of the process.
2. Should be tested for ignitability or corrosivity only if free-flowing liquids are present.
3. Full STLC or TCLP except pesticides/herbicides unless operational conditions dictate otherwise.
4. Off-specification determination for used oil (arsenic, cadmium, chromium, lead, flash point, total halogens)
5. Blast media being recycled without reclamation does not require a hazardous waste determination.
6. Cyanide and sulfide containing liquids should be tested for reactivity
7. Used oil contaminated with transformer oil should be tested for PCBs by method SW 8080
8. Oil filters which have been gravity hot drained and are "non-terne" plated are exempt from hazardous waste regulation, otherwise TCLP for lead.
9. If dry, no free-flowing liquids, eliminate the VOC and SVOC determination.
10. TTLC tests (VOC method 8260, SVOC method 8270, Metals method 6010) for organic liquids in lieu of TCLP for VOC and SVOC.
11. If drained and managed as scrap metal, the filters are exempt from regulation as a hazardous waste.
12. TCLP for cadmium, chromium, and lead only, when conditions other than #5 exist.
13. Analyze for presence of asbestos fibers. Asbestos includes chrysotile, amosite, crocidolite, anthophyllite tremolite.

toxicity characteristic leaching procedure (TCLP) is the characterization based on Federal guidelines. These characterizations apply to organic as well as inorganic analytes. The intent of the leachate procedures (TCLP and STLC) are to simulate the conditions that may be present in a landfill where water may pass through the landfilled waste and travel on into the groundwater carrying the soluble materials with it.

4.3.3.1 TTLC - Total Threshold Limit Concentration

This analysis determines the total concentration of each target analyte in a sample. Samples are analyzed using published EPA methods. When any target analyte exceeds the TTLC limits the waste is classified as hazardous and its waste code is determined by the compound(s) that failed TTLC. The results of this analysis can be used to determine if analysis for STLC level is necessary by comparing 10 times the STLC limit to the TTLC results. A factor of ten is used to compensate for a 1:10 dilution factor that is used to perform the STLC. If the TTLC results do not exceed 10 times the STLC limit then normally no further analysis is required.

4.3.3.2 STLC - Soluble Threshold Limit Concentration

This analysis determines the amount of each analyte that is soluble in the "Waste Extraction Test," (WET) leachate. This WET leachate procedure is used for solid samples or for samples containing > 0.5 percent solids. The sample is tumbled in 10 times its weight of a 0.2M sodium citrate buffer for 48 hours. This leachate is then analyzed to determine the soluble concentrations.

4.3.3.3 TCLP - Toxicity Characteristic Leaching Procedure

This analysis, like the WET, determines the soluble portion of the analytes. This is a Federal guideline and differs from the State in several ways. The alkalinity of the sample must first be determined in order to know which of two different extraction fluids should be used. Samples with a low alkalinity use extraction fluid #1 which is a sodium acetate solution with a pH of 4.93. Samples with a high alkalinity use extraction fluid #2 which is a dilute acetic acid solution with a pH of 2.8. The sample is then tumbled in the appropriate extraction fluid for 18 hours. However the choice of extraction fluids does not apply to volatiles. When analyzing for volatiles, fluid #1 is always used and a Zero Headspace Extraction (ZHE) apparatus is required.

Please note for Environmentally Persistent or Bioaccumulating Pollutants (listed in Section 4.5): When analysis for any of the pollutants so designated by law as persistent or bioaccumulating, the method of analysis shall be for the total content of those substances. If the concentration of none of the analyzed substances exceeds the TTLC, and any concentration equals or exceeds the STLC, then the WET procedure shall be performed, and the analysis repeated on that basis.

4.4 INTERPRETING SAMPLE RESULTS

4.4.1 TCLP Results

TCLP results should be compared directly to the TCLP limits listed in 22 CCR 66261.24 and shown below. Wastes with organic matrices may interfere with the TCLP extraction and increase the limit of detection to unacceptable levels. In this case, total analysis may be appropriate (see sampling matrix comment #10). Total analysis results may be compared to the TCLP limits by dividing the result by 20 unless the matrix is a liquid. Liquid matrices are considered the sample extract and are thus directly comparable to the TCLP limits.

4.4.2 TTLC and STLC Results

TTLC and STLC results are directly comparable to their respective limits in 22 CCR 66261.24. However, because a waste is not hazardous due to total analysis results does not necessarily account for STLC requirements. The reverse of this is also true. The flowchart in Figure 4.2 details a method for comparing TTLC results to STLC limits.

4.4.3 Ignitability, Corrosivity, and Reactivity

Ignitability results are directly comparable to the standard in 22 CCR 66261.21. Please note that the definition for the ignitability test does not apply to a solid matrix unless free flowing liquids are present. Additionally, oil that is being tested for energy recovery may flash at greater than 100°F, but less than 140°F, and not be considered hazardous waste in accordance 22 CCR 66279 Used Oil Regulations.

Corrosivity results are directly comparable to the standard in 22 CCR 66261.22. Two tests are used to characterize wastes for corrosivity: EPA 9040 and NACE Standard TM-01-69. Most common and least expensive is the pH test, EPA 9040.

Reactivity results can be compared to values provided in SW-846, Chapter 7, Chapter 7.3. The reactivity characteristic is primarily described with a prose definition in 22 CCR and 40 CFR because available tests do not cover all classes of effects covered by the reactivity definition. Cyanide and sulfide-bearing wastes may be tested for allowable releases of cyanide and hydrogen sulfide. Their limits are as follows:

- Cyanide: 250 mg HCN/kg waste
- Sulfide: 500 mg H_2S/kg waste

Analytical results will report values per kilogram of waste and are directly comparable to the limits mentioned here.

TABLE 4.7

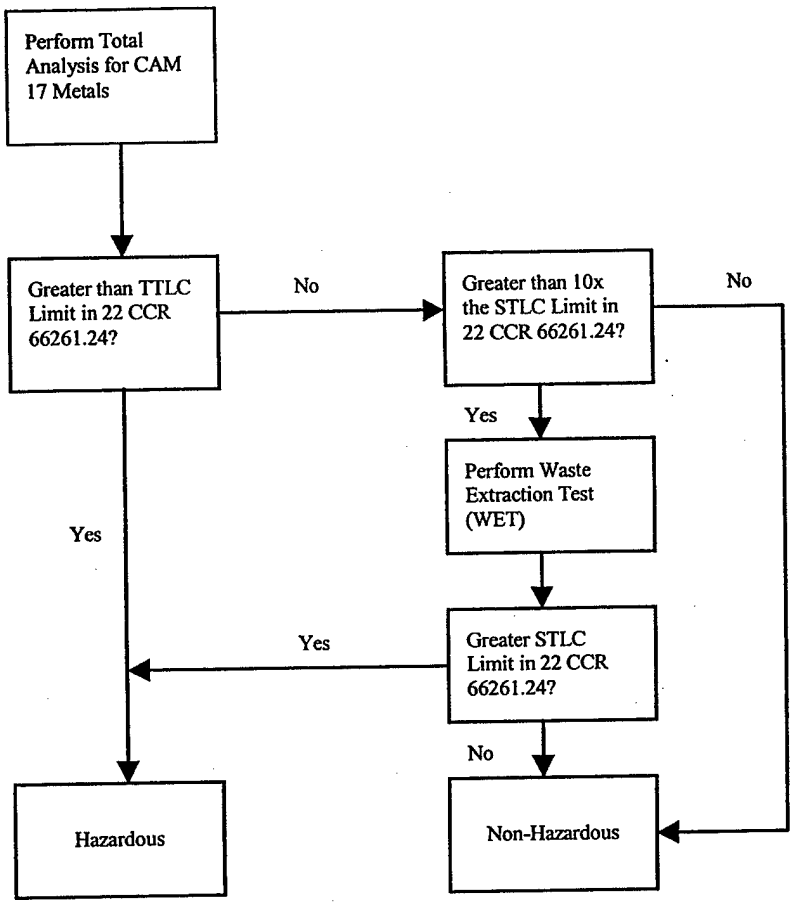
MAXIMUM CONCENTRATION OF CONTAMINANTS FOR THE TOXICITY CHARACTERISTIC

EPA #	Substance	CAS	Regulatory Level Mg/L
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbontetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0
D022	Chloroform	67-66-3	6.0
D007	Chromium	7440-47-3	5.0
D023	o-Cresol	95-48-7	200.1[1]
D024	m-Cresol	108-39-4	200.1[1]
D025	p-Cresol	106-44-5	200.1[1]
D026	Cresol	200.1[1]	
D016	2,4-D	94-75-7	10.0
D027	1,4-Dichlorobenzene	106-46-7	7.5
D028	1,2-Dichloroethane	107-06-2	0.5
D029	1,1-Dichloroethylene	75-35-4	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.13
D012	Endrin	72-20-8	0.02
D031	Heptachlor&itsepoxide	76-44-8	0.008
D032	Hexachlorobenzene	118-74-1	0.13
D033	Hexachlorobutadiene	87-68-3	0.5
D034	Hexachloroethane	67-72-1	3.0
D008	Lead	7439-92-1	5.0
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.2
D014	Methoxychlor	72-43-5	10.0
D035	Methylethylketone	78-93-3	200.0
D036	Nitrobenzene	98-95-3	2.0
D037	Pentachlorophenol	87-86-5	100.0
D038	Pyridine	110-86-1	5.22
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D039	Tetrachloroethylene	127-18-4	0.7
D015	Toxaphene	8001-35-2	0.5
D040	Trichloroethylene	79-01-6	0.5
D041	2,4,5-Trichlorophenol	95-95-4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	2.0
D017	2,4,5-TP(Silvex)	93-72-1	1.0
D043	Vinylchloride	75-01-4	0.2

1 If o-, m- and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

2 Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.

FIGURE 4.2



EXAMPLE: A sample is analyzed for total metals. Results = 50 mg/kg lead. Is the sample hazardous?

1. Compare result to TTLC. TTLC limit = 1000 mg/kg, therefore not hazardous due to TTLC.

2. STLC limit = 5 mg/l. Multiply by 10 = 50 mg/l. The STLC limit multiplied by 10 equals the total analytical result.

TABLE 4.8

INORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

SUBSTANCE[a][b]	STLC Wet-Weight mg/l	TTLC Wet-Weight mg/kg
Antimony and/or antimony compounds	15	500
Arsenic and/or arsenic compounds	5.0	500
Asbestos	1.0 (as percent)	
Barium and/or barium compounds (excluding barite)	100	10,000[c]
Beryllium and/or beryllium compounds	0.75	75
Cadmium and/or cadmium compounds	1.0	100
Chromium (VI) compounds	5	500
Chromium (III) compounds	5[d]	2,500
Cobalt and/or cobalt compounds	80	8,000
Copper and/or copper compounds	25	2,500
Fluoride salts	180	18,000
Lead and/or lead compounds	5.0	1,000
Mercury and/or mercury compounds	0.2	20
Molybdenum and/or molybdenum compounds	350	3,500[e]
Nickel and/or nickel compounds	20	2,000
Selenium and/or selenium compounds	1.0	100
Silver and/or silver compounds	5	500
Thallium and/or thallium compounds	7.0	700
Vanadium and/or vanadium compounds	24	2,400
Zinc and/or zinc compounds	250	5,000

(a) STLC and TTLC values are calculated on the concentrations of the elements, not the compounds.

(b) In the case of asbestos and elemental metals, the specified concentration limits apply only if the substances are in a friable, powdered or finely divided state. Asbestos includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(c) Excluding barium sulfate.

(d) If the soluble chromium, as determined by the TCLP set forth in Appendix I of chapter 18 of 22 CCR Division 4.5, less than 5 mg/l, and the soluble chromium, as determined by the procedures set forth in Appendix II of chapter 11, equals or exceeds 560 mg/l and the waste is not otherwise identified as a RCRA hazardous waste pursuant to Chapter 66261.100, then the waste is a non-RCRA hazardous waste.

(e) Excluding molybdenum disulfide

TABLE 4.9

ORGANIC PERSISTENT AND BIOACCUMULATIVE TOXIC SUBSTANCES

SUBSTANCE[a][b]	STLC Wet-Weight mg/l	TTLC Wet-Weight mg/kg
Aldrin	0.14	1.4
Chlordane	0.25	2.5
DDT, DDE, DDD	0.1	1.0
2,4-Dichlorophenoxyacetic acid	10	100
Dieldrin	0.8	8.0
Dioxin (2,3,7,8-TCDD)	0.001	0.01
Endrin	0.02	0.2
Heptachlor	0.47	4.7
Kepone	2.1	21
Lead compounds, organic	—	13
Lindane	0.4	4.0
Methoxychlor	10	100
Mirex	2.1	21
Pentachlorophenol	1.7	17
Polychlorinated biphenyls (PCBs)	5.0	50
Toxaphene	0.5	5
Trichloroethylene	204	2,040
2,4,5-Trichlorophenoxypropionic acid	1.0	10

4.5 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) PROCEDURES

The overall goal of QA/QC is to ensure no external contamination of samples from initial sampling through final analysis. The sampling procedures, documentation, containment, labeling and shipment must all be error free to assure dependable results. An effective quality program has the goals of preventing problems, enhancing results, and maintaining the integrity of the system used to collect and analyze samples. QA/QC will be followed as described in specific test methods in EPA publication SW-846. All data, including quality assurance data, that have been conducted in an extraction vessel shall be employed as a check to determine if any memory effects from the extraction equipment are occurring.

For each analytical batch (up to twenty samples), it is recommended that a matrix spike be performed. Addition of matrix spikes should occur once the TCLP extract has been generated (i.e., should not occur prior to performance of the TCLP procedure). The purpose of the matrix spike is to monitor the adequacy of the analytical methods used on the TCLP extract and for determining if matrix interference's exist in analyte detection.

All quality control measures described in the appropriate analytical methods shall be followed.

The method of standard addition shall be employed for each analyte if:

- Recovery of the compound from the TCLP extract is not between 50 and 150 percent or
- If the concentration of the constituent measured in the extract is within 20 percent of the appropriate regulatory threshold. If more than one extraction is being run on samples of the same waste (up to 20 samples), the method of standard addition needs be applied only once and the percent recoveries applied to the remainder of the extraction's.

Samples must undergo TCLP extraction within the following time period after sample receipt:

- Volatiles, 14 days
- Semi-Volatiles, 40 days
- Mercury, 28 days
- Other Metals, 190 days

Extraction of the solid portion of the waste should be initiated as soon as possible following initial solid/liquid separation. TCLP extracts shall be analyzed after generation and preservation within the following periods:

- Semi-volatiles, 40 days
- Mercury, 28 days

- Other Metals, 180 days

4.5.1 Data Management

Analytical data will be accumulated in files at both the 60 CES/CEV and the Bioenvironmental Engineering Office. Generator information used to identify waste will be available for every waste disposed by the base. Data will be retained at least five years from origination, and longer if necessary. The intended use of the data is to maintain current, reliable data regarding Travis AFB waste streams. Since there are over 50 routine waste streams, and typically 5-10 pages of analytical data per waste stream, continuous updating and monitoring of the records in the waste analysis data base must be performed by both the 60 CES/CEV and the Bioenvironmental Engineering Office. Bioenvironmental Engineering will store the results in case files—or maintain references to their location--for each industrial shop on base.

4.5.2 Frequency of Analysis

At Travis AFB, all waste streams are *analyzed initially and any time the process changes.* The resultant database of analysis results is used to project disposal trends for upcoming years. Waste analysis is also performed any time there is a question about a given waste stream. Whenever a waste stream changes, analysis is required to recharacterize the waste. Random sampling prior to disposal by both base and contractor personnel adds a further layer of review to the waste characterization process.

4.5.3 Role of the Bioenvironmental Engineering Office

Generator knowledge, prior analysis results, and or field tests will be the methods used to ensure compatibility of wastes with handling methods. The material used in industrial shops is monitored by the Bioenvironmental Engineering Office and reviewed during the annual industrial hygiene surveys. The Bioenvironmental Engineering Office advises shops regarding handling procedures and personal protective equipment requirements. Any potential problem with incompatible materials will be identified and collected during these surveys. The Bioenvironmental Engineering Office also reviews requests for new chemicals and ensures the introduction of the new chemical will not present compatibility problems.

4.5.4 General QA/QC

Samples should be preserved, labeled, packed and documented in an area free of contamination. Samples should be stored (if necessary) in a secure area to prevent contamination prior to shipping.

Written records of all field activities will be maintained (bound notebooks with pre-numbered pages are recommended). Records will also consist of sample collection forms, personnel qualification and training forms, sample location maps, equipment maintenance and calibration forms, chain-of-custody forms, sample analysis request forms, and field change request forms, as appropriate.

All records should be written in indelible ink. Any documentation errors should be corrected by drawing a single line through the error so it remains legible. The line should then be

initialed and dated by the person making the change, and then the correct information should be entered next to the error.

4.6 PROCEDURES IF CHANGE IN WASTE STREAM IS SUSPECTED

Prior to a change in any waste generating process on Travis AFB, shops will notify 60 CES/CEV of the nature of the change. Further, any time a change in waste is suspected, new samples will be collected immediately. The samples will be fully analyzed to obtain enough information to characterize the new waste stream.

Sampling and analysis of suspected changed waste streams will be based upon all available information at the generation site. As with all other samples, safety and proper representation will be of paramount concern. Industrial Hygiene Surveys conducted by the Bioenvironmental Engineering Office and environmental audits from the annual USAF Environmental Compliance Assessment and Management Program (ECAMP) reports will be used to further monitor waste streams in shops.

Evaluative criteria for process changes:

- Does the new waste appear to have the same properties as the old waste? Has its color or odor changed?
- Is the new waste similar in volume to the old waste?
- Has the waste production process changed, or have the chemicals used in the process changed?
- Are there opportunities to minimize the new waste stream that did not exist for the old waste stream?
- Do the results of the new analyses indicate a need to change procedures for handling the new waste?
- Will additional samples be necessary to fully characterize the new waste?

4.7 CHEMICAL ABBREVIATIONS AND SPECIFIED ANALYTICAL METHODS

Methods identified in this HWMP and listed in Table 4.10 are taken from EPA's Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846 **(http://www.epa.gov/sw-846/).**

4.8 WASTE ANALYSIS REQUIREMENTS PERTAINING TO LAND DISPOSAL RESTRICTIONS

The 1984 Resource Conservation and Recovery Act (RCRA) amendments, make the land filling of certain wastes illegal. Specific solvent containing wastes, California list wastes, dioxin-containing wastes and the complete RCRA list of hazardous wastes are prohibited from land disposal prior to treatment.

TABLE 4.10

SPECIFIC ANALYTICAL METHODS FOR CHEMICAL CONSTITUENTS

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
0,0,0-Triethyl phosphorothioate	126681	8270		
1,1,1-Trichloroethane	71556	8260	8240	8021
1,1,1,2-Tetrachloroethane	630206	8260	8240	8021
1,1,2,2-Tetrachloroethane	79345	8260	8240	8021
1,1,2-Trichloroethane	79005	8260	8240	8021
1,1-Dichloroethane	75343	8260	8240	8021
1,1-Dichloroethene	75354	8260	8240	8021
1,1,-Dichloropropene	563586	8260	8240	8021
1,1-Dimethylhydrazine	57147	8250		
1,2,3,4-Tetrachlorobenzene	634662	8270	8250	8120
1,2,3,5-Tetrachlorobenzene	634902	8270	8250	8120
1,2,3-Trichlorobenzene	87616	8260	8270	
1,2,3-Trichloropropane	96184	8260	8240	8021
1,2,4,5-Tetrachlorobenzene	95943	8270	8250	8120
1,2,4-Trichlorobenzene	120821	8270	8021	8120
1,2,4-Trimethylbenzene	95636	8260	8021	
1,2-Dibromo-3-chloropropane	96128	8260	8021	
1,2-Dibromomethane	106934	8260	8021	
1,2-Dichlorobenzene	95501	8260	8270	8120
1,2-Dichloroethane	107062	8260	8240	
1,2-Dichloroethene (total)	540590	8260	8240	
1,2-Dichloropropane	78875	8260	8240	8021
1,2-Dichloropropylene	542756	8260	8240	
1,2-Diepoxybutane	1464535	8240		
1,2-Dimethylhydrazine	540738	8250		
1,2-Dinitrobenzene	99650	8270	8250	
1,2-Diphenylhydrazine	122667	8270	8250	
1,2-Trans-Dichloroethylene	156605	8260		

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
1,3,5-Trimethylbenzene	108678	8260	8021	
1,3,5-Trinitrobenzene	99354	8270		
1,3-Dichlorobenzene	541731	8260	8021	8120
1,3-Dinitrobenzene	528290	8270	8250	
1,3-Dichloropropane	142289	8260	8021	
1,4-Dichlorobenzene	106467	8260	8270	8021
1,4-Dichlorobutene	31423924	8240		
1,4-Dinitrobenzene	100254	8270	8250	
1-Acetyl-2-thiourea	591082	8270		
1-Chloronaphthalene	90131	8270	8250	
1-Naphthylamine	134327	8270	8250	
2,3,4,6-Tetrachlorophenol	58902	8270	8250	
2,2-Dichloropropane	590207	8260	8021	
2,4,5-T	93765	8150	8151	
2,4,5-TP	93721	8150	8151	
2,4,5-Trichlorophenol	95954	8270	8040	
2,4,5-Trimethylaniline	137177	8270		
2,4,6-Tribromophenyl	118796	8270		
2,4,6-Trichlorophenol	88062	8270	8040	
2,4,-D	94757	8150	8151	
2,4-DB		8150		
2,4-Diaminotoluene	95807	8270		
2,4-Dichlorophenol	120832	8270	8250	8040
2,4-Dimethylphenol	105679	8270	8040	
2,4-Dinitrophenol	51285	8270	8040	
2,4-Dinitrotoluene	121142	8270	8250	
2,4-Toluene diisocyanate	584849	8250	8270	
2,6-Dichlorophenol	87650	8270	8250	8040
2,6-Dinitrophenol	573568	8270	8040	

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
2,6-Dinitrotoluene	606202	8270	8250	
2-Acetylaminofluorene	53963	8270		
2-Aminoanthraquinone	117793	8270		
2-Butanone (MEK)	78933	8260	8240	8015
2-Chloroethanol	107073	8240		
2-Chloroethylvinyl ether	110758	8240	8010	
2-Chloronaphthalene	91587	8270	8250	8120
2-Chlorophenol	95578	8270	8250	8040
2-Chlorotoluene	95498	8260	8021	
2-Cyclohexyl-4,6-dinitrophenol	131895	8270		
2-Ethoxyethanol	110805	8240	8030	
2-Flurobiphenyl	321608	8270	8250	
2-Fluorophenol	367124	8270	8250	
2-Hexanone	591786	8240	8260	8015
2-Methylnaphthalene	91576	8270	8250	
2-Methylphenol	95487	8270	8250	
2-Napthylamine	91598	8270	8250	
2-Nitroaniline	88744	8270	8250	8040
2-Nitrophenol	88755	8270	8250	
2-Nitropropane	79469	8240	8030	
3,3-Dimethoxybenzidine	119904	8270		
3,3-Dimethylbenzidine	119937	8270		
3-(Chl.meth)pyridine hydrochloride	6959484	8270		
3-Chloropropionitrile	562767	8240		
3-Methylcholanthrene	56495	8270		
3-Methylphenol	108394	8270		
3-Nitroaniline	99092	8270	8250	
4,4'-DDD	72548	8080	8270	
4,4'-DDE	72559	8080	8270	

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
4,4'-DDT	50293	8080	8270	
4,4-Oxydianiline	101804	8270		
4,6-Dinitro-2-methylphenol	534521	8270	8250	
4-Aminobiphenyl	92671	8270	8250	
4-Bromofluorobenzene	460004	8240		
4-Bromphenyl phenyl ether	101553	8270	8110	
4-Chloro-3-methylphenol	59507	8270	8250	8040
4-Chloraniline	106478	8270	8250	
4-Chlorophenyl phenyl ether	7005723	8270	8250	8110
4-Chlorotoluene	106434	8260	8021	
4-Methyl-2-pentanone (MIBK)	108101	8240		
4-Methylphenol	106445	8270	8250	
4-Nitroaniline	100016	8270	8250	
4-Nitrobiphenyl	92933	8270		
4-Nitrophenol	100027	8270	8040	8250
5,5-Diphenylhydantoin	57410	8270		
5-Chloro-2-methylaniline	95794	8270		
5-Nitroacenaphthene	602879	8270		
5-Nitro-o-anisidine	99592	8270		
5-Nitro-o-toluidine	99558	8270		
Acenaphthene	83329	8270	8100	8310
Acenaphthylene	208968	8270	8100	8310
Acetone	67641	8240		
Acetonitrile	75058	8240	8030	
Acetophenone	98862	8270	8250	
Acrolein	107028	8240	8030	
Acrylamide	79061	8015	8240	
Acrylonitrile	107131	8240	8030	
Aldrin	309002	8270	8080	

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
Allyl alcohol	107186	8240		
Allyl chloride	107051	8240		
Aluminum (Al)	7429905	6010	7021	7020
Aniline	62533	8270	8250	
o-Anisidine	90040	8270		
Anthracene	120127	8270	8100	8310
Antimony (Sb)	7440360	6010	7041	7040
Aroclor-1016 (PCB)	12674112	8080	8270	8250
Aroclor-1221 (PCB)	11104282	8080	8270	8250
Aroclor-1232 (PCB)	11141165	8080	8270	8250
Aroclor-1242 (PCB)	53469219	8080	8270	8250
Aroclor-1248 (PCB)	12672296	8080	8270	8250
Aroclor-1254 (PCB)	11097691	8080	8270	8250
Aroclor-1260 (PCB)	11096825	8080	8270	8250
Arsenic (As)	7440382	6010	7061	7060
Azinphos-methyl	86500	8270		
Barium (Ba)	7440393	6010	7081	7080
Benzene	71432	8260	8240	8021
Benzidine	92875	8270	8250	
Benzo[a]anthracene	56553	8270	8100	8310
Benzo[a]pyrene	50328	8270	8100	8310
Benzo[b]fluoranthene	205992	8270	8100	8310
Benzo[g,h,i]perylene	191424	8270	8100	8310
Benzo[k]fluoranthene	207089	8270	8100	8310
Benzoic acid	65850	8270		
Benzyl alcohol	100516	8270		
Benzyl chloride	100447	8250		
Beryllium (Be)	7440417	6010	7091	7090
BETX		8020		

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
Alpha-BHC	319846	8080	8270	8250
Beta-BHC	319857	8080	8270	8250
Delta-BHC	319868	8080	8270	8250
Gamma-BHC (Lindane)	58899	8080	8270	8250
Bis (chloromethyl) ether	542881	8270	8110	
Bis (2-Chloroethoxy) methane	111911	8270	8110	
Bis (2-Chloroethyl) ether	111444	8270	8110	
Bis (2-Chloroisopropyl) ether	39638329	8270	8110	
Bis (2-Ethylhexyl) phthalate	117817	8270	8060	
Bromobenzene	108861	8260		
Bromochloromethane	74975	8260	8240	8021
Bromodichloromethane	75274	8260	8240	8021
Bromoform	75252	8260	8240	8021
Bromomethane	74839	8260	8240	8021
Bromoxynil	1689845	8270		
tert-Butyl benzene	98066	8260	8021	
Butyl benzyl phthalate	85687	8270		
Cadmium (Cd)	7440439	6010	7131	7130
Captafol	2425061	8270		
Captan	133062	8270		
Carbaryl	63252	8270		
Carbofuran	1563662	8270		
Carbon disulfide	75150	8240		
Carbon tetrachloride	56235	8260	8240	8010
Carbophenothion	786196	8270		
Alpha-Chlordane	5103719	8080		
Gamma-Chlordane	5103742	8080		
Chlordane	57749	8080	8270	8250
Chlorfenvinphoe	470906	8270		

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
Chlorine (Cl)	7782505	9252		
Chloroacetaidehyde	107200	8240	8010	
Chlorobenzene	108907	8260	8240	8021
Chlorobenzilate	510156	8270		
Chlorodibromomethane	124481	8240		
Chloroethane	75003	8260	8240	8021
Chloroform	67663	8260	8240	8021
Chloromethane	74873	8260	8240	8021
Chloroprene	126998	8240		
Chromium (Cr)	7440473	6010	7191	7190
Chromium (VI)	18540299	7198	7197	7196
Chrysene	218019	8270	8100	8310
Cis-1,2-Dichloroethene	156594	8260	8021	
Cis-1,3-Dichloropropene	10061015	8240		8240
Cobalt	7440484	6010	7201	7200
Copper (Cu)	7440508	6010	7211	7210
Coumaphoe	56724	8270		
Cresols	1319773	8270	8250	
p-Cresidine	120718	8270		
Crotoxyphoe	7700176	8270		
Cyanides	57125	9010	9012	
Dalapon		8150		
Demeton-o	298033	8270		
Demeton-s	126750	8270		
Diallate (cis or trans)	2303164	8270		
Dibenz[a,h]anthracene	53703	8270	8100	8310
Dibenz[a,j]acridine	224420	8270	8100	
Dibromomethane	74953	8260	8240	8021
Dibutyl chlorendate	1770805	8080		

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
Dicambia		8150		
Dichlone	117806	8270		
Dichlorodifluoromethane	75718	8260	8240	8021
Dichlorovos	62737	8270		
Dicrotophos	141662	8270		
Dieldrin	60571	8080	8270	
Diethyl ether		8015		
Diethyl phthalate	84662	8270	8060	
Dimethoate	60515	8270		
Dimethyl phthalate	131113	8270	8060	
Dimethylaminoazobenzene	29387926	8270		
a,a-Dimethylphenethylamine	122098	8270	8250	
Di-n-butylphthalate	84742	8270	8060	
Di-n-octylphthalate	117840	8270	8060	8270
Dinoseb	88857	8270	8150	
Diphenylamine	122394	8270		
Disulfoton	298044	8270		
Endosulfan I(alpha-endosulfan)	959988	8080	8270	
Endosulfan II(beta-endosulfan)	33213659	8080	8270	
Endosulfan sulfate	1031078	8080	8270	
Endrin	72208	8080	8270	8250
Endrin aldehyde	7421934	8080	8270	
Endrin ketone	53494705	8080	8270	
Epichlorohydrin	106898	8240		
EPN	2104645	8270		
Ethion	563122	8270		
Ethanol	64175	8015		
Ethyl carbarnate	51796	8270		
Ethyl ether	60297	8015	8240	

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
Ethyl methacrylate	97632	8240		
Ethyl methanesulfonate	62500	8270		
Ethylbenzene	100414	8260	8240	8021
Ethylene dibromide	106934	8240	8010	
Famphur	52857	8270		
Fensulfothion	115902	8270		
Fenthion	55389	8270		
Fluchloralin	33245395	8270		
Fluorene	86737	8270		
Fluoranthene	206440	8270	8100	8310
Formic acid	64186	8250		
Heptachlor	76448	8080	8270	8250
Heptachlor epoxide	1024573	8080	8270	
Hexachlorobenzene	118741	8270	8120	
Hexachlorobutadiene	87683	8270	8120	8260
Hexachlorocyclopentadiene	77474	8270	8120	
Hexachloroethane	67721	8260	8120	8270
Hexachloropropene	1888717	8270		
Hexamethyl phosphoramide	680319	8270		
Hydroquinone	123319	8270		
Indeno(1,2,3-cd)pyrene	193395	8270	8100	8310
Iodomethane	74884	8240		
Iron (Fe)	7439896	6010	7381	7380
Isodrin	465736	8270		
Isophorone	78591	8270	8090	
Isopropylbenzene	98828	8260	8021	
p-isopropyltoluene	99876	8260	8021	
Isosafrole	120581	8270		
Kepone	143500	8270		

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
Lead (Pb)	7439921	6010	7421	7420
Leptophos	21609905	8270		
Malathion	121755	8270		
Maleic anhydride	108316	8270	8250	
Manganese (Mg)	7439965	6010	7461	7460
MCPA		8150		
MCPP		8150		
Mercury (Hg)	7439976	7471	7470	
Mestranol	72333	8270		
Methapyrilene	91805	8270		
Methoxychlor	72435	8080	8270	
Methylene Chloride	75092	8260	8240	8021
Methyl Iodide	74884	8240		
Methyl methacrylate	80626	8240		
Methyl methanesulfonate	66273	8270	8250	
Methyl parathion	298000	8270		
Mexacarbate	315184	8270		
Mirex	2385855	8270		
Monocrotophos	6923224	8270		
Naled	300765	8270		
Naphthalene	91203	8260	8270	8021
Nickel (Ni)	7440020	6010	7521	7520
Nitrofen	1836755	8270		
Nitroquinoline-1-oxide	56575	8270		
N-Nitrosodibutylamine	924163	8270	8250	
N-Nitrosodiethylamine	55185	8270		
N-Nitrosodimethylamine	62759	8270	8070	
N-Nitrosodi-n-propylamine	621647	8270	8070	
N-Nitrosodiphenylamine	86306	8270	8070	

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
N-Nitrosomethylethylamine	10595956	8270		
N-Nitrosomorpholine	59892	8270		
N-Nitrosopyrrolidine	930552	8270		
N-Nitrosopiperidine	100754	8270	8250	
Octamethyl pyrophosphoramide	152169	8270		
Oil and Grease		9070	9071	
Parthion	56382	8270		
Pentachlorobenzene	608935	8270	8250	
Pentachloronitrobenzene	82688	8270	8250	
Pentachlorophenol	87865	8270	8250	8040
Phenacetin	62442	8270	8250	
Phenanthrene	85018	8270	8250	8100
Phenobarbital	50066	8270		
Phenol	108952	8270	8250	8040
Phenol-d5	4165622	8270		
Phorate	298022	8270	8140	
Phosalone	2310170	8270		
Phosmet	732116	8270		
Phosphamidon	13171216	8270		
Phthalic anhydride	85449	8270		
Piperonyl sulfoxide	120627	8270		
Pronamide	23950585	8270	8250	
n-propylamine	107108	8240	8021	
n-propylbenzene	103651	8260		
Pyrene	129000	8270	8100	8310
Pyridine	110861	8270	8240	
Safrole	94597	8270		
Selenium (Se)	7782492	6010	7741	7740
Silver (Ag)	7440224	6010	7761	7760

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
Strychnine	57249	8270		
Styrene	100425	8260	8240	8021
Sulfides	18496258	9030	9031	
Sylfallate	95067	8270		
Terbufos	13071799	8270		
Tetrachlorophenol	58902	8270	8040	
Tetrachlorvinphos	961115	8270		
Tetraethyl pyrophosphate	107493	8270		
Thallium (Tl)	7440280	6010	7841	7840
Thionazine	297972	8270		
Thiophenol (Benzenethiol)	108985	8270		
Toluene	108883	8260	8240	8021
Toluene-d8	2037265	8260	8240	
Toluenediamine	25376458	8250		
Toluene diisocyanate	584849	8270		
o- Toluidine	95534	8270		
Total Organic Carbon (TOC)		9060		
Total Organic Halide (TOX)		9020	9022	
Total Petroleum Hydrocarbons (TPH)		8015		
Total Pheonols		9065		
Toxaphene	8001352	8080	8270	8250
Trans-1,2-Dichloroethene	156605	8260	8240	8021
Trans-1,3-Dichloropropene	10061026	8240	8010	
Trichloroethene (TCE)	79016	8260	8240	8021
Trichlorofluoromethane	75694	8260	8240	8021
Trichloropropane	25735299	8010	8240	
Trifluralin	1582098	8270		
Trimethyl phosphate	512561	8270		
Tri-p-toyl phosphate	78320	8270		

TABLE 4.10 (continued)

Chemical Constituent	CAS No.	Preferred Method	Alternate Method	Alternate Method
Tris(2,3-dibromopropyl) phosphate	126727	8270		
Vanadium	7440622	6010	7911	7910
Vinyl Acetate	108054	8240		
Vinyl chloride (VCL)	75014	8260	8240	8021
m-Xylene	108383	8260		
Xylenes (total)	1330207	8260	8240	8021
Zinc (Zn)	7440666	6010	7951	7950
Ignitibility		1010	1020	
Corrosivity		9040		
pH		9040	9045	
Reactivity		9010	9030	
TCLP		1311		

Title 22 CCR Chapter 18 lists the hazardous wastes subject to land disposal restrictions. The regulations require various forms to be attached to the manifest to notify the disposal facility of the waste's status. A waste that contains any of the compounds must have a land ban certification form filled out and attached with the manifest.

Travis AFB is responsible for determining whether wastes are prohibited from land filling. Determinations as to whether a waste is both a liquid and exceeds the applicable concentrations of hazardous constituents are made at the point of generation. Generators can also determine if wastes are prohibited based on their knowledge of the wastes.

For-solvent wastes and dioxin-containing wastes, the base will use generator knowledge, or test waste or an extract of it using the TCLP to determine if the waste is restricted from land disposal.

All pertinent analytical schemes have been modified to be consistent with 40 CFR 261, Appendix 11. The TCLP is designed to determine the mobility of both organic and inorganic contaminants present in liquid, solid or multiphase wastes. If a total analysis of the waste demonstrates that individual contaminants are not present in the waste, or that they are present but at such low concentrations that the appropriate regulatory thresholds could not possibly be exceeded, the TCLP will not be run.

Sample collection, preservation and handling shall be accomplished in compliance with 40 CFR Part 261 Appendix 11. All samples shall be collected using the guidance in the sampling Chapter of this plan. The following sample guidance applies for collecting TCLP samples:

- The TCLP may place requirements on the minimal size of the field sample depending upon the physical state or states of the waste and the contaminants of concern. A representative sample is needed for the preliminary evaluation of which extraction fluid is to be used for the nonvolatile contaminant extraction procedure. Another representative sample may be needed to actually conduct the nonvolatile extraction. If volatile organics are of concern, another representative sample may be needed. Quality control measures may require additional representative sample. It is always wise to collect more samples in case something goes wrong with the initial attempt to conduct the test.

- Preservatives shall not be added to samples for the TCLP.

- Samples may be refrigerated unless refrigeration results in irreversible physical change to the waste. If precipitation occurs, the entire sample (including precipitate) should be extracted.

- When the waste is to be evaluated for volatile contaminants, care shall be taken to minimize the loss of volatiles. Samples shall be taken and stored in a manner to prevent the loss of volatile contaminants (e.g., samples should be collected in Teflon-lined septum capped vials and stored at 4 degrees Celsius, until ready to be opened prior to extraction).

- For generator's knowledge the following tests can used to determine whether the wastes are restricted:

- Liquid hazardous wastes must be tested in accordance with pH test method 5.2 in Test Methods or Evaluating Solid Wastes, Physical/Chemical Methods. EPA publication No. SW-846, to determine if the waste has a pH less than or equal to 2.0.

- Liquid hazardous wastes containing PCBs or liquid or non-liquid hazardous waste containing Halogenated Organic Compounds (HOCs) must be tested to determine whether the concentration levels equal or exceed prohibited levels.

First-third wastes are described in 40 CFR Part 268.33. For first-third wastes, total constituent analysis or the generator's knowledge must be used to determine if a first-third waste (with treatment standards expressed as waste concentrations) is restricted. Where first-third wastes include those with standards expressed as concentrations in waste extract and waste concentrations, both TCLP and total constituent analysis will be used.

Second-third wastes are described in 40 CFR Part 268.34. For second-third wastes, the base will use generator knowledge, or test waste or an extract of it using the TCLP to determine if the waste is restricted from land disposal.

Third-third wastes are described in 40 CFR Part 268.35. For third-third wastes, the base will use generator knowledge, or test waste or an extract of it using TCLP to determine if the waste is restricted from land disposal.

For restricted wastes, Travis AFB notices and certifications will be filed with the hazardous waste manifests for each shipment of hazardous waste from Travis AFB. These documents will be retained at the 60 CES/CEV for at least five years from the shipment date.

If Travis AFB determines that a waste is restricted under 40 CFR Part 268 and the waste does not meet the treatment standards set forth in 40 CFR Part 268, Subpart D, or exceeds the applicable prohibition levels set forth for California List Wastes, the base will notify the treatment facility in writing of the appropriate treatment standards set forth in Subpart D and any applicable prohibition levels set forth for California List Wastes. The notice will include the following information:

- EPA Hazardous Waste Number

- Corresponding treatment standards

- The manifest number for the shipment

- Waste Analysis Data, where available

If Travis AFB determines that waste is restricted under 40 CFR Part 268 and the waste can be land disposed without further treatment, the base will submit to the treatment or land disposal facility a notice and a certification stating that the waste meets the applicable treatment standards set forth in Subpart D and any applicable prohibition levels set forth for California List Wastes. The notice will include the following information:

- EPA Hazardous Waste Number
- Corresponding treatment standards
- The manifest number for the shipment
- Waste Analysis Data, where available
- A certification signed by an authorized representative of Travis AFB

Additional requirements pertaining to the storage of hazardous waste are listed in Subpart E of 40 CFR Part 268. This Subpart lists prohibitions on storage of hazardous waste. These prohibitions essentially state that restricted wastes must be managed under the same stringent time constants as any hazardous waste generated on base. Travis AFB will handle, analyze and store all waste in accordance with these regulations.

An example land ban notification form is found in the inserts. Travis AFB may use equivalent forms.

CHAPTER 5

HAZARDOUS WASTE MANAGEMENT PROCEDURES

5.1 HAZARDOUS WASTE ACCUMULATION FACILITIES

Hazardous waste at Travis AFB may only be accumulated at Satellite Sites, 90-Day Accumulation Points, or the TSDF. Daily Empty Sites must transfer their hazardous waste to a Satellite Site or a 90-Day Accumulation Point within 24 hours (i.e., each day).

The 60 CES/CEV is responsible for ensuring that all hazardous and state-regulated wastes are properly managed. The procedures established for collecting and disposing of hazardous and non-hazardous chemicals, wastes, sludge, and residues are required to assure that Travis Air Force Base remains in compliance with all environmental laws and regulations. These procedures apply to *all* users of chemical materials on base.

5.1.1 90-Day Accumulation Points and Satellite Sites

A Satellite Site is an initial accumulation point which is at or near the area where hazardous waste is generated and which is under the process operator's control. Satellite Sites may accumulate as much as 55 gallons of hazardous waste, one quart of acutely or extremely hazardous waste for no more than one year from the first date of accumulation. When a container becomes full, a Satellite Site operator must transfer the filled container to a 90-Day Accumulation Point *within 3 calendar days* of the fill date. Full is defined as 90 percent of the capacity of the container. When small containers are used, transfer to a 90-Day Accumulation Point may be needed prior to accumulating the maximum amount depending on the storage space available and safety and health concerns.

A 90-Day Accumulation Point is a point at or near the area where hazardous waste is generated that is used to collect and accumulate hazardous waste. A 90-Day Accumulation Point may accumulate as much as 55 gallons of hazardous waste, one quart of acutely or extremely hazardous waste for no more than 90 days from the first day of accumulation. A 90-Day Accumulation Point may also accept containers of hazardous waste from Satellite Sites. These containers must be transported to the TSDF within 90 days. 90-Day Accumulation Points must notify 60 CES/CEV by the 75th day of accumulation to make an appointment for hazardous waste turn-in at the TSDF.

Travis AFB 90-Day Accumulation Points and Satellite Sites are located within the major organizations that generate hazardous waste. Table 2.2 lists the 90-Day Accumulation Point and Satellite Site locations. A location map of the Travis AFB Satellite Sites, 90-Day Accumulation Points and the TSDF are depicted in Figure 3.1. If an additional Satellite Site

is required, 60 CES/CEV and the generator shall select a location that minimizes the threat of the waste to human health or the environment in the event of a release of hazardous waste.

Travis AFB will comply with the following requirements for all 90-Day Accumulation Points and Satellite Sites:

a) Different types of hazardous waste must be accumulated in separate containers. Non-hazardous waste must not be mixed with hazardous waste. For example, waste oil, waste paints, and waste abrasive blasting media, etc., should each be accumulated in separate containers.

b) Containers shall not be located near any floor drains that lead to sanitary or storm water sewers.

c) Incompatible wastes require segregated containment by using either separate containment areas or by means of separately diked areas or sloped containment to separate sumps. Hazardous chemical reactions which cause heat, fire, explosion, pressure, or the evolution of toxic or flammable decomposition products due to incompatible chemical reactions must be prevented. Groups of incompatible waste are listed in Table 5.1. If unsure whether a waste to be disposed of or placed in a container is compatible with the waste in the container itself, contact 60 MDG/SGPB or 60 CES/CEV prior to placing waste in the container. In addition, hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material.

d) Hazardous wastes must not be located near anything with which they are incompatible. For example, lead-acid batteries should not be located near any aluminum structures or surfaces because contact between acid and aluminum may produce flammable hydrogen gas and could lead to a fire or explosion. Containers holding hazardous waste which is incompatible with any other wastes or materials present should be physically separated from the other materials by means of a dike, berm, or wall.

e) "No Smoking" signs must be placed conspicuously wherever there is a hazard from ignitable or reactive waste.

f) Containers at outdoor accumulation areas shall be protected from direct sunlight and precipitation by means of a roof, tarpaulin, or similar device.

g) Containers at indoor accumulation areas shall be well ventilated. Highly volatile organics in particular can present a serious health hazard when in storage. Also, in the event of a spill or leak, effective ventilation should be installed to safely direct toxic or flammable vapors and fumes out of the work area. Care must be taken to prevent exhausted air from reentering work areas through doors, windows, and air intakes on buildings.

TABLE 5.1

COMMON INCOMPATIBLE MATERIALS

Potential consequences are heat generation and violent reaction[1]	
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 fluid	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 are fire/explosion and generation of flammable hydrogen gas[1]	
Group 2-A	**Group 2-B**
Aluminum	Any waste in Group 1-A or 1-B
Beryllium	
Calcium	
lithium	
Potassium	
Sodium	
Zinc powder	
Other reactive metals and metal hydrides	

Potential consequences are fire/explosion or heat generation, and generation of flammable/toxic gases[1]	
Group 3-A	**Group 3-B**
Alcohols	Any Group 1-A or 1-B concentrated waste
Water	Calcium
	Lithium
	Metal hydrides
	Potassium
	S02CI2, SOC12, PCI2, CH3, SiCl3
	Other water-reactive waste

TABLE 5.1 (continued)

Potential consequences are fire, explosion or violent reaction[1]	
Group 4-A	**Group 4-B**
Alcohols	Concentrated Group 1-A or I-B wastes.
Aldehydes	Group 2-A wastes
Halogenated hydrocarbons	
Nitrated hydrocarbons	
Unsaturated hydrocarbons	
Other reactive organic compounds and solvents	
Potential consequences are generation of toxic hydrogen cyanide or hydrogen sulfide gas[1]	
Group 5-A	**Group 5-B**
Spend cyanide and sulfide solutions	Group 1-B wastes
Potential consequences are fire, explosion or violent reaction[1]	
Group 6-A	**Group 6-B**
Chlorates	Acetic acid and other organic acids
Chlorine	Concentrated mineral acids
Chlorites	Group 2-A wastes
Chromic acid	Group 4-A wastes
Hyphochlorites	Other flammable and combustible wastes
Nitrates	
Nitric acid, fuming	
Perchlorates	
Permanganates	
Peroxides	
Other strong oxidizers	

1 Mixing a Group A material (left column) with a Group B material (right column) yields the potential consequence noted.

h) Drums must be placed on pallets to allow for ease of removal when full and to keep them away from accumulated precipitation or spills.

5.1.2 Treatment, Storage and Disposal Facility (TSDF)

The 60 CES/CEV operates the TSDF at Travis AFB in Building 1365. The generator number is CA5570024575. The TSDF Manager maintains an Operating Record of all hazardous waste processed through the TSDF. The information that is to be maintained in the operating record is described in Section 5.6.

Travis AFB will comply with the following physical requirements for the TSDF:

a) In areas where unauthorized access to the TSDF by persons not authorized to accumulate waste in the containers is possible, security must be provided by a fence or similar access control device. Post signs that read "Danger - Unauthorized Personnel Keep Out" in English and Spanish that can be seen from any access and large enough to be read at 25 feet.

b) "No Smoking" signs must be placed conspicuously wherever there is a hazard from ignitable or reactive waste.

The TSDF must be inspected at least daily. During the inspection, areas where containers are stored must be examined for leakage and deterioration of containers and deterioration of the area in which the containers are placed. Each inspection must be documented and will include the name of the inspector, the location of the accumulation site, date, time of the inspection, problems that the inspector should be looking for, and a description of actions taken to correct problems when they are detected. Inspection records must be maintained for at least three years from the date of each inspection by the 60 CES/CEV.

5.2 HAZARDOUS WASTE CONTAINERS

5.2.1 Container Selection

Proper hazardous waste container selection is based on the DOT Hazardous Material Table listed at 49 CFR §172.101. Table 5.2 provides a sample of the Hazardous Material Table. 49 CFR §172.101 lists hazardous materials in alphabetical order. Selecting the proper container involves searching the Hazardous Material Table for the hazardous material that generated the hazardous waste and identifying the packaging requirements. Column 7 of the Hazardous Material Table refers to special provisions for packaging and transportation (refer to Table 5.2). Column 8 identifies the specific packaging requirements for bulk and non-bulk packaging found under 49 CFR Part 173. Table 5.3 provides a reference for identification codes for non-bulk packaging.

TABLE 5.2

SAMPLE HAZARDOUS MATERIALS TABLE AND COLUMN EXPLANATION

HAZARDOUS MATERIALS TABLE (49 CFR § 172.101)

Symbols	Hazardous materials descriptions and proper shipping names	Hazard class or division	Indentification Numbers	Packaging Group	Label(s) required (if not excepted)	Special Provisions	(8) Packaging authorizations (§173***)			(9) Quantity Limitations		(10) Vessel Stowage Requirements	
							Exceptions	Nonbulk Packaging	Bulk Packaging	Passenger Aircraft or Railcar	Cargo Aircraft only	Vessel Stowage	Other Stowage Provisions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8A)	(8B)	(8C)	(9A)	(9B)	(10A)	(10B)
D	Hazardous waste, solid, n.o.s.	9	NA3077	III	CLASS 9...	B54	155	213	240	No limit	No limit	A	
	Naphtha *petroleum*	3	UN1255	I	FLAMMABLE LIQUID...	T8	150	201	243	1 L...	30 L...	E	
				II	FLAMMABLE LIQUID...	T8	150	202	242	5 L...	60 L...	B	
	Sulfuric acid, spent	8	UN1832	II	CORROSIVE	A3, A7, B2, B83, B84, N34, T9, T27...	None	202	242	Forbidden	30 L...	C...	14

Column number	COLUMNS (1) – (10) INFORMATION
1	Symbols which identify certain requirements in special situations.
2	Identifies the proper shipping name
3	Identifies the numerical hazard class or division
4	Identifies the hazard identification number. A number with the prefix "UN" is used for all international shipments. A number with the prefix "NA" can only be used in the United States and Canada.
5	Identifies the Packing Group assigned. Packing Groups indicate a degree of danger. PG I is greatest; PG II is medium; and PG III is minor.
6	Identifies the labels which must be applied to packaging.
7	Identifies special provisions for packaging and transportation. **Number Only** – all types of packaging and all modes of transportation; **A** – air transportation; **B** – bulk packaging (containers with a maximum capacity greater than 450 liters (119 gallons) as a receptacle for a liquid, or greater than 400 kg (882 lbs) for a solid) except inter-modal (IM) portable tanks; **H** – Applies only to highway transportation; **N** – non-bulk packaging (containers with a maximum capacity equal to 450 liters (119 gallons) or less as a receptacle for a liquid: equal to 400 kgs (882 lbs) or less for a solid); **R** – rail transportation; **T** – inter-modal tanks: **W** – water transportation.
8	Three columns identify packaging requirements! (a) exception packaging for limited quantity and consumer commodity (ORM-D); (b) non-bulk packaging: (c) bulk packaging.
9	Identifies restrictions for air transportation.
10	Identifies stowage requirements for vessels.

Source: Air Force Pamphlet 32-7043, 1 Nov 95

TABLE 5.3

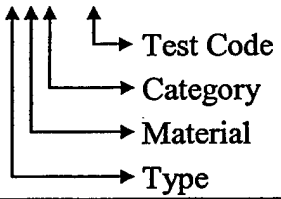
PERFORMANCE-ORIENTED PACKAGING CODES FOR NON-BULK PACKAGING

TYPES OF PACKAGING

1. Drum
2. Wooden Barrel
3. Jerrican
4. Box
5. Bag
6. Composite Packaging
7. Pressure Receptacle

EXAMPLE:

UN 1A1 / Y 1.4 / 150 / 84



MATERIAL OF CONSTRUCTION

A Steel
B Aluminum
C Natural Wood
D Plywood
F Reconstituted Wood
G Fiberboard
H Plastic
L Textile
M Paper, Multi-Wall
N Metal (other than steel or aluminum)
P Glass, Porcelain, or stoneware

CATEGORY OF PACKAGING

For steel drums (1A), a "1" indicates a non-removable head drum (i.e., "1A1"), and a "2" indicates a removable head drum (i.e., "1A2").

COMPOSITE PACKAGING

2 capital letters are used in sequence in the second position of the code; the first indicates inner material and the second is the outer packaging. Example: a plastic receptacle in a steel drum is designated "6HA1."

COMBINATION PACKAGING

Only the code number for the outer packaging is used.

TEST PERFORMANCE STANDARD meets:

X: PG I, II, and III tests

Y: meets PG II and III tests

Z: only meets PG III tests

Source: Source: Air Force Pamphlet 32-7043, 1 Nov 95

5.2.2 Container Labeling and Marking

5.2.2.1 Waste Accumulation

During waste accumulation, the side of each container of hazardous waste shall be labeled with a completed Hazardous Waste Label as shown in Appendix K. The container also shall be labeled with the appropriate DOT hazard label prior to transport.

5.2.3 Container Condition

If a container of hazardous waste is not in good condition (e.g., severe rusting, creases, bulging heads, apparent structural defects, leaking), the hazardous waste must be transferred into a container in good condition or managed in some other way that complies with the requirements of and 40 CFR 264 Subpart I.

5.2.4 Container Compatibility

Hazardous waste shall be stored in a container made of, or lined with, materials which will not chemically react with, and are compatible with, the hazardous waste stored in the drum.

5.2.5 Container Management

a) A container holding hazardous waste shall always be closed during storage, except when waste is being added.

b) The placement of a new hazardous waste container at the 90-Day Accumulation Points or Satellite Sites shall be accompanied by a simultaneous entry of the placement in the inspection log. Log entry is continued for each container until the log is turned into the 60 CES/CEV. Every hazardous waste container must be entered into the weekly inspection log.

c) Containers must not be stored or handled in a manner which may cause them to rupture or leak. The following precautions shall be taken to prevent container ruptures and leaks:

1. Containers must not be overfilled; fill to 90 percent of capacity. For example, only fill a 55-gal drum to 50 gal. Liquids expand in containers as the temperature increases. A steel drum painted a dark color can easily rise to temperatures above 100°F and the pressure created by the expansion of the liquid causes bulging heads and damages the integrity of the container. Bulging containers also create a safety hazard for personnel expected to add waste to or handle the containers.

2. Containers must be protected from freezing during cold weather. Many materials go through a freeze/thaw cycle during changing weather conditions. This freeze/thaw cycle causes metal stress and can result in leaking containers.

3. Containers of ignitable hazardous waste must be grounded. Grounding will prevent build-up of static electricity which may create a spark capable of igniting flammable vapors. When transferring flammable liquids into containers, a bonding wire will be used to connect the two containers as a means of preventing sparks caused by the build-up of static electricity during pouring operations. Contact the Travis AFB Fire Department for grounding and bonding instructions.

4. Drums and other containers must be handled and transported with equipment designed for the task. Drum grappler attachments may be purchased for tow motors to securely grab and move containers. Secure containers to pallets before moving pallets. Utilize drum carts designed for the types of containers being handled to reduce the likelihood of dropping a container during handling. Never balance drums on the forks of a forklift or tow motor.

5. Use a funnel to fill closed head containers. This will ensure that all waste is poured into the container and does not spill on the top of the container. If using a funnel without a locking top, the funnel should be removed and the container closed after filling. If the funnel has any hazardous waste residues remaining, the residues should be rinsed into the container or the funnel placed in a suitable closed hazardous waste accumulation container.

6. Drums must not be stacked more than two high. Drums containing flammable liquids shall not be stacked.

7. Containers shall be stored in an area which is well away from or protected from damage due to the movement of vehicles such as trucks, fork lifts, privately owned vehicles (POVs), etc.

5.3 HAZARDOUS WASTE TURN-IN

After temporary accumulation at the point of generation, hazardous waste generated at Travis AFB is transferred to the TSDF (Building 1365). Turn-in of hazardous waste to the TSDF requires three documents: an up-to-date DRMS Form 1930 (Hazardous Waste Profile Sheet), Air Force Form 2005 (Issue/Turn-In Request), and DD Form 1348-1 (Disposal Turn-In Document).

5.3.1 Procedure for Hazardous Waste Turn-In from 90-Day Accumulation Point

Listed below is the procedure for hazardous waste turn-in from an 90-Day Accumulation Point to the TSDF. The 90-Day Accumulation Point Crew Chief initiates the process and 60 CES/CEV completes the process. Prior to transporting the hazardous waste to Building 1365, the point of contact will ensure the turn-in checklist shown in Figure 5.2 has been completed. A 60 CES/CEV representative will go over the turn-in checklist with the waste generator to ensure the turn-in is done properly.

FIGURE 5.1

BUILDING 1365 HW TURN-IN CHECKLIST

Generator:_____

Accumulation Point Crew Chief:_____

Date &Time:_____

 # Of Containers:_____

#	Checklist Item	Yes	No	N/A
1.	Has an appointment been made with 60 CES/CEV for turn-in?			
2.	Does each container have its own hazardous waste label?			
3.	Have all non-applicable markings been obliterated from the container?			
4.	Does the hazardous waste label have the following information: (1) DOT Proper Shipping Name, (2) UN or NA #, (3) Start date (day/month/year), (4) EPA , CA waste #			
5.	Is there a DOT hazard label next to the waste marking (if appropriate refer to MSDS or profile sheet)?			
6.	If the item was sampled by 60 CES/CEV, Bioenvironmental Engineering, or another agency, is the sample # on the top and side of the drum?			
7.	Were copies of the analytical given to personnel at Building 1365 when the appointment was made?			
8.	Are all markings and labels in one location on the drum (top chine on 30 gallon or larger drums)?			
9.	Is the product's common name written on the side of the container?			
10.	Is the start date listed on the side of the container (day/month/year)?			
11.	Are palletized containers marked so that the labels are always visible?			
12.	Are all containers in good condition (rust, dents, leaks, etc.) ?			
13.	Are all containers clean?			
14.	Does 4 to 6 inches of space exist between the top of the drum and the liquid?			
15.	Are the seals present under the lid or bung caps?			
16.	Are barrel ring bolts on metal drums turned down so they don't protrude above the drum?			
17.	Are lids and caps properly tightened before leaving the Accumulation Point?			
18.	Have pallets been checked to assure they are the correct size (48"W x 40"D)?			
19.	Have drivers and helpers been briefed on contents of shipment?			
20.	Have turn in personnel been briefed on spill contingency/reporting procedures?			
21.	Does the transporting vehicle/personnel have emergency and spill equipment, including two-way communication?			
22.	Have drums been secured properly for delivery (strapped around middle)?			
23.	If waste is transported off base is a HW Manifest, and Land Disposal Restriction form completed, if required?			
24.	Is an appointment (24 hr notice) for signing the manifest made with the Manifesting Office at 424-5109.			
	Comments: _____ _____ Accumulation Point Monitor (*sign*) Hazardous Waste Technician (*sign*)			

a) The 90-Day Accumulation Point Crew Chief completes DRMS Form 1930 (see Appendix D) for the hazardous waste. A DRMS Form 1930 is issued for each container of hazardous waste being turned into 60 CES/CEV. In the event more that one container of the same hazardous waste is being turned in at the same time, then one DRMS Form 1930 will be issued for the group. Assistance in completing the form can be obtained from 60 MDG/SGPB and 60 CES/CEV.

b) The 90-Day Accumulation Point Crew Chief notifies 60 CES/CEV by giving them the completed DRMS Form 1930.

c) 60 CES/CEV completes Air Force 2005 and DD Form 1348-1. Instructions for completing Air Force 2005 are found in Table 5.4, and instructions for completing DoD Form 1348-1 are found in Table 5.5.

d) 60 CES/CEV submits copies of Air Force 2005 and DD Form 1348-1 to Base Supply.

e) 60 CES/CEV and the 90-Day Accumulation Point arrange for transportation of the material from the 90-Day Accumulation Point to the TSDF.

f) 60 CES/CEV receives the container at the TSDF and checks the container condition and labeling.

g) 60 CES/CEV enters the container into the TSDF Operating Record.

5.3.2 Acceptance of Hazardous Waste From Other On-Base Generating Activities

Occasionally, small quantities of hazardous waste are generated from base functions which do not have 90-Day Accumulation Points or Satellite Sites. Examples of this type of waste generation include expired shelf-life and small spill waste oil and antifreeze. The 60 CES/CEV is contacted to follow the turn-in procedure as provided in Section 5.3.1.

Only hazardous waste from Travis AFB is accepted into the TSDF. Hazardous waste from facilities outside of Travis AFB will **NOT** be brought onto Travis AFB.

5.4 ON-BASE TRANSPORTATION

Hazardous waste that is transported on base is transported in a manner that will not endanger the health of installation personnel or the environment. The generating activity must ensure that hazardous waste is transported in the proper DOT-specified containers.

The Accumulation Point or Satellite Site Crew Chief should ensure that containers are in good condition. Prior to turning in hazardous waste, each container should be inspected by the Accumulation Point or Satellite Site Crew Chief to ensure that it is suitable for transportation. The container should have no leaks and no accumulation of liquid on the top head. Also, there should be no serious corrosion, dents, sharp creases, or bulging heads. If the container has a leak or if it is not in good condition, the waste in the drum must be transferred to a container in good condition or the container must be overpacked in a salvage drum.

TABLE 5.4

INSTRUCTIONS FOR COMPLETING AF FORM 2005

Block/Position Number	Description of Item to Enter
1-3	"TIN" to designate a turn-in action.
8-11	Federal Stock Class number which produced the waste. (See Table 5.6 for sample Federal Stock Class designation)
12-14	"PHW" in this location
15-18	EPA hazardous waste code
19-22	Contract line item number (CLIN) (Contact Base Supply for the appropriate CLIN)
23-24	Unit of waste in pounds
25-29	Quantity of the waste in pounds
30	Activity code
31-35	Organization and shop code
36-39	Julian date (Provided by Base Supply)
40-43	Local serial number (Provided by Base Supply)
44	"H" for hazardous waste
62	"9" for the Action Taken Code
I	The cost per lb/total price per pound for disposal
J	Name of the waste

TABLE 5.5

INSTRUCTIONS FOR COMPLETING DD FORM 1348-1

Block/Position Number	Description of Item to Enter
C	"HW" for hazardous waste
8-11	Federal Stock Class number which produced the waste. (See Table 5.6 for sample Federal Stock Class designation)
15-18	EPA hazardous waste code
30-43	The 14-position document number which includes the 6-position DODACC for Base Supply, the 4-position date, and the 4-position serial number in Columns 30-43
51	"A"
52-53	Appropriate fund code
74-80	Unit acquisition cost
FF	The CLIN (Contract Line Item Number) (Contact Base Supply for the appropriate CLIN)
GG	Total cost of disposal (CLIN x unit cost)
12	The 6-position bill to DODAAC if other than Base Supply DODAAC (FB2857)
W	Signature of 60 CES/CEV representative

TABLE 5.6

COMMON FEDERAL STOCK CLASSES

9150	Petroleum, oils, lubricants
8010	Paints, waste paint related material
6350	Antifreeze, windshield washer fluid
6850	Solvents
5950	Transformers
9999	Spill residue

The accumulation area Crew Chief or waste generator should contact the 60 CES/CEV to schedule an appointment for hazardous waste turn-in. Prior to a vehicle leaving with the waste, it should be closely inspected to ensure that containers are securely loaded and that incompatible wastes are not loaded next to each other. Vehicles transporting bulk waste should be examined to ensure that all pumps, valves, and fittings are closed tight and secure.

5.5 INSPECTIONS

5.5.1 Self-Inspections

Each 90-Day Accumulation Point and Satellite Site shall conduct weekly inspections and keep written records of inspection results. The TSDF shall be inspected daily. Tanks shall be inspected daily to detect/correct potential problems. (See your 90-Day Accumulation Point, Satellite Site or Daily Empty operational log table of contents). Problems may include but are not limited to equipment malfunctions, deterioration, operator errors, and discharge, which may be causing release of hazardous waste constituents to the environment or a threat to human health. In addition, persons working with hazardous waste shall continually monitor operations to ensure there are no discrepancies. Problems that can be fixed immediately will be corrected on the spot. Requirements for longer-term fixes such as constructing or repair will be documented using an Air Force Form 332. The 60 CES/CEV will constantly monitor cross flow information and check for its applicability for the hazardous waste facilities.

Inspection records shall be maintained at the Daily Empty Sites, Satellite Sites, and 90-Day Accumulation Points and the TSDF for a period of three years from the date of inspection. The self- inspection checklist for the TSDF is provided in Figure 5.3. As noted above tanks should be inspected daily. The records will document the date and time of inspection, the name of the inspector, observations made, and the date of corrective action.

General self-inspection procedures for facilities that generate or store hazardous waste must include:

- Signs posted - (Permitted facilities, 90-Day Accumulation Points hazardous_waste (bilingual sign).
- Signs posted - PCB, and if storing reactive or flammable substances, "No Smoking."
- Sufficient aisle space (minimum 3 feet) between containers for normal and emergency procedures.
- Any presence of water in curbed areas or drip pans.
- Any sign of leaks or spills on ground or containers.
- Portable fire extinguishers or fire control equipment available and operational with record of inspections.
- Emergency Eyewash/shower available and operational.

FIGURE 5.2

TSDF SELF-INSPECTION CHECKLIST

TSDF (Building 1365/1366)	Y	N
Bldg. 1365 is inspected weekly for the waste storage items listed in Self-Inspection of Hazardous Waste Facilities, in addition to the following site specific items: 1. OFFICE BLDG 1366. EVERY MORNING AND FRIDAY AFTERNOON • Check the fire detection system operation before entering yard. • Insure phones are operational. • Check integrity of personal protective equipment. 2. BUILDING 1365. EVERY MORNING AND FRIDAY AFTERNOON. • Check all dikes for leaks, cracks, or other problems that may cause failure. • Check for containers for leaks. • Check eye wash stations and fire extinguishers for leaks and proper pressure. • Check fence, lock and other security measures. • Check spill control equipment • Check container labels (DOT hazard labels, hazardous waste labels, accumulation dates). • Assure incompatible wastes are not stored together (see Table 5.1). • Check lights to make sure they are operational. • Check water to make sure it is operational. • Check fire sprinkler system for leaks. 3. TANK FARM. EVERY MORNING AND FRIDAY AFTERNOON. • Check dikes for leaks, cracks, corrosion or other problems that may cause failure. • Check discharge and overfilling equipment. • Check level of waste in tanks. • Check tanks, valves, fittings and piping for soundness and leaks. • Check pipes for leaks or cracks. • Check that tanks are properly labeled. • Check electrical equipment and wiring for loose connections. • Check for presence of waste in tanks' dikes.		

- Adequate spill control equipment and material to safely contain and cleanup leaks and small spills.
- Adequate and proper personnel protection equipment available and in good condition.
- All safety devices are operational and inspections of devices are documented and current.
- Communication equipment available.
- No hazardous waste/materials in trash or recycling receptacles.
- Containers in good condition and not deteriorating, leaking or otherwise unsafe to handle.
- Containers comply with DOT specifications.
- Containers are kept closed except when adding or removing material/waste.
- Containers holding flammable materials properly bonded and grounded when emptying or filling.
- Incompatible wastes suitably separated and protected from each other (see Table 5.1).
- Containers of hazardous waste are labeled to indicate the date accumulation started (day/month/year) or Daily Empty.
- Containers labeled with DOT hazard labels (poison, flammable liquid, etc.), if required.
- Containers not overfilled (no more than 90% of capacity, drums with 4-6 inch headspace).
- Containers on drum racks provided with leak-proof drip pans.
- Containers on pallets or otherwise elevated to prevent contact with rainwater and/or spills.
- No accumulated waste present that is over the regulated time frame.
- Floor sufficiently impermeable to prevent penetration of spilled materials into the ground subsurface.

Inspection procedures for each Tank and Oil/Water Separator during self-inspections must include:

- Construction of the tank in good condition (i.e., free of corrosion, no leaking fixtures or seams, etc.).

- No portable tank positioned near any storm drain, ditch or in any area that may be subject to flooding.
- Tanks properly marked for hazardous waste.
- Discharge control equipment and monitoring devices in good working order.
- Above ground valves, piping and supports in good condition and no leaks.
- The construction materials of the tank are compatible with the waste being stored.
- Automatic cutoff or bypass systems in good working order.
- Monitoring records reviewed and current.
- Tanks continually fed are equipped with automatic cutoff or bypass system.
- Secondary containment will retain the volume of the largest tank or tank compartment plus precipitation.
- Valves for draining dike areas are of manual, open/close design or manually operated pumps or ejectors.

When the above ground tanks at the TSDF are emptied during normal contract removal, the interior of the tanks will be inspected for corrosion and erosion of the tanks. Safety procedures for confined space entry and proper personal protective equipment are used when tank entrance is required.

5.6 RECORD KEEPING

5.6.1 60 CES/CEV

RCRA requires the maintenance of certain records. The type of records, along with the retention time and a CFR reference which describes each record, is presented in Table 5.7. 60 CES/CEV maintains or knows the locations of the files identified in Table 5.7. These files are made available to appropriate Federal and State inspectors upon request.

The 60 CES/CEV maintains copies of DRMS Form 1930, DD Form 1348-1, Hazardous Waste Manifests, Delivery Orders, and Log Books in an active file for a minimum of 3 years. After the 3 year active period all files are archived indefinitely.

The 60 CES/CEV will maintain updated copies of the HWMP and accompanying waste stream inventory, and Hazardous Waste Analysis Plan (Chapter 4 of the HWMP).

TABLE 5.7

RCRA RECORDS AND CORRESPONDING MINIMUM RETENTION PERIODS

Record or File	Retention Time	Citation
Hazardous Waste Determination	3 years from the date that the waste was last sent to a treatment storage, or disposal facility*	40 CFR 262.11
Annual Report	3 years from the due date of the report*	40 CFR 262.41
Hazardous Waste Manifest	5 years from the day the waste was accepted by the initial transporter*	40 CFR 262.20
Accumulation Site Inspection Logs	3 years from the date the inspection was conducted*	40 CFR 262.34 40 CFR 265.174 40 CFR 265.15 (d)
Exception Reports	3 years from the due date of the report*	40 CFR 262.42
EPA Acknowledgment of Consent (for exports)	3 years from the date the hazardous waste was accepted by the initial transporter*	40 CFR 262.51 40CFR 262.53
Waste Export Confirmation of Delivery	3 years from the date the hazardous waste was accepted by the initial transporter*	40 CFR 262.54
Annual Report (required of primary exporters of hazardous wastes)	3 years from the date the hazardous waste was accepted by the initial transporter*	40 CFR 262.56
Land Disposal Restriction Notice & Certification	5 years from the date the waste was last sent to a TSD facility*	40 CFR 268.7
Notification of Intent to Export Waste	3 years from the date the hazardous waste was accepted by the initial transporter*	40 CFR 262.53
Employee Training Records	Current personnel: until closure of facility Former personnel: 3 years from date the individual last worked at facility	40 CFR 262.34 40 CFR 265.16

* The periods of retention are extended automatically during the course of any unresolved enforcement action or as requested by EPA.

5.6.2 TSDF

An Operating Record will be maintained by the TSDF Manager. When hazardous waste is turned into a facility, the TSDF Manager will record the following in the Facility Operating Record:

- Date of Turn-in.
- Type of waste (if a drum contains a mixture of wastes, give the percentage of each).
- Hazardous characteristics (flammable, toxic, etc.)
- Generating shop, point of contact, phone number.
- Quantity (if drums, record the number and size of drums, and if bulk give the number of gallons).
- Total weight of each container.
- A copy of all manifests and facility closure cost estimates will be kept as part of the Operating Record. The facility manager maintains the Operating Record and the original manifest is filed at the 60 CES/CEV where it will be maintained at least three years after closure of the facility.
- In addition, records of waste analysis results, summary reports of incidents involving contingency plan implementation and results of inspections are maintained at 60 CES/CEV until closure of the base.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 6

REPORTING REQUIREMENTS

6.1 ANNUAL REPORT TO DTSC

The State of California requires hazardous waste generators, and treatment, storage and disposal facilities to submit an Annual Report to the Cal-EPA DTSC and the appropriate Regional Water Quality Control Board (i.e., San Francisco Bay Region) by 1 March of each year (22 CCR 66264.75). The report covers the previous calendar year's activities. The Annual Report is prepared by 60 CES/CEV on EPA Form 8700-13A-B and contains the following information:

- The EPA identification number and address of Travis AFB.
- The calendar year for which the report is written.
- The description and the quantity of each hazardous waste the facility received during the year.
- The method of storage for each hazardous waste.
- The most recent closure cost estimate for each facility.
- A certification of disposal method signed by the Installation Commander or designated representative regarding the wastes shipped off site.
- A certification of the above information signed by the Base Commander or an authorized representative.

Copies of the Annual Report are provided to Headquarters Air Mobility Command, Environmental Planning Branch (HQ AMC/CEVP) and to USAF Regional Environmental Office - Western Region.

6.2 EMERGENCY REPORT

Releases of hazardous waste, hazardous substances, and hazardous materials that exceed reportable quantities as defined in the California Health and Safety Code, Section 25359.4, into the environment in the State of California must be immediately reported to the DTSC (1-800-852-7550) and the National Response Center (1-800-424-8802). Refer to the Information and Emergency Contacts List presented at the beginning of the HWMP (page iii).

Refer to the Travis AFB Spill Prevention Control and Countermeasures Plan and Oil and Hazardous Substance Pollution Contingency Plan for additional requirements regarding the reporting of spills, fires, or explosions.

6.3 INCIDENT REPORT

Reports of accidents that could result in a hazard to public health and safety, domestic livestock or wildlife, or result in a discharge of hazardous waste outside the containment area will be prepared by 60 CES/CEV and submitted to the Cal-EPA DTSC within 15 days of the occurrence. Reporting for any hazardous waste incident is mandatory and shall be performed by contacting the appropriate organizations listed on the Information and Emergency Contacts List presented at the beginning of the Plan.

6.4 OTHER REPORTS

If requested by the EPA or other regulatory requirements, Travis AFB will submit reports pursuant to 40 CFR 264 (or 265 as appropriate) Subparts F and K through N.

CHAPTER 7

TRAINING REQUIREMENTS

7.1 OVERVIEW

Personnel handling hazardous wastes may be exposed to a variety of health and safety hazards. Proper training can minimize human exposure to these hazards and reduce the potential for injury. Proper training can also minimize the potential for adverse environmental impacts associated with mishandling of hazardous wastes.

The base Personnel Training Plan for Hazardous Waste Management (Chapter 7 of the HWMP) will be written, revised, and directed by 60 CES/CEV with the Environmental Protection Committee (EPC) as advisors. 90-Day Accumulation Point, Satellite Site Crew Chiefs, Daily Empty Crew Chiefs, shop supervisors, and waste handlers are expected to notify the 60 CES/CEV of any training opportunities they feel could improve hazardous waste management and operations. The program is reviewed at least annually and updated when required.

7.1.1 Training Coordinator

A member of the 60 CES/CEV staff will serve as Training Coordinator. This person will be knowledgeable of and will have received documented training in hazardous waste management procedures. This position will require continuing education in environmental laws, regulations and technical environmental subjects.

7.1.2 Group Trainers

Each Group is responsible for conducting and ensuring hazardous waste training is accomplished. All hazardous waste management trainers, whether Air Force, contractor, or other entities, must be properly trained to qualify to train other Air Force personnel. All personnel conducting hazardous waste training should receive training through the Air Force Hazardous Waste Training Program prior to training other Travis AFB personnel.

7.1.3 Personnel that Require Training

Hazardous waste management training is required for the following Travis AFB personnel who operate or handle hazardous wastes:

- 60 CES/CEV Personnel
- TSDF (Building 1365) personnel

- 90-Day Accumulation Point, Satellite Site, and Daily Empty Crew Chiefs
- Supervisors/Trainers of Hazardous Waste Generating Activities
- Industrial Shop Workers
- Group or Squadron Environmental Representatives
- Initial Emergency Response Personnel (Fire Protection Flight)
- Base Spill Clean-up Team Members

Personnel who perform any hazardous waste management activities at the above locations and at other locations on Travis AFB are required to receive job-specific training for their assigned tasks. Typical hazardous waste management tasks include:

a) Deciding which wastes are hazardous

b) Transporting, adding, or removing hazardous wastes to or from accumulation points

c) Preparing documentation such as manifests, annual or biennial reports, emergency or incident reports

d) Responding to spills, fires, or explosions involving hazardous waste

e) Inspecting hazardous waste accumulation, storage, treatment or disposal facilities

f) Conducting any tasks involving occupational exposure to, or which require management of, hazardous waste

g) Supervising personnel performing hazardous waste management activities

It is the responsibility of the 60 CES/CEV Environmental Manager to identify, in coordination with all Base Groups, and tenant organizations, any individuals requiring training using the criteria listed above.

7.1.4 Training Frequency

Initial and refresher annual hazardous waste training must be successfully completed by all personnel identified by Travis AFB using the criteria described above. New personnel with assignments that meet any of the conditions stated above must successfully complete training prior to their assignment. Until that time, untrained personnel must not perform any tasks involving hazardous waste management unless they are directly supervised by trained personnel. Each person receiving hazardous waste training must take part in an annual review of the training program. Specific training requirements by job description are presented in Section 7.2.

7.2 SCOPE OF TRAINING

7.2.1 General

The major components of hazardous waste training that must be imparted to all personnel are:

- How to perform duties in a way which ensures Travis AFB compliance with Federal, State and local hazardous waste regulations
- Hazardous waste management procedures, including contingency plan implementation
- Response to emergencies involving hazardous waste

Each training session for Travis AFB personnel will include the following general topics to meet EPA, OSHA and Air Force requirements:

a) Introduction to the Resource Conservation and Recovery Act

b) Hazardous Waste Characterization

c) Container Management

d) Hazardous Waste Accumulation Management

e) Hazardous Waste Disposal

f) Hazardous Waste Manifesting and Transportation

g) Emergency Procedures and Prevention

h) Personnel Safety and Training

i) Waste Minimization

j) Record Keeping and Reporting Requirements

Chapter 6, Training, in *AFPAM 32-7043* provides a more detailed outline of the elements to be covered in each of the above categories. It is the responsibility of each Group, in conjunction with 60 CES/CEV and other pertinent base units, to adapt the training course to cover installation-specific information to ensure that the training program meets State and regulatory requirements and fits the specific hazardous waste management training requirements of the attendees. The hazardous waste management procedures presented in this Plan should be integrated into the Travis AFB training program.

The USAF has distributed a Hazardous Waste Management Training Program, which Travis AFB uses. The computer based training program is designed to teach personnel how to properly minimize, accumulate, store, transport and turn-in hazardous waste. It also teaches personnel actions to take in the event they must respond to emergencies involving hazardous waste. This 4-hour initial training program for new personnel contains material to familiarize

personnel with Federal, and USAF regulations regarding hazardous waste. The USAF Hazardous Waste Management Computer Based Training Program is presented at 60 CES/CEV and can be signed out to the Groups and tenant organizations by the Training Director.

Annual training is required for personnel who handle hazardous waste. The refresher program reinforces previous training on procedures for minimizing, accumulating, storing, handling, transporting and turning-in hazardous waste. All levels of training will teach facility personnel hazardous waste management procedures relevant to the positions in which they are employed. This training is covered in the Travis AFB contingency plans, the Spill Prevention Control and Countermeasures Plan and the Oil and Hazardous Substance Spill Prevention and Response Plan.

7.2.2 Hazardous Waste Storage Facility Personnel

Those Travis AFB employees who will work at the TSDF receive the most extensive training. This training consists of classroom work, on-the-job training and field exercises. Personnel who work at the TSDF are required IAW 29 CFR 1910.120 to attend an initial 40-hour class and 8 hours of annual refresher training. In the classroom, they receive training on hazardous waste management procedures such as handling waste, inspecting facilities, responding to emergencies, understanding facility monitoring equipment and communicating during contingencies.

An employee safety and health briefing is given to all personnel who work at the TSDF. This briefing is documented on an Air Force Form 55. The briefing text and Air Force Form 55 are on file at the facility. At the site, TSDF personnel are briefed regarding specific requirements of the base Spill Prevention and Response Plan and they assist in updating the site specific spill plan for their storage facility. Personnel are also trained monthly on wear and use of personal protective equipment including Self-Contained Breathing Apparatus (SCBA). Additionally, TSDF personnel are trained in Cardio-Pulmonary Resuscitation (CPR) at Red Cross Sponsored CPR training hosted by the Travis AFB Fire Protection Flight.

Personnel assigned to the TSDF perform field exercises to test their ability to respond to emergency situations. These exercises involve responding to all types of situations including, but not limited to, emergencies requiring shutdown of operations, groundwater contamination incidents, natural disasters, etc. The field exercises will reinforce material already learned in previous training sessions.

Training documentation is maintained by 60 CES/CEV for the 60 CES/CEV staff and the TSDF. The Environmental Manager of 60 CES/CEV is responsible to ensure all personnel have current training. The Training Director will schedule personnel for initial and refresher training both on base and at off site programs, where available.

7.2.3 Emergency Response Personnel

The personnel likely to be involved in emergency response activities receive special training in hazardous materials awareness and hazardous materials operations for first responders.

The course is provided by the Disaster Preparedness Flight. This information is presented in the course entitled Hazardous Materials Operations for First Responders (see Spill Prevention and Response Plan and AFI 32-4002):

- Introduction
- Awareness Review
- Hazard and Risk Assessment
- Introduction to Incident Command
- Protective Clothing and Equipment
- Hazardous Materials Control
- Decontamination
- Termination Procedures
- Safety at HAZMAT Incidents
- Conclusion

The Travis AFB Fire Protection Flight will maintain records for all fire protection personnel. The Fire Chief will ensure all fire fighters have received the most current training and that their records reflect the last date and type of training.

Training documentation for 90-Day Accumulation Point primary and alternates Crew Chiefs is maintained and tracked at the accumulation points and 60 CES/CEV. The Crew Chiefs ensure that their personnel records indicate the type and date of training for all hazardous waste training received.

Workers performing duties at 90-Day Accumulation Points will be given specific training on hazardous waste handling and management by Crew Chiefs. Once a Crew Chief has completed the USAF Hazardous Waste Management Training Program, they will train workers in their functional area. Crew Chiefs will ensure that all workers in their functional area who handle hazardous waste are trained in basic spill response techniques and hazard recognition. This training supplements the hazard communication training given by the Military Public Health Office (60 MDG/SGPM).

7.2.4 Supervisors of Hazardous Waste Generating Activities

Supervisors receive initial and annual USAF Hazardous Waste Management Training from 60 CES/CEV or the designated training representative for that unit. Supervisors of personnel who work with hazardous materials on base receive training through the Air Force Hazard Communication Program. The Military Public Health Office (60 MG/SGPM) and Bioenvironmental Engineering Office (60 MDG/SGPB) are the focal points for the Hazard Communication Program. Supervisors track training and ensure assigned personnel are properly trained and documented in Hazard Communication and Hazardous Waste

Management. Document on the accumulation point duties and training documentation form or on the industrial worker duties and training documentation form. (See Appendix D).

7.2.5 Daily Empty Monitors

Daily Empty Monitors receive initial and annual USAF Hazardous Waste Management Training from 60 CES/CEV or the designated training representative for that unit. Document on the accumulation area duties and training documentation form. (See Appendix D).

Daily Empty Monitors may be tasked by their supervisors to train industrial shop workers on proper handling and disposal of hazardous waste. Document on the industrial worker duties and training documentation form (See Appendix D).

7.2.6 Industrial Shop Workers (ISWs)

All personnel who work with hazardous materials on base are given hazard communication and safety training on the job by their supervisors. This training is documented in the individuals personnel records. Training documentation for ISWs is maintained by the shop supervisors. Supervisors will ensure that personnel records in their functional area indicate the type and date of training for all hazardous waste training received.

Supervisors will ensure all industrial workers in their functional area who handle hazardous wastes are trained in basic spill response techniques and hazard recognition. The site specific industrial worker lesson plan covers these areas. (The Site-Specific Spill Plans and the Oil and Hazardous Substance Spill Prevention and Response Plan are an excellent resource when conducting training).

7.2.7 Base Spill Clean-up Team Personnel

Personnel will receive 40 hours of spill response awareness and operations level training with an 8 hour annual refresher. This training is to be funded by individual units. The training will provide the necessary skills to properly identify hazardous substances and to understand potential risks. Training will educate members on how to select and properly use protective equipment, how to perform containment and cleanup of hazardous substances, and how to implement basic decontamination procedures. Personnel assigned to the base spill clean-up team will attend Disaster Control Group training. The training will be provided by the Disaster Preparedness Flight as a one time training requirement. Personnel will also receive Self Contained Breathing Apparatus (SCBA) training, given by the Base Fire Protection Flight.

The base spill cleanup teams are composed of personnel assigned to the 60th Support Group, the 60th Logistics Group and the 60th Medical Group. They are tasked to respond and perform containment, recovery, cleanup, disposal and restoration activities to spills when requested/directed by the On Scene Commander.

7.2.8 Environmental Flight (60 CES/CEV)

Those persons assigned to the 60 CES/CEV involved in directing the Hazardous Waste Management Program at Travis AFB will complete the USAF Hazardous Waste

Management Training Program annually and will attend an initial 40 hour class and 8 hours of annual refresher training (Table 7.1), and accomplish the following:

- Develop a thorough knowledge of Federal and State hazardous waste regulations.
- Supplement training with hazardous waste reference books and periodicals to stay current in the field.

Dependent upon their responsibilities, personnel may also receive Self Contained Breathing Apparatus (SCBA) training, given by the Base Fire Protection Flight.

7.2.9 Group or Squadron Environmental Representative

Group or Squadron Environmental Representatives will, as a minimum, receive initial and annual USAF Hazardous Waste Management Training from 60 CES/CEV. The Environmental Representative is a liaison between assigned squadrons and the 60 CES/CEV.

7.3 RECORDKEEPING

Training records must be maintained which document that all appropriate personnel have successfully completed their required training. Records must be kept for current employees as long as they work on the installation, and for three years after the date they leave the base (or stop working at a position related to hazardous waste management). Training records may accompany personnel transferred to another installation; however, a copy of the record must be kept at Travis AFB for the three year period after their transfer.

Training records for those personnel assigned to the TSDF will be kept at the 60 CES/CEV with a copy on file at the appropriate storage facility. These training records will include each employee's name, job title, job description and the training received. Shop supervisors in their respective shops will keep the original training records for all other personnel. This information will be kept on file for the individual's period of employment, plus three years. Each employee must sign a dated statement when they complete initial or refresher hazardous waste training, which must be kept on file in each accumulation site's operations log.

It is the responsibility of each accumulation site to maintain on file a written job description for each position related to hazardous waste management. For the purposes of RCRA training record-keeping, the job description need only describe the job as it relates to the management and handling of hazardous waste. The description should also identify the requisite skills, education, or other qualifications and the duties of the facility personnel assigned to each position. Job descriptions should be annually reviewed by each accumulation site in coordination with the appropriate supervisory personnel and used as a basis for identifying potential training candidates in Table 7.1.

TABLE 7.1

HAZARDOUS WASTE TRAINING REQUIREMENTS FOR TRAVIS AFB PERSONNEL

Personnel	A.F. 4-hr Hazardous Waste Management	Annual Refresher Hazardous Waste Management	Hazard Communication	CPR/ First Aid	OSHA 40-hr HAZWOPER	OSHA 8-hr Annual Refresher	OSHA HAZWOPER Supervisor	SCBA Use	Hazardous Materials Operations for First Responder
CES/CEV Personnel	R	R	R	D	R	R	D	D	D
TSDF Personnel	R	R	R	R	R	R	D	R	
Accumulation Point Crew Chiefs	R	R	R	D					
Satellite Site Crew Chiefs	R	R	R	D					
Daily Empty Monitors	R	R	R	D					
Industrial Shop Workers	R	R	R	D					
Supervisors of Hazardous Waste Generating Activities	R	R	R	D					
Spill Response Personnel	R	R	R	R	R	R	D	R	R
Emergency Response Personnel	R	R	R	R	R	R	D	R	R
Group or Squadron Environmental Representative	R	R	R	D					

R: Required

D: Dependent upon responsibilities

CHAPTER 8

CONTINGENCY PLAN SUMMARY

8.1 OVERVIEW OF SPILL PREVENTION AND RESPONSE

Emergency response and actions for incidents involving hazardous substances are conducted on Travis AFB in accordance with the Travis AFB Spill Prevention Control and Countermeasures Plan and the Travis AFB Oil and Hazardous Substance Pollution Contingency Plan, also known as the Spill Prevention and Response (SPR) Plan. Copies of the SPR Plan are kept on file in the operational log of the TSDF, 90-Day Accumulation Points, and Satellite Sites. Copies are also provided to all base emergency response agencies and those units that handle hazardous waste/material. This HWMP is complemented by the Travis AFB Operations Plan 32-1 (Travis AFB OPLAN 32-1). Spills will be documented on 60 AMW Form 98 and turned into 60 CES/CEV within eight hours of spill.

Site Specific Contingency Plans exist for each hazardous waste storage facility and all accumulation areas where hazardous waste is handled. Each plan is maintained at the respective facilities with a copy of all plans filed at the Base Fire Protection Flight and 60 CES/CEV. All site-specific plans include evacuation routes for the site addressed.

If an evacuation of Building 1365 or the area around the above ground storage tanks is necessary, the following actions will be taken:

- The signal for evacuation will be given by voice.
- All personnel, visitors and contractors will immediately leave through the gate at the south end of the storage area and clearing the road of all vehicles (thus permitting access by emergency vehicles).
- All personnel will be accounted for by their supervisors and reported to the storage facility operator.

No further entry of any personnel or vehicle will be permitted into the area unless authorized by the On-Scene Commander (refer to the SPR Plan for further details).

The Site Specific Contingency Plans and SPR Plan are implemented in the event of any leaks, spills or other incidents involving the release or potential release of hazardous wastes. The Travis AFB OPLAN 32-1 is implemented under the direction of the Commander, 60th Air Mobility Wing or designated representative in the event of any disaster situation involving military resources which is beyond the capability of normal response agencies.

The Travis AFB Fire Protection Flight will respond to all fires, explosions and releases of oil, fuel or other hazardous substances. Based on the scope and nature of the emergency, the Fire Chief may recommend implementation of Travis AFB OPLAN 32-1.

8.2 ON-SCENE COMMANDER (OSC) RESPONSIBILITIES

A designated On-Scene Commander is on emergency call 24 hours per day, 7 days per week at telephone number 4-911 (base and hospital duty phones) or 911 (base family housing phones). The primary OSC for Travis AFB is the Commander, 60th Support Group with the Deputy Commander as Alternate OSC. Additional alternates will be appointed as needed. The senior fire officer acts as the OSC until the Support Group Commander or designated alternate arrives on scene and assumes those responsibilities.

The basic responsibilities of the OSC are outlined below and expanded in detail in the SPR Plan.

- Assess the emergency situation and its resulting health and environmental effects.
- Activate and direct appropriate response teams.
- Take appropriate actions to protect human health and the environment considering the nature of the hazardous substance release.
- Initiate spill containment and cleanup activities as necessary.
- Direct all required notification to Air Force, local, state and federal agencies as outlined in Paragraph 4.4 of the SPR Plan.

8.3 AGREEMENT WITH LOCAL AUTHORITIES

Travis AFB has a fully equipped and trained fire department, and a security police force. Travis AFB's hospital, a major medical center called David Grant Medical Center has Bioenvironmental and emergency services. In addition, other support agencies and heavy equipment are available to respond to spills or other incidents involving hazardous substances. These agencies are, in essence, the base "local authorities" and respond to all emergencies on Travis AFB as directed.

Mutual Aid Support Agreements and Memorandums of Understanding exist between Travis AFB and local agencies off-base if their support is needed. This support is requested in accordance with *AFI 32-7060*. The agencies with existing support agreements include:

- Solano County Fire Districts
- Solano County Coroner
- North Bay and Vaca-Valley Medical Centers

8.4 CONTAINER SPILLS AND LEAKS

Emergency response actions for container spills or leaks are addressed in the SPR Plan. These actions encompass initial notification, internal communications, emergency response, command/control, containment/cleanup, protection of human health/environment, and required notification/reports to Air Force, local, state and federal agencies. Specific reporting instructions are outlined in the SPR Plan.

8.5 TANK SPILLS AND LEAKS

Procedures to follow in the event of a leak or spill from a tank are given in the Travis AFB Spill Prevent Control and Countermeasures Plan. They are summarized here.

Immediately after a spill or leak is detected from a tank or its components, measures will be taken to prevent any further release of hazardous waste. Depending on the nature of the leak/spill, this may entail stopping the pump, closing valves or simply removing the contents of the tank. If the waste has leaked into the secondary containment system, which is an integral part of the tank, its structural integrity will be inspected to ensure full containment of the waste. The waste will be removed from the containment system within 24 hours or as soon as practicable while constantly monitoring it for leaks.

If the spill involved leakage from the pipe system onto the concrete containment area, the pad's drainage valve will be checked to ensure it is closed and the waste collected immediately by pumping it into proper containers and the concrete surface cleaned with absorbent.

The collected waste will be tested to determine if it remains suitable for recycling. If recycling is not an option due to contamination, the waste will be properly disposed of.

Proper notifications and reports will be made in accordance with the SPR Plan, providing the following information:

- Likely route of migration of release.
- Characteristics of surrounding soil including the area's hydrogeology and climate.
- Results of any monitoring or sampling conducted in connection with the release.
- Proximity to down gradient drinking water, surface water and populated areas.
- Description of response actions taken or planned.

The failed system causing the leak/spill must be repaired and provided a secondary containment system if one did not already exist prior to returning the tank to service. If the repairs were extensive, an independent registered professional engineer must certify the repairs within seven days after returning the tank system to service.

If repairs to the tank system are not possible or practicable, the tank must be closed following its approved closure plan.

THIS PAGE INTENTIONALLY LEFT BLANK

CHAPTER 9

POLLUTION PREVENTION PROGRAM SUMMARY

9.1 INTRODUCTION

Pollution Prevention (P2) addresses the reduction and recycling of ozone depleting substances (ODS), hazardous waste/industrial waste and municipal solid waste; reduction of EPA-17 target chemicals, Toxic Release Inventory (TRI) chemicals and pesticides; and programs for affirmative procurement, energy conservation, and water conservation. Travis AFB established a pollution prevention program that crosses functional areas to meet these Federal and Air Force goals and objectives.

9.2 POLLUTION PREVENTION MANAGEMENT PLAN

Travis AFB has prepared and will regularly update a Pollution Prevention Management Plan (PPMP) pursuant to Air Force requirements stipulated in *AFI 32-7080, Pollution Prevention Program*. The PPMP will be maintained by the 60 CES/CEV as a stand-alone document. The purpose of the PPMP is to provide a road map for base personnel to prevent pollution by implementing the following hierarchy of action: reducing the use of hazardous materials (source reduction), reusing generated waste and recycle waste not reusable (recycling), employing treatment, and only as a last resort, disposing of wastes (end-of-pipe treatment).

The PPMP will address the process required to run a pollution prevention program; pollution prevention project funding requirements; a plan to meet pollution prevention metric goals; and actions required to execute the program. The PPMP is based on reoccurring Opportunity Assessments undertaken for pollutant generating activities at Travis AFB. The PPMP will contain management strategies for the following program elements:

a) Hazardous wastes

b) EPA 17 industrial toxic chemicals

c) Municipal solid waste

d) Ozone depleting chemicals (ODS)

e) Affirmative procurement of environmentally friendly products

f) Energy conservation

g) Air and water pollutant reduction

9.3 OZONE DEPLETING SUBSTANCES

ODS are substances that deplete the earth's stratospheric ozone layer, and contribute significantly to greenhouse warming. Some examples include chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs) which are used in ground air conditioning and refrigerant systems, automobile air conditioning systems, cleaning solvents and aerosol sprays. Another category of ODS is halon. Halons are primarily used in fire suppression systems and for vector control in some missile systems. Other controlled substances include carbon tetrachloride and methyl chloroform, which are used primarily as cleaning solvents and methyl bromide, which is used as a pesticide and fumigant. Tables 9.1 and 9.2 show the Ozone Layer Depleting Chemicals, Class I and Class II, respectively.

Notes on CAS Numbers:

1. DR in a number indicates a deleted registry number that was replaced with another registry number.

2. Some chemicals have multiple CAS numbers because registry numbers were assigned on premise that it was a trade name, although the chemical may be the same as another one already listed.

3. Multiple forms of this chemical exist, all with different CAS numbers.

The eight use categories are as follows:

1. Refrigeration: Air Conditioning
2. Blowing Agent for Plastics
3. Fire Extinguishing Agent
4. Solvent: Dry Cleaning Agent; Degreaser
5. Intermediate for Synthesis of Other Compounds
6. Dielectric Gas
7. Aerospace Chemical
8. Fumigant: Pesticide

A "0" in the use column indicates the compound has no practical use.

These compounds are not manufactured deliberately for any application.

9.4 HAZARDOUS WASTE

Hazardous waste on Travis AFB is generated through many processes typical to most Air Force installations. However, identification of new hazardous waste streams is ongoing and requires constant attention. Hazardous waste disposal quantities are reported in pounds and include hazardous waste disposal throughout the installation. Opportunities exist in almost all processes to reduce and/or eliminate hazardous waste. Each unit should conduct opportunity assessments to define current waste management practices, characterize existing waste streams and assess actions needed to reduce and/or eliminate waste. Units should also cross check these processes with their opportunity assessments to ensure all waste streams have been identified. Assessments should be done at all facilities on base as appropriate toward reaching the pollution prevention goals.

TABLE 9.1

OZONE LAYER DEPLETING CHEMICALS, CLASS I ODS

Halocarbon Number	Chemical Name	Primary Uses	CAS Number
CFC-11	Trichlorofluoromethane	1, 2, 3, 4, 5	75-69-4
CFC-12	Dichlorodifluoromethane	1, 2, 4	75-71-8
CFC-113	Trichlorotrifluoroethane	2, 3, 4	76-13-1
CFC-114	Dichlorotetrafluoroethane	1, 2, 3, 4, 6	76-14-2
CFC-115	Chloropentafluoroethane	6	76-15-3
Halon 1202	Dibromodifluoromethane	3	75-61-6
Halon 1211	Bromochlorodifluoromethane	3, 7	353-59-3
Halon 1301	Bromotrifluoromethane	1, 3, 5	75-63-8
Halon 2402	Dibromotetrafluoroethane	1, 3	124-73-2
CFC-13	Chlorotrifluoromethane	6, 7	75-72-9
CFC-111	Pentachlorofluoroethane	0	954-56-3
CFC-112	Tetrachlorodifluoroethane	4	76-12-0
CFC-211	Heptachlorofluoropropane	0	422-78-6
CFC-212	Hexachlorodifluoropropane	0	3182-26-1
CFC-213	Pentachlorotrifluoropropane	0	2354-06-5
CFC-214	Tetrachlorotetrafluoropropane	0	29255-31-0
CFC-215	Trichloropentafluoropropane	0	4259-43-2
CFC-216	Dichlorohexafluoropropane	0	661-97-2
CFC-217	Chloroheptafluoropropane	0	422-86-6
Carbon Tetrachloride	Tetrachloromethane	1, 4, 5, 8	56-23-5
Methyl Chloroform	Trichloroethane	4, 5, 8	71-55-6
Methyl Bromide	Bromomethane	4, 5, 8	74-83-9

TABLE 9.2

OZONE LAYER DEPLETING CHEMICALS, CLASS II ODS

Halocarbon #	CLASS II ODS	Uses	CAS Number
HCFC-21	Dichlorofluoromethane	1, 4	75-43-4, DR39289-28-6
HCFC-22	Chlorodifluoromethane	1, 4, 5	74-97-5, DR73666-77-0
HCFC-31	Chlorofluoromethane	0	593-70-4
HCFC-121	Tetrachlorofluoroethane	0	See Note 3 below
HCFC-122	Trichlorodifluoroethane	0	See Note 3 below
HCFC-123	Dichlorotrifluoroethane	1, 3	See Note 3 below
HCFC-124	Chlorotetrafluoroethane	1, 3	See Note 3 below
HCFC-131	Trichlorofluoroethane	0	See Note 3 below
HCFC-132	Dichlorodifluoroethane	0	See Note 3 below
HCFC-133	Chlorotrifluoroethane	0	See Note 3 below
HCFC-141	Dichlorofluoroethane	2	See Note 3 below
HCFC-142	Chlorodifluoroethane	1, 4, 5	See Note 3 below
HCFC-221	Hexachlorofluoropropane	0	See Note 3 below
HCFC-222	Pentachlorofluoropropane	0	See Note 3 below
HCFC-223	Tetrachlorotrifluoropropane	0	See Note 3 below
HCFC-224	Trichlorotetrafluoropropane	0	See Note 3 below
HCFC-225	Dichloropentafluoropropane	0	See Note 3 below
HCFC-226	Chlorohexafluoropropane	0	See Note 3 below
HCFC-231	Pentachlorofluoropropane	0	See Note 3 below
HCFC-232	Tetrachlorodifluoropropane	0	See Note 3 below
HCFC-233	Trichlorotrifluoropropane	0	See Note 3 below
HCFC-234	Dichlorotetrafluoropropane	0	See Note 3 below
HCFC-235	Chloropentafluoropropane	0	See Note 3 below
HCFC-241	Tetrachlorofluoropropane	0	See Note 3 below
HCFC-242	Trichlorodifluoropropane	0	See Note 3 below
HCFC-243	Dichlorotrifluoropropane	0	See Note 3 below
HCFC-244	Chlorotetrafluoropropane	0	See Note 3 below
HCFC-251	Trichlorofluoropropane	0	See Note 3 below
HCFC-252	Dichlorodifluoropropane	0	See Note 3 below
HCFC-253	Chlorotrifluoropropane	0	See Note 3 below
HCFC-261	Dichlorofluoropropane	0	See Note 3 below
HCFC-262	Chlorodifluoropropane	0	See Note 3 below
HCFC-271	Chlorofluoropropane	0	See Note 3 below

9.5 MUNICIPAL SOLID WASTE

Solid waste reduction, pollution prevention and conservation of natural resources are the goals of Travis AFB's Resource Recovery and Recycling Program (RRRP), Travis AFB Instruction 32-206. Elements of the Travis AFB RRRP include recycling, composting, and advocacy. Each unit should establish and run the recycling program and support the composting program to the maximum extent possible, and to advocate for the resources needed for a successful program.

9.6 THE U.S. EPA-17 TARGET CHEMICALS

Potential reduction/recycle methods are common methods available to reduce the use of the U.S. EPA-17 chemicals or recycle those that are being used. Personnel are reminded that prior to making any substitution for chemicals used in a process, they must obtain concurrence of the engineering authority with management responsibility for any applicable Technical Orders (TO). Table 9.3 outlines the target chemical listing and typical uses.

9.7 TOXIC RELEASE INVENTORY (TRI)

On 3 August 1993, President Clinton signed Executive Order 12856 requiring all Federal agencies to comply with the Emergency Planning and Community Right-To-Know Act (EPCRA) and to commit Federal agency planning, management, and acquisition resources to fulfill the intentions of the Pollution Prevention Act. Among its provisions, this act requires industry to notify state and local emergency planning entities of the presence and quantities of hazardous materials at their facilities and to notify Federal, state, and local authorities of inventories and releases of those substances. The EPCRA is a stand-alone amendment to the Superfund Amendments and Reauthorization Act (SARA).

Chapter 313 of EPCRA is of significant importance to Air Force installations. This Chapter requires Federal facilities to submit annual U.S. EPA Toxic Release Inventory (TRI) reports by 1 July each year for the previous calendar year's data. The first reports covered calendar year 1994, the baseline year.

9.8 AFFIRMATIVE PROCUREMENT

Affirmative procurement is the process of procuring products containing recovered materials. RCRA, as amended, and Executive Order (EO) 12873 establish federal requirements for management of Municipal Solid Wastes (MSW) and the procurement of products containing recovered materials. The EPA has designated the following specific items (Table 9.4) as containing recovered materials for procurement:

The EO requires agencies to review their specifications for these designated items and to procure items containing recovered materials whenever possible. Establishing an affirmative procurement plan is an integral part to achieving this reduction goal.

TABLE 9.3

THE EPA-17 TARGET CHEMICAL LIST AND TYPICAL USES

ORGANICS	TYPICAL USES	CAS # (for pure substance, not compounds)
Benzene	Fuels, solvents, inks, paint thinner, component in plastics and tires	71-43-2
Toluene	Solvent in paints and coatings, fuels, cleaning agents, plastics	108-88-3
Xylene (includes ortho-, meta-, and para-)	Solvent in paints and coatings, cleaning agents, fuels	varies
Carbon Tetrachloride	Bearing cleaning and PMEL	56-23-5
Chloroform	Cleaning agents in Bearing shop, present in fluorocarbons	67-66-3
Dichloromethane (methylene chloride)	Wipe down cleaner, paint stripper, foam blowing	75-09-2
1,1,1 Trichloroethane (1,1,1-TCA)	Parts cleaning, degreasing	71-55-6
Trichloroethylene (TCE)	Degreasing, paints	79-01-6
Methyl Ethyl Ketone (MEK)	Paints, cleaning agents adhesives, inks, gun cleaning, thinners	78-93-3
Methyl Isobutyl Ketone (MIBK)	Paints, cleaning agents	108-10-1

INORGANICS	TYPICAL USES	CAS # (for pure substance, not compounds)
Cadmium and Compounds	Plating operations, batteries, pigments, chemical cleaning	7440-43-9 (Pure Cd)
Chromium and Compounds	Plating and paint preparation	7440-47-3 (Pure Cr)
Cyanides	Plating solutions	varies
Lead and Compounds	Batteries, paint, sealing compounds, lead solders	7439-92-1 (Pure Pb)
Mercury and Compounds	Laboratories, mercury vapor lamps, thermostats	7439-97-6 (Pure Hg)
Nickel and Compounds	Plating operations, batteries, welding	7440-02-0 (Pure Ni)

TABLE 9.4

PRODUCTS CONTAINING RECOVERED MATERIALS

- Building insulation products
- Cement and concrete with fly ash
- Paper and paper products
- Retreaded tires
- Lubricating oils
- Ground granule furnace slag
- Engine coolants
- Structural fiberboard
- Laminated paperboard
- Carpet
- Floor tile
- Patio blocks
- Traffic cones
- Traffic barricades
- Playground surfaces
- Running tracks
- Hydraulic mulch
- Yard trimming compost
- Office recycling containers
- Office waste receptacles
- Plastic desktop accessories
- Toner cartridges
- Binders
- Plastic trash bags

9.9 ENERGY CONSERVATION

The Travis AFB goal to reduce facility energy (natural gas, coal, electricity, fuel oil, etc.) is 10 percent by 1994, 20 percent by 1999, and 25 percent by 2004 on a BTU/sq. ft basis, with 1985 consumption as the baseline; and a 20 percent increase in industrial facilities energy use efficiency from a 1990 baseline. It also requires the Air Force to identify and accomplish all energy conservation actions, which pay back in ten years, or less, by the year 2005.

Energy conservation reduces pollution through the reduction of greenhouse gas emissions, protection of the stratospheric ozone, and prevention of acid precipitation. As electricity is generated by burning fossil fuel or operating nuclear reactors, it produces emissions of trace metals such as beryllium, cadmium, chromium, copper, manganese, mercury, nickel, and silver. Reducing energy generation decreases boiler ash, and scrubber and spent nuclear waste. It also lessens the need to mine and transport virgin fuels, and dispose of power plant wastes.

9.10 WATER CONSERVATION

The *Air Force Pollution Prevention Strategy* requires Air Force installations to identify and accomplish all water conservation actions which pay back in ten years or less. This is to be accomplished by 2005. Energy and water conservation are both mandated by Executive Order 12902 and the Energy Policy Act. The Defense Energy Program Procedural Memorandum (DEPPM) 94-1 incorporates water conservation into the Energy program. Air Force Energy Program Procedural Memorandum (AFEPPM) 96-2 addresses the Air Force Water Management Program. Water conservation is related to energy conservation and pollution prevention in two ways. First, approximately 80 percent of the cost of water production (on a nationwide basis) results from the energy required to provide water. Second, reductions in water use will create corresponding reductions in wastewater treatment, which in turn reduces energy requirements, chemical usage, and the potential for environmental compliance issues associated with effluent discharge.

The Travis AFB goal is to save water, money and to reduce the quantity of water used/wasted. The first step is to educate to help change the attitudes of the base population. There is a need to emphasize that water is a valuable resource that should be conserved, not wasted.

Conservation can be achieved through reduction. The following processes have been identified for reduction.

- Human consumption. The key here is to eliminate the waste associated with water consumption. If you want a drink consider drinking all you have poured. This applies to all water related beverages (coffee, tea, juice concentrate mixes, dry powder mixes and water used in food preparation).

- Washing/Cleaning. This category can be broken down into two areas. Personal hygiene and cleaning operations. Water use associated with hygiene can be reduced by limiting shower times, lowering bath water levels and by not leaving the water

running while shaving, washing and brushing teeth. Cleaning covers the home and industrial areas, from dishwashing to cleaning aircraft. A key to water reduction in the home is limiting water usage time using spring loaded nozzles and a bucket when washing vehicles, and by rinsing dishes in the sink instead of rinsing with running water. Wash full loads of laundry. Sweeping driveways with a broom instead of rinsing with water can eliminate runoff. Industrial cleaning applications can be reduced by limiting the usage of high pressure systems and the quantity of items cleaned, or by grouping items together for cleaning. Simply turning off hoses when not in use can eliminate leaks at nozzles and connections while water pressure is still present.

- Irrigation. Water during approved base watering schedules. Insuring sprinklers are adjusted/placed correctly can reduce overspray and run off. Timers can be adjusted to eliminate ground saturation. Industrial applications may have access to recycled water sources for landscaping.

9.11 HAZARDOUS WASTE MINIMIZATION

The Hazardous Waste Minimization program is referenced in the Travis AFB Pollution Prevention Management Action Plan (P2 MAP), Chapter 3. The P2 MAP meets the requirements identified in the California Bill 14, pertaining to hazardous waste source reduction.

9.12 POLLUTION PREVENTION REPORTING

9.12.1 Air Force

The 60 CES/CEV will report quarterly summaries of hazardous waste generation and prior year data to the installation Environmental Protection Committee for evaluating pollution prevention progress. These reports will be provided to higher Air Force authority to measure Travis AFB's performance against DoD and Air Force reduction goals.

9.12.2 Federal and State

Annual RCRA reports completed by 60 CES/CEV must describe efforts undertaken during the previous year to reduce the volume and toxicity of waste generated and changes in volume and toxicity of waste achieved in comparison to previous years. The EPA requires annual and biennial hazardous waste reporting. The PPMP and waste generation reports will be used as the primary sources of information for compilation of this data.

Executive Order 12586 requires that Travis AFB comply with the requirements of the Emergency Planning and Community Right-to-Know Act (SARA Title III). The 60 CES/CEV will provide Toxic Release Inventory (TRI) data and other required reports for tracking and prevention of releases of chemicals above threshold values to the EPA.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A

PROCEDURE TO HANDLE ABANDONED DRUMS

APPENDIX A

PROCEDURE TO HANDLE ABANDONED DRUMS

SITUATION

A container or containers (drum(s) of any size, plastic container(s) or cylinder(s)) spotted on base.

PROCEDURE

The finding shall be reported immediately to 60 CES/CEV. 60 CES/CEV will contact the Fire Department and Base Command Post.

All will meet at a considerable distance, up wind, from the finding and with binoculars try to find labels, markings, or any other identification.

The HAZMAT Emergency Response Team will be called and the information will be made available to them so that they can prepare a site specific plan to approach the finding area.

The HAZMAT Emergency Response Plan will be placed in effect and the HAZMAT Emergency Response Team will take over to identify, move, and, in coordination with 60 MDG/SGPB, dispose of the finding.

The ownership will be determined if possible. If ownership can not be established, then OSI will be called to investigate.

APPENDIX B

GLOSSARY OF TERMS

APPENDIX B

GLOSSARY OF TERMS

90-Day Accumulation Point: A point near one or more shops having a container(s) used for collecting hazardous wastes after which it is transported to an approved and permitted storage area for subsequent disposal in accordance with applicable regulations. Also known as a "collection point."

Aerosolization: The releasing of particles into the air.

Application: The EPA standard forms for applying for a permit to operate hazardous waste storage facilities.

Authorized Representative: The person responsible for the overall operation of a facility or an operational unit, i.e., part of a facility (e.g., the plant manager, superintendent or person of equivalent responsibility).

Biohazard: The presence of microorganisms, such as bacteria, viruses, or fungi, that are capable of causing infectious diseases in humans.

Chemical Disinfection: Use of a chemical agent to reduce significantly the microbial activity. The chemical agent should be registered with the EPA as a disinfectant and used in accordance with manufacturer directions.

Chlorine Disinfection/Maceration: Process of shredding waste in the presence of a chlorine disinfectant solution under negative pressure.

Closed Portion: That portion of a facility which an owner or operator has closed in accordance with the approved facility closure plan and all applicable closure requirements.

Collection Point: See "90-Day Accumulation Point."

Container: Any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

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. Reference 40 CFR 265.51-56.

Dike: An embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

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.

Disposal: The discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water such that the solid or hazardous waste or any constituent thereof may enter the environment, be emitted into the air, or discharged into any waters, including ground waters.

Disposal Facility: A facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure.

Daily Empty: A point near one or more shops having a container(s) used for collecting hazardous wastes after which it is transported to an approved and permitted storage area for subsequent disposal in accordance with applicable regulations, not to exceed 24 hours storage.

EPA Hazardous Waste Number: The number assigned by EPA to each hazardous waste listed in 40 CFR Part 261 Subpart D, and to each characteristic identified in 40 CFR Part 261 Subpart C.

EPA Identification Number: The number assigned by EPA to each generator, transporter, and treatment, storage, or disposal facility.

Encapsulation: Treatment of waste using materials which, when fully reacted, will encase the waste in a protective matrix.

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 impoundment's, or combinations thereof).

Federal Agency: Any department, agency, or other instrumentality of the Federal Government, any independent agency or establishment of the Federal Government including any government corporation, and the Government Printing Office.

Floodplain: The lowland and relatively flat areas adjoining inland waterways and coastal areas of the mainland and off-shore islands, including at a minimum, areas subject to a one percent or greater chance of flooding in any given year.

General Waste Stream: Route of solid waste disposal.

Generator: Any person, by site, whose act or process produces hazardous waste identified or listed in Title 40, Code of Federal Regulations (CFR), Part 261.

Ground Water: Water below the land surface in a zone of saturation.

Hazardous Waste: Any solid waste listed as hazardous under RCRA, 40 CFR 261, or that poses a significant threat to human health or safety because it is toxic, ignitable, corrosive, or reactive, as determined by specific tests.

Hazardous Waste Management Facility: All contiguous land including structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combination of them).

High-Volume Waste Stream: Generates four or more 55-gal drums of waste per year.

Incineration: Burning of waste to ashes.

Incompatible Waste: A hazardous waste which is unsuitable for:

(a) Placement in a particular device or facility because it may cause corrosion or decay of containment materials; e.g., containers' inner liners; or

(b) Co-mingling: Mixing wastes or material under uncontrolled conditions. This action has the potential to produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes, or gases, or flammable fumes or gases.

Individual Generation: The contiguous site at or on where 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.

Infectious: Describing a virus, bacterium, fungus, or protozoan that can invade a host to produce disease. The term is also applied to a disease caused by some pathogenic microbe as opposed to a disease that is not.

In Operation: Refers to a facility that is treating, storing, or disposing of hazardous waste.

Low-Volume Waste Stream: Generates three or fewer 55-gal drums of waste per year.

Management or Hazardous Waste Management: Systematic control of the collection, source separation, storage, transportation, processing, recovery, and disposal of hazardous waste.

Manifest: The shipping document originated and signed by the generator that contains the information required by 40 CFR 262, Subpart B.

Manifest Document Number: The serially increasing number assigned to the manifest by the generator for recording and reporting purposes.

Matrix Spike: Laboratory Term, constituent of concern is added to the sample container in order to verify recovery rates of the analyte.

Medical Waste: Discarded paraphernalia associated with the practice of medicine, such as plastic tubing, needles, syringes, test tubes, and specimen containers.

On-Site Property: Geographically contiguous property which may be divided by public or private rights-of-way, provided the entrance and exit between the properties are at a crossroad or interChapter and access is by crossing, as opposed to following the right-of-way. Also, non-contiguous properties owned by the same person and connected by a right-of-way under the owner's control not accessible to the public.

Owner: The person or government entity who owns a facility or part of a facility.

Partial Closure: The closure of a discrete part of a facility in accordance with the applicable closure requirements of 40 CFR 264 and 265. For example, partial closure may include the closure of a trench, a unit operation, a landfill cell, or a pit, while other parts of the same facility continue in operation or will be placed in operation in the future.

Personnel or Facility Personnel: All persons who work at or oversee the operation of a hazardous waste facility, and whose actions or failure to act may result in non-compliance with any of the requirements of 40 CFR 264 and 265 of the regulation.

RCRA: The Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended, 42 U.S.C. Chapter 6901 et seq.

Representative Sample: A sample of a universe or whole (e.g., waste pile, lagoon or ground water) which can be expected to exhibit the average properties of the universe or whole.

Runoff: Any rainwater, leachate, or other liquid that drains over land from any part of a facility.

Run On: Any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

Solid Waste: Waste material not discarded into surface waters via water treatment systems or directly into the atmosphere. Under Federal regulations, the term can include waste in solid or liquid form as well as gaseous material.

APPENDIX C

REFERENCES

APPENDIX C

REFERENCES

40 Code of Federal Regulations 259, Standards for the Tracking and Management of Medical Waste.

40 Code of Federal Regulations Parts 260-299.

49 Code of Federal Regulations Parts 100-177.

DoD, 19--. Defense Reutilization and Marketing Manual. DoD 4160.21-M.

Travis Air Force Base, 1993. Medical Squadron Regulation 168-29, 70th Medical Squadron (AFMC). 13 August.

Travis Air Force Base, 1993. Pollution Prevention Opportunity Assessments for Process Wastes and Toxic Chemicals for Travis AFB Final Report. 31 August.

Travis Air Force Base, Contingency Response Plan 10-211.

U.S. Air Force, 1989. Hazardous Waste Management and Minimization. Air Force Regulation 19-11. 14 July.

U.S. Air Force, 1991. Air Force Hazardous Waste Management Policy. 6 June.

U.S. Air Force, 1994. Environmental Protection Committees. AFI 32-7005. February 25.

U.S. Air Force, 1994. Interagency and Intergovernmental Coordinator for Environmental Planning. AFI 32-7060. March 25.

U.S. Air Force, 1994. Pollution Prevention Program. AFI 32-7080. May 12.

U.S. Air Force, 1994. Solid and Hazardous Waste Compliance. AFI 32-7042. May 12.

U.S. Air Force, 1994. Environmental Information Management System. AFI 32-7002. May 31.

U.S. Air Force, 1994. Medical Service Environmental Quality Programs. AFI 48-119. July 25.

U.S. Air Force, 1995. Hazardous Waste Management Guide. AFPAM 32-7043. 1 November.

U.S. Air Force, 1998. USAF Operation Planning Process. AFI 10-401. May 1.

U.S. Air Force, 1999. The Fire Protection Operation and Fire Protection Program. AFI 32-2001. April 1.

U.S. Air Force, Aerospace Environmental Operations. AFM 2-31.

U.S. Air Force, Air Force Occupational Safety and Health Standards (AFOSH).

USEPA, 1980. Samplers and Sampling of Hazardous Waste Streams. USEPA 600/2-80-018.

USEPA, 1994. Waste Analysis: EPA Guidance Manual for Facilities that Generate, Treat, Store, and Dispose of Hazardous Waste. OSWER 9938.4-03.

APPENDIX D

LAND BAN STANDARDS

STANDARDS FOR LAND BAN WASTE

CORRESPONDING PROHIBITION LEVEL

The following waste must be accompanied by a notification and, if appropriate, a certification to the treatment or disposal facility: liquid hazardous wastes containing certain metals, free lodes, polychlorinated biphenyls (PCBs), corrosives with a pH of less than or equal to two (2.0), and liquid and non-liquid hazardous waste containing halogenated organic compounds (HOCs). These restricted wastes and their prohibition levels follow:

Any RCRA waste that is a liquid and has:

_____ A pH < 2.0 must be treated so that it has a pH > 2,0.***
_____ Arsenic > 500 mg/l must be treated so that concentration is < 500 mg/l***
_____ Cadmium > 100 mg/l must be treated so that concentration is < 100 mg/l***
_____ Chromium VI > 500 mg/l must be treated so that concentration is < 500 mg/l***
_____ Lead > 500 mg/l must be treated so that concentration is < 500 mg/l***
_____ Mercury > 20 mg/l must be treated so that concentration is < 20 mg/l***
_____ Nickel > 134 mg/l must be treated so that concentration is < 134 mg/l***
_____ Selenium > 100 mg/l must be treated so that concentration is < 100 mg/l***
_____ Thallium > 130 mg/l must be treated so that concentration is < 130 mg/l***
_____ Total cyanides > 1,000 mg/l must be treated so that concentration is < 1,000 mg/l***
_____ PCB > 50 and < 500 PPM must be incinerated or burned in high-efficiency boiler
_____ PCB > 500 PPM must be incinerated
_____ Dilute wastewater containing > 1,000 mg/l and < 10,000 mg/l liquid HOCs* must be treated to <1,000 mg/l***
_____ Wastewater that is not dilute and contains > 1,000 mg/l liquid HOCs* must be incinerated
_____ Solid HOCs* > 1,000 mg/kg must be incinerated

* HOC's that are listed in 40 CFR 268, App. III
** If these wastes are rendered non-liquid, they are no longer considered restricted wastes.
NOTE: Where a single constituent is addressed under more that one rule making, the applicable treatment standard or prohibition level is that for the more specific waste.

CORRESPONDING TREATMENT STANDARDS

Instructions: For each solvent waste constituent present in this F001, F002, F003, F004 or F005 waste, check the appropriate box in front of the treatment standard(s) which apply to this waste.

F001-F005 spent solvents.
Treatment standards effective 11/8/86.

	Treatment Standard (mg/l) Wastewater		All other wastes *	
Acetone	_____	0.05	_____	.59
n-Butyl alcohol	_____	5.00	_____	5.00
Carbon disulfide	_____	1.05	_____	4.81
Carbon tetrachloride	_____	0.05	_____	.96
Chlorobenzene	_____	0.15	_____	.05
Cresols	_____	2.82	_____	.75
Cresylic acid	_____	2.82	_____	.75
Cyclohexanone	_____	.125	_____	.75
2-Dichlorobenzene	_____	.65	_____	.125
Ethyl acetate	_____	.05	_____	.75
Ethyl benzene	_____	.05	_____	.053
Ethyl ether	_____	.05	_____	.75
Isobutanol	_____	5.00	_____	5.00
Methanol	_____	.25	_____	.75
Methylene chloride	_____	.20	_____	.96
Methylene chloride from Pharmaceutical industry	_____	12.70	_____	.96
Methyl ethyl ketone	_____	.05	_____	.75
Methyl isobutyl ketone	_____	.05	_____	.33
Nitrobenzene	_____	.66	_____	.125
Pyridine	_____	1.12	_____	.33
Tetrachloroethylene	_____	.079	_____	.05
Toluene	_____	1.12	_____	.33
1.1.1-Trichloroethane	_____	1.05	_____	.41
1,2,2-Trichloroethane	_____	1.05	_____	.96
1,1,2-Trifluoroethane	_____	1.05	_____	.96
Trichloroethylene	_____	.062	_____	.091
Trichlorofluoromethane	_____	.05	_____	.96
Xylene	_____	.05	_____	.15

The treatment standards in this group are based on incineration.

CORRESPONDING TREATMENT STANDARDS CONT.

F020, F021, F022, F023, F026, F027 or F028 dioxin containing wastes.

	Treatment Standard	
HxCDD-All Hexachlorodibenzo-p-dioxins	____	< 1 ppb
HxCDF-All Hexachlorodibenzofurans	____	< 1 ppb
PeCDD-All Pentachlorodibenzo-p-dioxins	____	< 1 ppb
PeCDF-All Pentachlorodibenzofurans	____	< I ppb
TCDD-All Tetrachlorodibenzo-p-dioxins	____	< I ppb
TCDF-All Tetrachlorodibenzofurans	____	< I ppb
2,4,5-Trichlorophenol	____	< 0.05 ppm
2,4,6-Trichlorophenol	____	< 0.05 ppm
2,3,4,6-Tetrachlorophenol	____	< 0. 10 ppm
Pentachlorophenol	____	< 0.01 ppm

Note: Where a single constituent is addressed under more than one rule, the applicable treatment standard or prohibition level is that for the more specific waste stream.

APPENDIX E

OPERATIONAL LOGS

HAZARDOUS WASTE 90-DAY AND SATELLITE ACCUMULATION POINT OPERATIONAL LOG

Items identified by an asterisk (*) may be kept in a location outside of the operational log. These cross-references (Optional Form 21) must provide the location of the item(s) identified in the applicable section of the operational log and these items must be readily accessible when requested.

Items that are not identified with an asterisk will have the last current copy filed in the operational log. Maintain only the current page(s) of the hazardous waste records in the operational log. Old Appointment Letters, Training Data, Inspection Data, Etc should be removed from the operational log and stored with the archived hazardous waste records.

1. TABLE OF CONTENTS

2. HAZARDOUS WASTE MONITOR APPOINTMENT LETTER
(The 90-day hazardous waste accumulation site primary and alternate monitors require 60 CES/CEV endorsement).

3. *TRAINING DATA
a. 90-Day Hazardous Waste, Satellite Site and Daily Empty Site/Industrial Worker Duties and Training Documentation, & Air Force Form 1098, (Special Task Certification and Recurring Training)
b. Work Center Industrial Worker Lesson Plan (Reviewed annually)

4. * TRAVIS AFB HAZARDOUS WASTE AND SPILL CONTINGENCY PLANS
a. TAFB Hazardous Waste Management Plan
b. TAFB Oil & Hazardous Substance Spill Prevention and Response Plan
c. Site Specific Spill Contingency Plan (Reviewed annually)

5. HAZARDOUS WASTE SITE INSPECTION DATA
a. Site Specific Inspection Checklist
b. Weekly Inspection Log
c. Inspection Results of Last Staff Assistance Visit (60 CES/CEV)
d. Results of Last State EPA Inspection

6. * HAZARDOUS WASTE TRACKING LOGS
a. Waste Control Log (Used for tracking waste turned into the 90-daysite)
b. Daily Turn-In Log (Used for waste turned into the 90-Day Hazardous Waste Accumulation Site by the Satellite/Daily Empty Sites)

7. HAZARDOUS WASTE ANALYSIS
a. Hazardous Waste Analysis Log
*b. Waste Analytical Results

8. *HAZARDOUS WASTE LABELING DATA
   a. Example labels, Profile sheets and MSDS's

9. HAZARDOUS WASTE TURN-IN DATA
   a. Turn-in Procedures and Turn-in Checklist

10. MISCELLANOUS. DATA

(This section is used to maintain the latest policy letters, operating instructions and any additional hazardous waste requirements you think are applicable to your hazardous waste process/operations).

HAZARDOUS WASTE DAILY EMPTY SITES OPERATIONAL LOG

Items identified by an asterisk (*) may be kept in a location outside of the operational log. These cross-references (Optional Form 21) must provide the location of the item(s) identified in the applicable section of the operational log and these items must be readily accessible when requested.

Items that are not identified with an asterisk will have the last current copy filed in the operational log. Maintain only the current page(s) of the hazardous waste records in the operational log. Old Appointment Letters, Training Data, Inspection Data, Etc should be removed from the operational log and stored with the archived hazardous waste records.

1. TABLE OF CONTENTS

2. HAZARDOUS WASTE MONITOR APPOINTMENT LETTER
(The primary and alternate monitors require the squadron commander or designated representative endorsement).

3. *TRAINING DATA
a. 90-Day Hazardous Waste, Satellite Accumulation and Empty Daily Site/Industrial Worker Duties and Training Documentation, & Air Force Form 1098, (Special Task Certification and Recurring Training)
b. Work Center Industrial Worker Lesson Plan (Reviewed annually)

4. HAZARDOUS WASTE SITE INSPECTION DATA
a. Site Specific Inspection Checklist
b. Weekly Inspection Log
c. Inspection Results of Last Staff Assistance Visit (60th AMW/EM)

5. SITE SPECIFIC SPILL PLAN (Reviewed annually)

6. HAZARDOUS WASTE LABELING DATA
Example Labels Used At the Hazardous Waste Site

7. MISCELLANEOUS DATA
(This section is used to maintain the latest policy letters, operating instructions or any additional hazardous waste requirements you think are applicable to your hazardous waste process/operations).

APPENDIX F

TRAINING DOCUMENTATION

90-DAY HAZARDOUS WASTE, SATELLITE ACCUMULATION AND EMPTY DAILY SITE/INDUSTRIAL WORKER DUTIES AND TRAINING DOCUMENTATION

NAME (Last, First, Middle Initial) /**GRADE:** _____

WORK CENTER/OFFICE SYMBOL: _____

DATE ASSIGNED TO WORK CENTER: _____

JOB TITLE & DUTIES (Check all that apply)

☐ **Industrial Worker:** Individual that handles hazardous waste(s), but are not responsible for maintaining a hazardous waste storage/accumulation area. This training will, as a minimum, consists of information on container management, emergency reporting procedures, responsible individuals, hazardous materials on hand, location of protective/cleanup equipment, procedures for containing any spilled materials, and waste site emergency procedures.

☐ **Monitor:** Responsible for ensuring proper handling, segregation, labeling, security, disposal, inspection, and record keeping of hazardous wastes accumulated in the designated area(s). Accomplishes tasks in accordance with all existing regulations.

☐ **Trainer:** Ensure that personnel involved in the hazardous waste generation process are trained. Maintain records of training for their accumulation point.

☐ **Supervisor:** Ensure that programs exist to minimize hazardous wastes.

TRAINING: Individual must complete initial training before performing HW duties and receive refresher training annually. Initial/annual training consists of computer based training (CBT) and site specific training. Refer to the work-center-training plan and the site specific spill plan when accomplishing the site-specific training.

RECORDS: Maintain this form with the AF Form 1098 in the hazardous waste operational log. These forms must be maintained as part of your hazardous waste records for a minimum of three years after the individual has departed the organization. When this individual departs, remove the forms from the operational log and maintain the forms with the HW records.
NOTE: If the annual refresher training is due while the individual is TDY, enter the start and stop date of the TDY and complete the training before returning to hazardous waste duties.

	Start Date	Stop Date
INDIVIDUAL WAS TDY:	_____ /	_____
INDIVIDUAL WAS TDY:	_____ /	_____

DATE REASSIGNED, OR TERMINATION OF EMPLOYMENT: _____

INSTRUCTIONS FOR COMPLETING AF FORM 1098

Column A – Type of training (Use one row for CBT and another row for Site Specific)
Column B – The date training was completed
Column C – Signature of trainer
Column D – Trainee's initials
Column E – The results of training (**P**-Pass, Go/no go standard)
Column F – Level of CBT accomplished **I**, **II**, or **III** (See 1997 HW CD ROM training levels)
Column G – Initial (**I**) or annual (**A**) training accomplished
Column H – The due date of the next annual refresher training

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

TASK OR RECURRING TRAINING AND TECHNICAL REFERENCES	DATE COMPLETED	SIGNATURE OF CERTIFYING OFFICIAL	INITIAL OF TRAINEE	EVALUATION OR TRAINING			
				SCORE OR HOURS	TYPE	FRE-QUENCY	DUE DATE
A.	B.	C.	D.	E.	F.	G.	H.

E OF TRAINEE *(Last, First, Middle Initial)*	GRADE	UNIT AND OFFICE SYMBOL

SPECIAL TASK CERTIFICATION AND RECURRING TRAINING

TASK OR RECURRING TRAINING AND TECHNICAL REFERENCES A.	DATE COMPLETED B.	SIGNATURE OF CERTIFYING OFFICIAL C.	INITIAL OF TRAINEE D.	EVALUATION OR TRAINING SCORE OR HOURS E.	TYPE F.	FRE-QUENCY G.	DUE DATE H.

OF TRAINEE *(Last, First, Middle Initial)*	GRADE	UNIT AND OFFICE SYMBOL

APPENDIX G

DISTRIBUTION LOG FOR SITE-SPECIFIC SPILL PLANS

DISTRIBUTION LOG FOR 90-DAY AND SATELLITE HAZARDOUS WASTE ACCUMULATION SITE-SPECIFIC SPILL PLAN

A copy of the contingency plan and all its amendments shall be maintained at the hazardous waste accumulation point or permitted facility. File one copy in your operational log and provide a copy to each agency listed below.

Please annotate the date of the latest change, the affected pages and insure that each point of contact initials the appropriate block documenting their receipt of the plan.

NOTE: Remember to revise the date of your plan when making changes.

DATE OF CHANGE	PAGE NUMBER	CEV	CEF	SEG	SPOL	SGPB	DTSC *

*** Permitted facilities (Bldg. 1365 & 956) only**

***POINTS OF CONTACT ARE*:**

CEF (Fire Department)	BLDG 560	4-3886
SEG(Wing Safety)	BLDG 250	4-3842
	B-Bay, 2nd Floor	4-4616
SFOL (Security Forces)	BLDG 850	4-2691
L E Superintendent		4-3293
SGPB (David Grant Med. Ctr.)	BLDG 777	7-5490
EMC (Environmental Mgt.)	BLDG 246	4-5126,4321,7518
DTSC (* State EPA)		800-852-7550

APPENDIX H

ASBESTOS NOTICE AND CERTIFICATION FORM

Asbestos Notice And Certification Form

The waste identified on manifest number _____ and bearing California Waste Code _____ is subject to land disposal restrictions contained in Article 40, Title 22, California Code of Regulations. The waste meets the definition of a treated hazardous waste pursuant to Health and Safety Code, Section 25179.3 (1)(2), which states that waste is considered treated if the waste does not contain any substances above the Soluble Thresholds Limit Concentration values established in Article 11, title 22, California Code of Regulations; and the waste is not prohibited from land disposal as provided in Health and Safety Code, Section 25179.6.

(Waste analysis is attached for these wastes. where available.)

As required by Article 40, Title 22, California Code of Regulations, the following certification is made for these wastes:

I warrant that I am an authorized representative of the generator. I certify under penalty of the law that the waste complies with the treatment standards specified in the California Code of Regulations, Title 22, Division 4.5, Chapter 18, Section 66268.114. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

GENERATOR: _____

ADDRESS: _____

Print name _____

Signature _____

Title _____

Date _____

APPENDIX I

SPILL OR RELEASE RELATED FORMS

HAZARDOUS MATERIAL SPILL/RELEASE WORKSHEET

Complete this form and deliver to your group Environmental Management section. Route to 60 AMW/EMC, Fax: 4-0833. Note: All times to be entered as Military time (24 hour clock)

INFORMATION SUPPLIED BY *(Name, Rank, Duty Phone)*	ORGANIZATION *(Office Symbol, address)*
TIME OF SPILL *(Time, Date, Year)*	TERMINATION TIME

LOCATION OF SPILL *(Building, Parking spot, Aircraft tail number)*

TYPE OF MATERIAL SPILLED *(JP-8, Diesel, Gasoline, ect.)*	QUANTITY SPILLED *(Approximately quantity)*	SPILL CLASSIFICATION (I, II, III)

CAUSE OF SPILL *(Description of incident)*

FIRE DEPARTMENT RESPONSE ☐ YES ☐ NO	FIRE DEPARTMENT ARRIVAL TIME *(approximately)*	DEPARTURE TIME OF FIRE DEPARTMENT *(approximately)*

ENVIRONMENTAL PERSONNEL RESPONDING *(Name, Rank/titles, Squadron, Arrival times)*

INCIDENT COMMADER	ENVIRONMENTAL MANAGEMENT
FIRE DEPARTMENT	BIOENVIRONMENTAL
SAFETY	OTHER
SPILL CLEANUP START TIME	SPILL CLEANUP COMPLETION TIME

WHO CLEANED UP SPILL *(Name, Rank, Squadron, or Spill team)*

WHO SUPERVISED CLEANUP (*Name, Rank, Squadron)*

WHAT MATERIALS WERE USED FOR CLEAN UP *(Absorbent medium)*

WHAT WAS DONE WITH THE CLEANUP MATERIALS *(Stored or disposed of location, packaging materials used, bags, drums)*

AMOUNT OF SPILL RECOVERED *(Approximate quantity, liquid volume or weight)*

DID ANY OF THE SPILL NOT GET RECOVERED *(Approximate quantity, liquid volume or weight)*

DID ANY SPILL ENTER *(Check one or all that apply)* ☐ STORMDRAINS ☐ SEWERS ☐ SOIL	LOCATION(S) OF ITEMS CHECKED (Building, Parking spot, Street)

WERE THERE ANY ACTUAL OR POTENTIAL HAZARDS TO HUMAN HEALTH OR TO THE ENVIRONMENT DIRECTLY OR INDIRECTLY RELATED TO THE SPILL/RELEASE? *(fire, explosion, toxic or irritating)*

CORRECTIVE MEASURES OR SUGGESTION TO PREVENT REOCCURRENCE? WHAT WAS DONE IN THIS CASE? *(Continuation on reverse)*

60 AMW FORM 98, MAR 97 ***(EF) (Form Flow)***

CLASSIFICATION OF SPILL BASED ON SIZE
Class I Spill involving an area less than 2 feet in any direction. Class II: Spill not over 10 feet in any one direction or over 50 square feet and not of a continuing nature Class III: Spill involving an area over 10 feet in any direction or larger than 50 square feet or of a continuing nature.
CORRECTIVE MEASURES OR SUGGESTION TO PREVENT REOCCURENCE: WHAT WAS DONE IN THIS CASE (*Continuation of Front Page*)
DESCRIPTION OF ACTIONS TAKEN
INCIDENT COMMANDER
FIRE DEPARTMENT
SAFETY
ENVIRONMENTAL MANAGEMENT
BIOENVIRONMENTAL
OTHER

60 AMW FORM 98, MAR 9(*EF) (REVERSE*)

APPENDIX J

DRMS FORM 1930 – HAZARDOUS WASTE PROFILE SHEET

HAZARDOUS WASTE PROFILE SHEET

PART I

A. GENERAL INFORMATION

1. Waste Profile Number:	2. Generator Name:	3. Facility Address:	4. Generator USEPA/ID:
	TRAVIS AIR FORCE BASE, CALIFORNIA	60 SPTG/CEV TRAVIS AFB, CA	CA5570024575

5. Generator State ID:	6. Zip Code:	7. Technical Contract:	8. Title:
HA HQ36-038318	94535-2700		

B. GENERAL INFORMATION

1. Name of Waste:	2. USEPA or State Waste Code(s):	3. Process Generating Waste:

4. Projected Annual Volume/Units:	5. Mode of Collection:

6. Is this waste a dioxin listed waste as defined in 40 CFR 261.31 (*e.g. F0202, F022, F023, F026, F027, or F028*)?: [ ] YES [x] NO

7. Is this waste restricted from land disposal (*40 CFR 268*)?:	8. Has an exemption been granted?:
[x] YES [ ] NO	[ ] YES [x] NO
9. Does the waste meet applicable treatment standards?:	10. Reference standards:
[x] YES [ ] NO	

PART II

1. MATERIAL CHARACTERIZATION *(Optional-not required data)*

1a. Color:	1b. Density:	1c. BTU/LB:	1d. Total Solids:

1e. Ash Content:	1f. Layering:
	[ ] MULTILAYERED [ ] BILAYERED [ ] SINGLE

2. RCRA CHARACTERISTICS

2a. Physical State: [ ] SOLID [ ] LIQUID [ ] SEMI-SOLID [ ] GAS [ ] OTHER _____

2b. Treatment Group: [ ] WASTEWATER [ ] NON-WASTEWATER

2c. Ignitable (D001): FLASHPOINT _____ °F

2e. Reactive (D003): Water Reactive Cyanide Reactive Sulfide Reactive

2f. Corrosive (D002): PH:_____ Corrodes Steel

2g. Toxicity Characteristic:

3. Chemical Composition (ppm or mg/L)

COPPER_____ PHENOLICS_____

NICKEL_____ TOTAL HALOGENS_____

ZINC _____ VOLATILE ORGANICS_____

CHROMIUM-HEX_____ PCSs _____

OTHER_____

NOTE: Explosive, shock sensitive, pyrophoric, radioactive, and etiological suite normally are not accepted by the DRMO.

4. Material Composition

COMPONENT	CONCENTRATION	RANGE

5. SHIPPING INFORMATION

5a. DOT Hazardous Material?	5b. Hazard Class:	5c. UN or NA Number:
[ ] YES [ ] NO		

5d. Proper Shipping Name:	5e. Additional Description:

5f. Method of Shipment:	5g. CERCLA Reportable Quantity (RQ):	5h. Emergency Response Guide Page:
[ ] BULK [ ] DRUM [ ] OTHER		

5i. DOT Publication 5800.6 Guide Number/Edition (yr.):	5j. Special Handling Information:

6. GENERATOR CERTIFICATION

Basis for information

Chemical analysis (Attach test results)

User knowledge (Attach supporting documents-Explain how and why these documents comply with RCRA requirements)

I,_____ ,hereby certify that all information submitted in this and all attached documents is to the best of my knowledge an accurate representation of the waste turned in to the DRMO. All known or suspected hazards have been disclosed.

SIGNATURE:	DATE:

60 AMW 104, MAY 96 ***(EF)***

APPENDIX K

HAZARDOUS WASTE LABELS

COMMON NAME:_____

RQ LABEL
REQUIRED
Y__ N____
LBs_____

HAZARDOUS WASTE

STATE AND FEDERAL LAW PROHIBIT IMPROPER DISPOSAL.

IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY, THE U.S. ENVIRONMENTAL PROTECTION AGENCY OR THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL.

GENERATOR INFORMATION:

NAME United States Air Force

ADDRESS Travis Air Force Base **PHONE** (707) 424-5126

CITY Travis AFB **STATE** CA **ZIP** 94535

EPA ID NO. / **MANIFEST DOCUMENT NO.** CA 5570024575 / _____

EPA WASTE NO._____ **CA WASTE NO.**_____ **ACCUMULATION START DATE**_____

CONTENTS, COMPOSITION:_____

PHYSICAL STATE: ☐ **SOLID** ☐ **LIQUID** ☐ **GAS**

HAZARDOUS PROPERTIES: ☐ **FLAMMABLE** ☐ **TOXIC** ☐ **CORROSIVE** ☐ **REACTIVITY** ☐ **OTHER**_____

_____

_____ (FP:)

D.O.T. SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

Label

DOT LABEL
REQUIRED
Y__ N____
_____
_____

CAUTION

CONTAINS

PCBs

(Polychlorinated Biphenyls)

A toxic environmental containment requiring special handling and disposal in accordance with U.S. Environmental Protection Agency Regulations 40 CFR 761-For Disposal Information contact the nearest U.S. EPA Office

---

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 L

ENVIRONMENTAL GUIDANCE FOR DEPLOYED UNITS

ENVIRONMENTAL CHECKLIST

Awareness and preplanning are key to a successful Operation while minimizing harm to the environment.

THINGS TO REMEMBER:

* KNOW THE THEATER POLICIES
* FOLLOW AIR FORCE SAFETY AND ENVIRONMENTAL REGULATIONS
* TRAIN PERSONNEL BEFORE MOBILIZING
* ESTABLISH HAZARDOUS MATERIAL INVENTORIES AND HANDLING PROCEDURES
* PROPERLY STORE AND LABEL HAZARDOUS WASTE
* CERTIFY ALL WATER SOURCES
* SITE WASTE FACILITIES DOWNSTREAM AND DOWNWIND
* APPROVE DISPOSAL METHODS
* PLAN FOR CONTINGENCIES
* **REPORT** ALL INCIDENTS
* **DON'T** BURY HAZARDOUS WASTE
* IF IN DOUBT, **CALL** YOUR ASSIGNED HEADQUARTERS

CONTACTS AND REFERENCES

Prior to deploying, become familiar with all Applicable environmental planning and reference documents. The following agencies can assist in providing theater specific guidance and policies.

CONTACTS

Southwest Asia	US CENTAF Civil Engineer DSN 965-3249
South America & Central America	US SOUTH AF Civil Engineer DSN 361-4553
European Theater	USAFE Civil Engineer DAN 448-0476

REFERENCES

- **DOD Directive 5100.50,** Protection and Enhancement of Environmental Quality, 7 Dec 73.
- **DOD Directive 6050.7,** Environmental Effects Abroad of Major Department of Defense Actions
- **DOD Directive 6050.16,** DOD Policy for Establishing, and Implementing Environmental Standards at Overseas Installations, 20 Nov 91.
- **Overseas Environmental Baseline Guidance Document,** October 1992.
- **AFI 32-7006,** Environmental Program in Foreign Countries, 29 Apr. 94.
- **AFP 93-12, Volume VI,** Expedient Construction Methods.
- **AMC Omnibus Plan (U),** Environmental Tab, Civil Engineering

Prepared by HQ AMC/CEVC, DSN 576-5763
June 1994

ENVIRONMENTAL

GUIDANCE

FOR DEPLOYED UNITS

Headquarters Air Mobility Command
Directorate of Civil Engineering

PURPOSE

This pamphlet offers general guidance on environmental responsibility by units deployed in foreign countries. DOD policy is to "fully integrate environmental considerations into our defense policy... (and) ensure that we protect the environment during military operations." Specific rules concerning environmental issues are affected by Final Governing Standards (FGS), Status of Forces Agreements, International Agreements, and laws of host nations. The following guidance offers a basic outline of the environmental considerations deployed units need to address while conducting and planning military operations. The deployed civil engineer provides environmental support to the local commander including the environmental coordinator function. When specific questions arise concerning environmental policy and service requirements, local commanders need to consult their assigned component headquarters.

LOCAL WATER SOURCES

Ensure the local medical unit certifies all water sources. This includes drinking water and non potable sources.

SOLID AND LIQUID WASTE MANAGEMENT

Consult AFP 93-12, Volume VI, "Expedient Construction Methods", for guidance on constructing field sanitation facilities.

SOLID WASTE

Incineration is the preferred disposal method for solid waste. If waste is buried, dig trenches perpendicular to the prevailing winds. The trench must be deep enough to contain the long term solid waste stream and to bury with a daily cover not less than 24 inches and a final cover of 30 inches. Properly mark all closed trenches.

HUMAN WASTE

The preferred disposal methods in order of precedence, are sanitary waste disposal systems, burnout latrines, and slit trenches. Conduct all open burning downwind of populated areas. Cover slit trenches with not less than 24 inches of earth fill (12 inches of compacted fill, level to the ground surface, and 12 inches of mounded fill) prior to departure from the site. Post a sign showing the date of closure and the words "Closed Latrine" at each closed site.

GRAY WATER

Locate effluent from showers and bathing facilities downstream of military and civilian water sources. Ensure proper drainage of gray water from construction runoff to prevent pooling and creation of new pest breeding sites.

MEDICAL WASTE

Medical infectious waste is defined as potentially infectious waste, either by fluid or fluid contaminated material, that has the potential to transmit disease. Authorized disposal methods are incineration, autoclave disinfection, and, in some cases, disposal through a sanitary sewer system. Medical officials must approve all disposal methods.

HAZARDOUS MATERIALS/WASTE MANAGEMENT

HAZARDOUS MATERIALS

Store and maintain hazardous materials according to appropriate service and federal directives. Maintain a complete inventory of all hazardous materials. Prior to deployment, ensures each person who handles hazardous materials receives the base OSHA Hazardous Communications training managed by the Military Public Health office. Construct facilities that include:

1. Fire fighting and spill cleanup capability.
2. Secondary containment system for spills.
3. Adequate shelter to protect containers from corrosion, damage, or accidental releases.
4. Separation of incompatible materials.
5. Security against entry by unauthorized persons.

HAZARDOUS WASTE

Prior to deployment, ensure each person who handles hazardous waste receives the base Hazardous Waste Management training given by the Environmental flight. This training provides specific waste handling procedures on classifying waste and packaging for shipment according to DOT regulations. Although this training outlines stateside requirements, deployed units will use the same procedures to the maximum extent feasible. Deployed units must establish hazardous waste collection points for storing wastes until turn-in to the Defense Logistics Agency (DLA). The DLA designated agent will evacuate the hazardous waste to a suitable disposal site.

SPILL PREVENTION AND CONTROL

Each base must have a spill prevention/control plan and form teams trained to respond to spills. Detachments must coordinate spill response support with the nearest base if internal capability does not exist. Report any environmental incident/accident or hazardous material spill through service engineer channels to the relevant component headquarters.

FLORA AND FAUNA PROTECTION

Destruction of plant and animal life for clearing fields of fire, for health maintenance, welfare, and safety is permitted. Obtain approval for destruction and clearing of large areas to eliminate enemy concealment through operational channels and coordinate clearing methods through engineering and medical channels.

ARCHEOLOGICAL AND HISTORICAL PRESERVATION

Minimize basing and conducting operations in the vicinity of archeological and historical buildings to protect such areas from war damage. Weigh the environmental impact against the military advantage to be gained before destroying such areas and, if time permits, obtain coordination and approval through operational channels.