PERMIT ATTACHMENT D
WASTE ANALYSIS PLAN

D-1 Introduction

This Waste Analysis Plan (**WAP**) has been prepared to support the RCRA Part B Permit Application for the CSU at HAFB, New Mexico. The CSU is used to store waste prior to shipment for off-site disposal. A detailed description of the CSU and a discussion of the facility's design and operation are provided in Permit Attachments B and C of this Permit, respectively. This WAP provides information on the characteristics of wastes that are stored at the CSU. Much of this information can be obtained through acceptable knowledge, also called process knowledge, as described in Section D-2. However, if the waste cannot be characterized with certainty by knowledge of the process, the waste streams must be sampled to safely manage the waste. Sampling and analytical protocols for required waste sampling at the CSU are outlined in the Sampling and Analysis Plan (**SAP**) presented below in Section D-4. The New Mexico Hazardous waste Management Regulations 20.4.1.500 NMAC, incorporating 40 CFR §264.13(a)(1) require waste characterization through acceptable (process) knowledge, analysis, or historical data to provide all the information needed to store, and ultimately dispose of the waste, as required by 20.4.1.300 NMAC, incorporating 40 CFR §264.13 and 40 CFR §268. Specific topics covered in this plan to ensure compliance with these requirements and proper waste management include:

- Waste Analysis Approach;
- Identification/EPA Classification of Hazardous Waste Managed;
- Selecting Waste Analysis Parameters;
- Criteria and Rationale for Parameter Selection;
- Special Parameter Selection and Procedural Requirements;
- Sampling and Analysis Plan.

D-1.1 Waste Characterization Objectives

The WAP prescribes the procedures used to properly characterize hazardous waste. These procedures, when implemented, are intended to meet the following objectives:

- To determine all information that must be known to treat, store and dispose of the wastes in accordance with New Mexico's Hazardous Waste Regulations 20.4.1.500 NMAC, incorporating 40 CFR §264.13 (a)(1);

- To determine if the waste is hazardous as required by 20.4.1.300 NMAC, incorporating 40 CFR §262. 10 (c) and §262.11;
- To ascertain the hazardous constituents in a waste stream to identify all applicable hazardous waste codes and all underlying hazardous constituents as required by 20.4.1.300 NMAC, incorporating 40 CFR §262.11, 20.4.1.800 NMAC, incorporating §268.7 (a)(2), and §268.9 (a);
- To ascertain whether the waste must be treated before it can be land disposed as required by 20.4.1.800 NMAC, incorporating 40 CFR §268.7 and §268.9;
- To ascertain whether a routine waste generating process has changed sufficiently to create a new waste stream and alternative regulatory requirements as required by 20.4.1.800 NMAC, incorporating 40 CFR§264.13 (a)(3)(1), §268.7 (a)(3)(iii), and §268.7 (b)(3)(ii));
- To facilitate appropriate waste packaging for transportation as required by 20.4.1.300 NMAC, incorporating 40 CFR §262.10 (h);
- To ascertain the presence and concentration of wastes constituents that might cause unlawful air emissions as required by 40 CFR §270.25 (a), §264.179, §264.200, §264.13 (b)(6), §264.601 (c)(1), §264.1050, and §264.1082);
- To ensure that wastes are not inappropriately diluted to avoid LDR treatment requirements as required by 20.4.1.800 NMAC, incorporating 40 CFR §268.3;
- To determine the presence of prohibited waste as required by 40 CFR §268.50 (f);
- To determine the presence of free liquids in wastes as required by 40 CFR §270.15 (b)(1), §264.13 (b)(6));
- To ascertain waste/waste and waste/container compatibility characteristics as required by 40 CFR §270.15, §270.16, §264.172, §264.177, and §264.199; and
- To ascertain waste ignitability and reactivity characteristics as required by 40 CFR §270.16 (j), §264.17 (a), and §264.198 (a).

D-2 Waste Analysis Approach

D-2.1 Acceptable (Process) Knowledge

The CSU at HAFB accepts waste that is generated from numerous facilities and shops on Base. For many of these waste streams, acceptable (process) knowledge can be used to make a waste characterization using data developed under 40 CFR Part 261, or existing published or documented data on the hazardous waste or on hazardous waste generated by a similar process, as specified in 40 CFR §264.13(a)(2). For example, the generator of

a waste stream may know and be able to document that none of the constituents in a given waste are hazardous. For other waste streams, analytical samples have been historically collected and used to make waste characterizations. The characterization for a waste stream, whether it is based on acceptable (process) knowledge or historical data, is reevaluated any time the process generating the waste is changed.

Some wastes turned in to the CSU cannot be characterized by one of the above methods. Samples of these wastes are collected and analyzed to draw conclusions about the waste characteristics and disposal requirements. Many of these waste streams are generated in the course of fulfilling the mission of HAFB. For waste streams that are generated, a representative sample is collected and analyzed prior to disposal to facilitate identification of waste characteristics. Subsequent wastes from the same process are then characterized by the results of the initial sample. In accordance with 40 CFR §264.13(a)(3) and 40 CFR §264.13(b)(4), additional samples from the same waste stream are collected when:

- There is reasonable doubt about the identity of the waste;
- The process generating the waste has changed such that the characteristics of the waste may change; or
- Confirmation is needed that the analysis is current.

The feed materials from which these wastes are generated are specified by Military Specifications (MILSPECs) and Technical Orders (TOs). These MILSPECs and TOs ensure that the materials supplied by different manufacturers have a limited degree of variation for a given product. The processes generating the wastes also have limited variation as they are specified by the TOs. The combination of these two factors ensures that the wastes generated from mission-related processes are unlikely to be significantly changed without adequate notice to responsible personnel.

D-2.2 Identification/EPA Classification of the Hazardous Waste Managed

Some of the activities conducted at HAFB in support of its mission generate hazardous wastes or waste streams with the potential to be hazardous.

Many of these activities can be grouped into eight main categories. Within these categories, common waste streams have been identified. These categories and respective waste streams consist of:

- Painting and Corrosion Control

  - Spent solvents
  - Stripping waste
  - Waste paint and paint-related waste
  - Abrasive-blasting wastes
  - Rags contaminated with paint wastes
  - Rags contaminated with solvent wastes

- Aircraft, Vehicle, and Equipment Maintenance
  - Spent solvents from parts cleaning
  - Fuel filters and oil filters
  - Waste sealants, adhesives, and epoxies
  - Off-specification fuel and fuel mixtures
  - Contaminated absorbent material
  - Oil/water separator sludge
  - Contaminated *r*ags from maintenance activities

- Spill Cleanup and Debris/RCRA Corrective Action
  - Contaminated soil or other environmental media
  - Absorbent material

- Metal Cutting
  - Coolant oil

- Hospital/Medical Activities
  - Lab packs
  - Expired or off-specification chemicals (e.g., epinephrine)
  - Silver recovery cartridges

- Photographic and photocopying operations
  - Photofixing solution
  - Photo imaging paper
  - Silver recovery cartridges
  - Photocopy waste containing naphtha

- Facility maintenance
  - Spent fluorescent and mercury light bulbs

- Other
  - Off-specification products
  - Expired shelf life products

Activities within a category generate similar types of wastes by virtue of having similar functions. Through the analysis and characterization of numerous waste streams, HAFB has been able to identify the constituents that are likely to be present in each of the major waste streams. This knowledge of the processes and the associated wastes produced is used to select the analytical parameters for sampling and to avoid unnecessary sampling.

HAFB will ensure that all waste characterization information is accurate by making the following determinations:

- Whether the waste was characterized at the point of generation, in compliance with 20.4.1.800 NMAC, incorporating 40 CFR §§ 268.7(a)(3) and 268.9(c);
- Whether routinely generated wastes are re-characterized to ensure the waste's characterization is accurate and up to date 40 CFR §264.13(a)(3);
- Whether generators have appropriately identified when the process or operation generating routinely generated wastes has changed; in compliance with 20.4.1.500 NMAC, incorporating 40 CFR § §264.13(a)(3)(i); and
- Whether generators are trained in the applicable waste characterization requirements as required by 20.4.1.500 NMAC, incorporating 40 CFR §264.16.

The major waste categories, the specific waste type, their respective parameters of concern for analysis and EPA waste codes, and the current analytical test method for each waste type are outlined in Table D-1 in accordance with 40 CFR §264.13(b)(1) and (2). This table may not be a comprehensive list of all specific wastes, but provides the framework for making decisions on chemical analyses for common waste streams. Additionally, many of the waste streams listed in Table D-1 can be characterized by acceptable (process) knowledge, on the basis of historical sampling and analytical data or other appropriate documentation (i.e., TOs, MILSPECs, MSDSs, etc), eliminating the need for additional analyses.

D-2.3 Hazardous Waste Tracking Procedures

HAFB has implemented specific procedures, subject to modification and improvement, for tracking transfer of hazardous wastes. These procedures ensure that hazardous waste is tracked from the time it is generated until the time that it leaves the CSU for disposal. An example description of these tracking procedures is presented in the Waste Flow Diagram provided in Figure D-1. The tracking procedures specify documents that must accompany the waste, and copies are provided as Figure D-2. These documents are provided as examples for informational purposes only and not for incorporation in this permit application. See Section D-4.1 for a discussion of the procedures that will be implemented to ensure that each container of hazardous waste is properly characterized and current in accordance with 20.4.1.900 NMAC, incorporating 40 CFR §270(32)(b)(2).

Table D-1
Major Waste Categories and Parameters of Concern

Process Generating Waste	Waste Generated	Basis for Hazard Classification	Parameters for Analyses and EPA Waste Codes[1]	LDR (WW or NWW)[4]	Current Analytical Test Method[2]
Paint-Related Operations Locations: 49th Civil Engineer Squadron 49th Transportation Squadron 49th Services Squadron German Air Force Hazmart 49th Maintenance Squadron 846th Test Squadron 46th Test Group DynCorp 49th Materiel Maintenance Squadron Newtec 8th Fighter Squadron 9th Fighter Squadron	Waste paint and thinner (C, I, T, listed)	Historical test data, MSDS, Knowledge of Process (KOP)[5]	Cadmium (D006), lead (D008), chromium (D007), selenium (D010), solvents (VOCs and SVOCs), ignitability (D001), corrosivity (D002)	NWW	SW8260, SW8270, SW6010 or 7000 Series, SW-846 1010/1020, SW9040
	Respirator and booth filter elements (T)	Historical test data	Cadmium (D006), chromium (D007), silver (D011)	NWW	SW6010 or 7000 Series
	Spent alodine from painting (C, T)	Historical test data	Chromium (D007), corrosivity (D002)	NWW	SW6010 or 7000 Series, SW9040
	Rags and debris contaminated with paint wastes and solvents (I, T, listed)	Historical test data, KOP[5]	Cadmium (D006), chromium (D007), lead (D008), solvents (VOCs and SVOCs), ignitability (D001)	NWW	SW8260, SW8270, SW7000 series, SW8240, SW-846: 1010/1020 or 1030

[1] RCRA hazardous constituents and/or properties. Analyses may include full TCLP metals, if appropriate.
[2] These analyses are suggested given the properties of the waste; however, other analytical methods may be substituted or included as deemed appropriate with prior approval of NMED.
[3] Medical wastes are discarded commercial products and are known to be regulated based on their initial composition. No further analysis is required.
[4] Refer to 40 CFR § 268.2 (d) and (f) for definition of wastewater (WW) and non-wastewater (NWW).
[5] KOP, Knowledge of Process, is also called acceptable knowledge throughout the WAP.

C = corrosive
I = ignitable
T = toxic
R = reactive
Listed = listed waste

Table D-1
Major Waste Categories and Parameters of Concern (Cont.)

Process Generating Waste	Waste Generated	Basis for Hazard Classification	Parameters for Analyses and EPA Waste Codes[1]	LDR (WW or NWW)[4]	Current Analytical Test Method[2]
Aircraft, Vehicle, and Equipment Maintenance Operations Locations: Gas Station 49th Civil Engineer Squadron 49th Transportation Squadron 49th Services Squadron German Air Force DynCorp 49th Maintenance Squadron Newtec 9th Fighter Squadron 8th Fighter Squadron 49th Materiel Maintenance Squadron Newtec 846th Test Squadron	Fuel filters and absorbent (I, T)	KOP[5], Historical test data	Cadmium (D006), benzene (D018), ignitability (D001)	NWW	SW8260, SW8270, SW6010 or 7000 Series, SW-846: 1010/1020
	Parts cleaning sludge (I,T)	Historical test data	Cadmium (D006), chromium (D007), lead (D008), ignitability (D001)	NWW	SW8260, SW8270, SW6010 or 7000 Series, SW-846 1010/1020
	Spent solvent from parts cleaning and equipment maintenance (I,T, listed)	Historical test data	Lead (D008), chromium (D007), solvents (VOCs and SVOCs), ignitability (D001)	NWW	SW8260, SW8270, SW6010 or 7000 Series, SW-846 1010/1020
	Dirty rags with solvents, oil, and grease (I, T, listed)	Historical test data, KOP[5], MSDS	Cadmium (D006), lead (D008), chromium (D007), benzene (D018), solvents (VOCs and SVOCs), ignitability (D001)	NWW	SW8260, SW8270, SW6010 or 7000 Series, SW-846 1010/1020
Photographic Equipment Cleaning Operations Locations: Newtec 846th Test Squadron Newtec	Rags with solvent (I, T, listed)	Historical test data, KOP[5]	Cadmium (D006), solvents (VOCs and SVOCs), ignitability (D001)	NWW	SW8260, SW8270, SW6010 or 7000 series, SW-846 1010/1020

[1] RCRA hazardous constituents and/or properties. Analyses may include full TCLP metals, if appropriate.
[2] These analyses are suggested given the properties of the waste; however, other analytical methods may be substituted or included as deemed appropriate with prior approval of NMED.
[3] Medical wastes are discarded commercial products and are known to be regulated based on their initial composition. No further analysis is required.
[4] Refer to 40 CFR § 268.2 (d) and (f) for definition of wastewater (WW) and non-wastewater (NWW).
[5] KOP, Knowledge of Process, is also called acceptable knowledge throughout the WAP.

C = corrosive
I = ignitable
T = toxic
R = reactive
Listed = listed waste

Table D-1
Major Waste Categories and Parameters of Concern (Cont.)

Process Generating Waste	Waste Generated	Basis for Hazard Classification	Parameters for Analyses and EPA Waste Codes[1]	LDR (WW or NWW)[4]	Current Analytical Test Method[2]
Miscellaneous Organic Liquids Locations: Hazmart	Expired or off-specification material (C, I, T, listed)	MSDS, Historical test data	Ignitability (D001), corrosivity (D002), metals, solvents (VOCs and SVOCs)	NWW	SW8260, SW8270, SW6010 or 7000 Series, SW9040, SW-846 1010/1020
Metal Cutting Operations Locations: DynCorp 846th Test Squadron	Rags and debris with oil and metals (C, I, T, listed)	Historical test data, KOP[5]	Cadmium (D006), lead (D008), chromium (D007), selenium (D010), solvents, ignitability (D001), corrosivity (D002)	NWW	SW8260, SW8270, SW6010 or 7000 Series, SW-846 1010/1020, SW9040
Medical Operation Locations: 49th Medical Support Squadron 49th Aeromedical Dental Squadron	Expired or off-specification epinephrine or other medical waste (R, Acutely T)	MSDS	Acute toxicity, sodium cyanide, phosphorous (reactivity)	NWW	NA[3]
Weapons Maintenance Operation Locations: 49th Security Forces Squadron 49th Maintenance Squadron DynCorp German Air Force	Rags and debris with solvent and lead (I, T, Listed)	Historical test data	Lead (D008), ignitability (D001), solvents	NWW	SW8260, SW8270, SW6010 or 7000 Series, SW-846 1010/1020

[1] RCRA hazardous constituents and/or properties. Analyses may include full TCLP metals, if appropriate.
[2] These analyses are suggested given the properties of the waste; however, other analytical methods may be substituted or included as deemed appropriate with prior approval of NMED.
[3] Medical wastes are discarded commercial products and are known to be regulated based on their initial composition. No further analysis is required.
[4] Refer to 40 CFR § 268.2 (d) and (f) for definition of wastewater (WW) and non-wastewater (NWW).
[5] KOP, Knowledge of Process, is also called acceptable knowledge throughout the WAP.

C = corrosive
I = ignitable
T = toxic
R = reactive
Listed = listed waste

Table D-1
Major Waste Categories and Parameters of Concern (Cont.)

Process Generating Waste	Waste Generated	Basis for Hazard Classification	Parameters for Analyses and EPA Waste Codes[1]	LDR (WW or NWW)[4]	Current Analytical Test Method[2]
Facility Maintenance Operations Locations: 90-Day Facility-49th Civil Engineer Squadron Hazmart	Spent fluorescent bulbs - crushed (T)	Historical test data	Mercury (D009), cadmium (D006), lead (D008)	NWW	SW6010 or 7000 Series
	Bulb crusher filter element (T)	Historical test data	Mercury (D009), cadmium (D006), lead (D008)	NWW	SW6010 or 7000 Series
	Spent batteries such as Ni-Cad used in emergency lighting systems (C, T)	MSDS	Cadmium (D006), lead (D008), corrosivity (D002)	NWW	NA

[1] RCRA hazardous constituents and/or properties. Analyses may include full TCLP metals, if appropriate.
[2] These analyses are suggested given the properties of the waste; however, other analytical methods may be substituted or included as deemed appropriate with prior approval of NMED.
[3] Medical wastes are discarded commercial products and are known to be regulated based on their initial composition. No further analysis is required.
[4] Refer to 40 CFR § 268.2 (d) and (f) for definition of wastewater (WW) and non-wastewater (NWW).
[5] KOP, Knowledge of Process, is also called acceptable knowledge throughout the WAP.

C = corrosive
I = ignitable
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R = reactive
Listed = listed waste

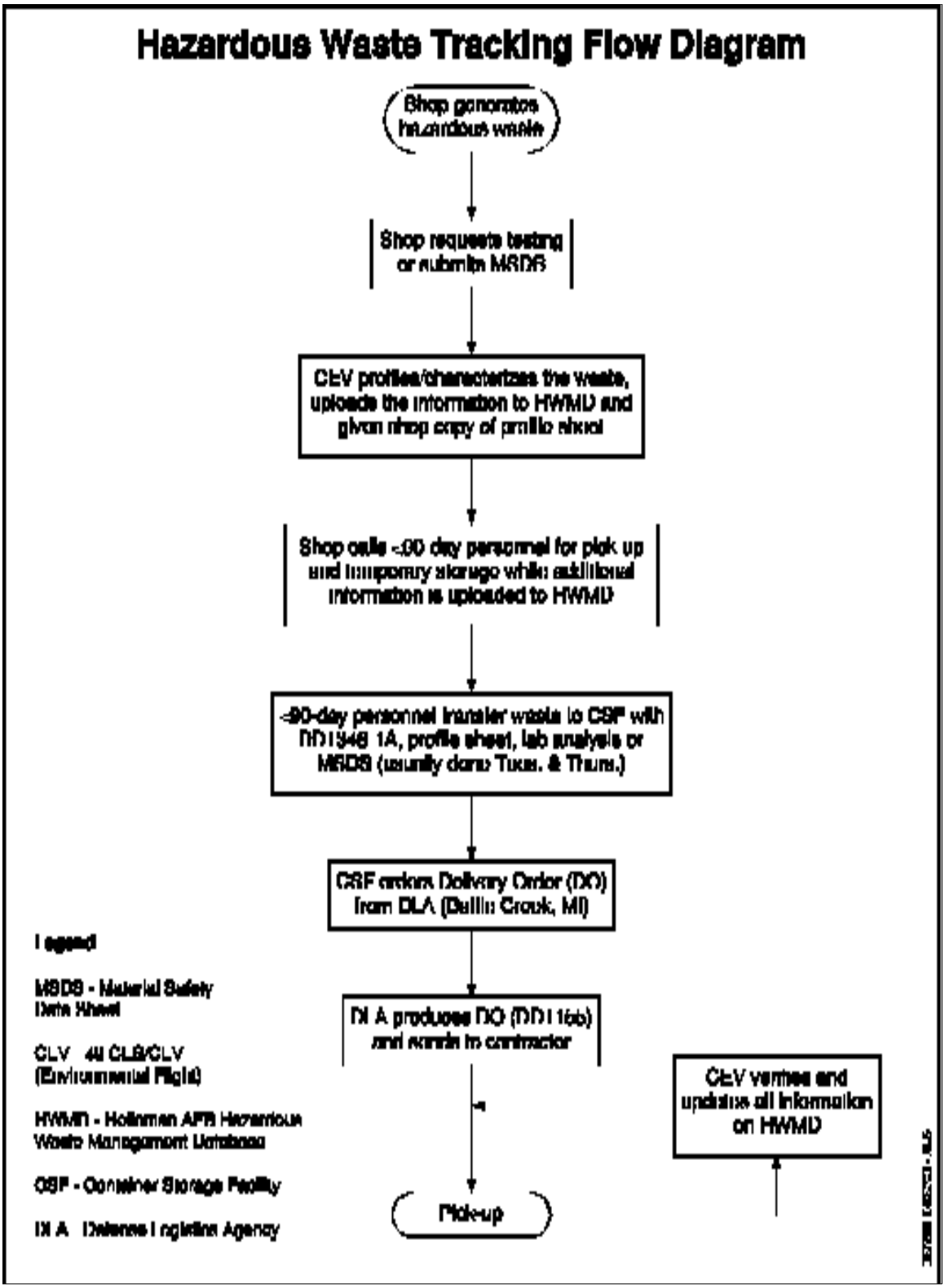

Figure D-1. Waste Tracking Flow Diagram

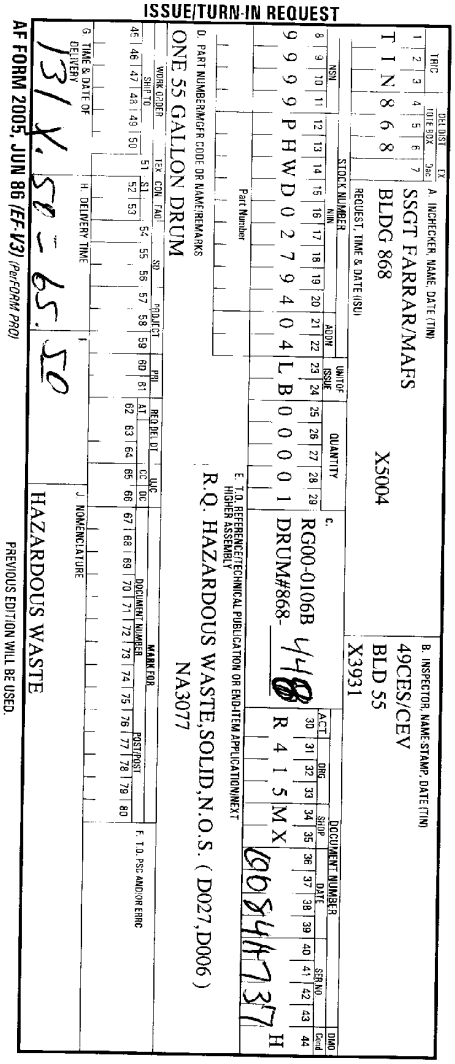

Figure D-2. Example of Tracking Documents

DOC ENT	IDENT RI FROM	MS	UNIT ISS	QUANTITY	SER	SUPPLEMENTARY ADDRESS	SIG	FUND	DISTRIBUTION	PROJECT	PRI	REQD DATE	ADV	RI	O/P	COND	MGT	UNIT PRICE DOLLARS	UNIT PRICE CTS	DOLLARS	CTS
A5J	149		LB	131		A30		01			NA			H						$0.50	$65.50

1. TOTAL PRICE

2. SHIP FROM: 49 CES/CEVC 475-5697

3. SHIP TO: DRMO 475-7860

4. MARK FOR: HW

5. DOC. DATE	6. NMFC	7. FRT RATE	8. TYPE CARGO	9. PS
3/24/00				

10. QTY. REC'D	11. UP	12. UNIT WEIGHT	13. UNIT CUBE	14. UFC	15. SL

16. FREIGHT CLASSIFICATION NOMENCLATURE

17. ITEM NOMENCLATURE

18. TY CONT	19. NO CONT	20. TOTAL WEIGHT	21. TOTAL CUBE

22. RECEIVED BY	23. DATE RECEIVED

FB48010084H737

9999PHWD0279404

EPA ID: NM6572124422

Accumulation Start Date: 24-Mar-00

1 55-gal drum

868-448

Organization: 9 FS/MAFS
Building: 868
Point of Contact: Farrar
Phone: 572-5004

DoDAAC: FB4801
CLIN: 9404
Total Price: $65.50

Waste Profile: RG00-0106B
Hazardous waste, solid, n.o.s., 9, NA3077, PGIII, (D027, D006)

DD FORM 1348-1A, NOV 87 ISSUE RELEASE/RECEIPT DOCUMENT

Figure D-2. (Continued)

HAZARDOUS WASTE PROFILE SHEET

PART I

• Generator •

Name: Holloman Air Force Base
Address: Highway 70 West
Holloman AFB, NM 88330

USEPA ID: NM6572124422
State ID: NA

Organization: 9 FS/MAFS
Bldg Number: 868

CEV ID: 0106
DODAAC: FB4801

• Waste Profile •

RG00-0106B

» Replaces: RG00-0106A «

Contact: Robert Farrar
Phone: 475-5004

1. Name of Waste: Rags, coveralls, absorbent, debris

2. CLIN: 9404

3. Generating Process: Aircraft maintenance

4. Projected Volume: 55 gallons per month

5. Comments: This profile combines results of sample analysis GT998119 and GT008001

6. Is this waste a dioxin listed waste as defined in 40 CFR 261.31 (F020, F021, F022, F023, F026, F027, F028)? ☐ Yes ■ No

7. Is this waste restricted from land disposal? ■ Yes ☐ No **Has an exemption been granted?** ☐ Yes ■ No

PART II

• RCRA Characteristics •

Physical State: ● Solid ○ Liquid ○ Gas ○ Semi-Solid ○ Other

Treatment Group: ○ Wastewater ● Non-wastewater

Non-RCRA Waste (no other waste codes apply)

Ignitable (D001) **Flash Point (•F):**
TOC: ○ High ○ Low

Corrosive (D002) **pH:**

Reactive (D003)
○ Water Reactive
○ Cyanide Reactive
○ Sulfide Reactive

• **Toxicity Characteristic** D027, D006

F-listed waste

P-listed waste

U-listed waste

• Material Composition •

Component	Concentration
Rags	>70%
Absorbent	<15%
Debris / razor blades	<15%
Contaminants:	
Barium	1.54 mg/l
Cadmium	1.35 mg/l
Chromium	0.046 mg/l
1,4 Dichlorobenzene	30.4 mg/L
Mercury	0.004 mg/l
Lead	0.063 mg/l
Selenium	0.009 mg/l
Silver	0.013 mg/l

• Shipping Information •

This is a Department of Transportation HAZARDOUS MATERIAL

Shipping Name: Hazardous waste, solid, n.o.s., 9, NA3077, PGIII, (D027, D006)

Waste Codes: D027, D006

Hazard Class: 9 **ID No.:** NA3077 **PG:** III

CERCLA Reportable Quantity: D027, lbs.

1996 North American Emerg. Resp. Guideboo Guide No.: 171

PART III

• Basis for Information •

• **Chemical Analysis (attach sampling results)** ○ **MSDS** ● **User Knowledge**

ample Number: GT008001 **Previous Sample Number(s):** GT998119/GT998042/GT978230/GT968185

• Generator Certification •

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 into the 90-Day Storage Facility. All known or suspected hazards have been properly identified.

49 CES/CEVC Representative	Signature	Date
TSgt Karen Sinner		16-Feb-00

49 CES/CEVC Form 22

Figure D-2. (Continued)

D-3 Selecting Waste Analysis Parameters

When acceptable (process) knowledge or historical analytical data are not available, testing of CSU waste streams is conducted to obtain a detailed chemical and physical analysis in accordance with 40 CFR §264.13. The objectives of sampling are to:

- Confirm characterizations of wastes for which prior analysis or acceptable (process) knowledge is not available;
- Determine compliance with applicable regulatory requirements, including Land Disposal Restrictions;
- Provide information to aid in the safe management of wastes, such as using biodegradable sorbents, if appropriate;
- Provide relevant data for use in making disposal decisions and,
- Resolve differences associated with inspections and generator descriptions.

The following subsections outline the procedures that will be followed to ensure that the objectives are met and that HAFB complies with all regulatory requirements for waste analysis.

D-3.1 Criteria and Rationale for Parameter Selection

Characteristics of wastes are identified in several different ways. Visual inspections are conducted for all waste streams. This consists of characterizing the physical form, phase, and appearance (color, odor, etc.) for each container prior to movement. Chemical analysis is conducted to identify specific waste characteristics if a complete waste characterization has not already been performed based on acceptable (process) knowledge or previous analysis. The chemical analyses conducted for a waste stream vary based on the knowledge of the processes generating the waste and the parameters of concern as identified in Table D-1.

Waste analysis parameters are selected to fulfill three criteria: waste identification, identification of incompatible/inappropriate wastes, and process and design considerations for container compatibility. The subsections below, in conjunction with Table D-1, outline the parameters for which each hazardous waste will be analyzed and

the rationale for the selection of these parameters in accordance with 40 CFR 264.13(b)(1).

D-3.1.1 Paint-Related Material Waste

In general, uncharacterized waste associated with painting activities is analyzed to determine the presence of metals above toxicity characteristic levels. Metals such as cadmium and chromium are found in some types of paints used in specific shops. Paint-related waste is also tested for ignitability. Waste associated with the chemical stripping of paint and the use of paint thinners is also tested for the presence of solvents or other semivolatile or volatile organic compounds (**SVOC or VOC**). Paint thinners, strippers, and rinse water associated with stripping are tested for corrosivity.

D-3.1.2 Oil/Water Separator Sludge

Sludge from the cleaning of oil/water separators (**O/WS**) can often be characterized based on the activities conducted in the shops that tie into the
O/WS. When it cannot be characterized in that manner, it is analyzed for the presence of metals, VOCs and SVOCs. The sludge from an O/WS may contain residual contaminants from any of the materials that passed through it. Uncharacterized sludge should also be analyzed for ignitability due to the potential presence of fuels in the sludge.

D-3.1.3 Aircraft, Vehicle, and Equipment Maintenance Waste

Maintenance activities generate a variety of waste streams with different characteristics. However, similar constituents are found in these waste streams. Because some waste or used fuels contain lead, cadmium, or other metals, a metals analysis is recommended for all uncharacterized waste streams dealing with aircraft, vehicle, or equipment maintenance. VOCs and SVOCs are also typical components of fuels and lubricants and should be tested for in uncharacterized waste streams associated with fuel or lubricant use. Wastes associated with parts cleaning or that may have come into contact with solvents should also be tested for VOCs and SVOCs, as halogenated and nonhalogenated solvents can be identified by these analyses. The procedures detailed in D-4.1, including frequency of analysis/review, will be followed for characterization of these waste streams. Finally, because many of these waste streams are associated with fuels or

ignitable substances, ignitability is a standard analysis for wastes from aircraft, vehicle, and equipment maintenance.

D-3.1.4 Photographic Operations

Metals are the primary concern in wastes from photographic operations. Mercury is found in photo imaging paper and should be tested for in uncharacterized waste streams associated with this paper. Other metals such as cadmium, selenium, and silver are found in wastes such as photo-fixing solution and silver recovery cartridges. These metals are often present at levels that make these wastes characteristically toxic. In addition, the corrosivity of uncharacterized waste streams is also tested.

D-3.1.5 Photocopying Operations

Wastes associated with photocopying operations and maintenance may contain naphtha and/or chlorinated solvents. Uncharacterized waste streams are analyzed for VOCs, SVOCs, and ignitability.

D-3.1.6 Facility Maintenance

Wastes generated from facility maintenance activities can typically be characterized by reviewing the MSDS for the material. For example, spent fluorescent bulbs are typically hazardous for metals. These waste streams tend to be consistently generated as part of building maintenance.

D-3.1.7 Miscellaneous

Several other waste streams are identified in Table D-1, including RCRA Corrective Action, Spill Cleanup and Debris, and Miscellaneous Organic Liquids. These wastes are either not generated on a regular basis or the waste characteristics change depending on the type of waste received. For these wastes, it is recommended that VOCs, SVOCs, metals, ignitability, and corrosivity be tested. However, these should be evaluated on a case-by-case basis as the waste types may vary widely.

D-3.1.8 Other Analyses

In addition to the specific analyses identified in Table D-1, other analyses such as total sulfur or thermal content (BTUs) may be conducted to provide information regarding

treatment alternatives. Current analytical methods are provided, but these are suggested methods and are not meant to be restrictive of the analyses that can be performed. In many cases, for example, SW6010 is the recommended analysis for metals, but additional analytical methods for constituents such as mercury or lead may be appropriate. The methods are intended to serve as a guide and can be substituted for other more relevant or more current methods as they are developed. The analytical laboratory should be consulted prior to sampling events to ensure that the most up-to-date methods are used for analysis.

D-3.2 Special Parameter Selection and Procedural Requirements

Additional waste analysis and procedural requirements for wastes may be necessary in special cases; specifically for ignitable, reactive, and incompatible wastes, and to comply with Land Disposal Restrictions requirements. Procedures to ensure that all of the requirements of 40 CFR 264.13(b)(6) are being met are outlined in the following two subsections.

D-3.2.1 Ignitable, Reactive, and Incompatible Wastes

The parameters for selecting ignitable, reactive, and incompatible waste analyses at the CSU are outlined in Section D-3.1 for each of the major waste categories and outlined in Table D-1 for each waste stream. These parameters were chosen to ensure the proper storage, and ultimate disposal, of these wastes, in accordance with 40 CFR 264.17(b), by preventing reactions which:

- Generate extreme heat or pressure, fire or explosions, or violent reactions;
- Produce uncontrolled toxic or flammable fumes or gases;
- Damage the structural integrity of the containers or the CSU; and
- Threaten human health or the environment.

The same waste analysis approach is employed for determining the characteristics of ignitable, reactive, and incompatible wastes as outlined in Section D-2 of this Permit Application, as required by 40 CFR §264.17(c).

The procedures for properly handling ignitable, reactive, and incompatible wastes at the CSU are outlined in detail in Section D-5 of this Permit Application as specified by 40 CFR §264.17(a).

D-3.2.2 Land Disposal Restrictions

Before shipping hazardous wastes off site, HAFB will make a determination if the waste has to be treated before it can be land disposed. In accordance with the LDR regulations outlined in 40 CFR §268.7, hazardous wastes must meet the applicable LDR treatment standards contained in 40 CFR Part 268, Subpart D. This determination will be made by either acceptable (process) knowledge or testing. If it is known that the wastes do not meet applicable LDR treatment standards based on acceptable (process) knowledge or historical analytical results, no testing is necessary. Additional testing, if necessary, will be conducted only to certify that the waste meets LDR treatment standards. Each waste for which a treatment standard has been set will be evaluated for the applicable parameters in 40 CFR Part 268, Subpart D. In addition, for any wastes that exhibit the hazardous characteristics of ignitability, corrosivity, reactivity, or toxicity, the underlying hazardous constituents will be determined in accordance with 40 CFR §268.9. All analytical results completed in support of LDR requirements will be retained within the facility operating record.

Wastes resulting from facility operations that exceed the applicable LDR treatment standards will be sent off site to a permitted treatment facility. LDR notifications, and any additional data as required by 40 CFR §268.7(a)(2), will be supplied with the shipment of each waste.

Wastes, if any, that are determined through analysis to meet treatment standards as specified in 40 CFR Part 268, Subpart D will be land disposed in a permitted facility without further treatment. An LDR certification, including data to support the certification as required by 40 CFR §268.7(a)(3), will be prepared and accompany the shipment of waste to the receiving facility.

D-4 Sampling and Analysis Plan

This section presents the Sampling and Analysis Plan (**SAP**) for wastes managed at the CSU.

D-4.1 Objectives

The SAP provides procedures for testing the waste streams stored in the CSU requiring analytical characterization. It explains how samples will be collected and the analyses that will be performed. The plan's design is based on U.S. Air Force (USAF) operational procedures and guidelines, knowledge of the materials used at HAFB, and knowledge of the characteristics of categories of waste. Specific topics covered in this plan include:

- Sampling procedures and methodology;
- Health and safety procedures;
- Sampling QA/QC Procedures;
- Sample Container Preservation Requirements; and
- Laboratory procedures.

Samples collected are prepared according to the most current appropriate EPA sample protocol. If EPA methods are not available, ASTM methods are used.

Proper waste identification will be ensured by the following measures:

- An initial analysis will be performed on each new waste stream to identify the process and characterize the waste;
- An annual review of waste stream will be conducted to determine waste inconsistency with the waste profile and whether additional sampling is warranted;
- Initial Accumulation Point (IAP) managers inform 49 CES/CEV if new material is introduced into process for determination of need for re-characterization of the waste stream.
- Waste is identified and tracked according to procedures detailed in Figure D-1.

The total number of samples tested each year will vary depending on the number of waste streams. In the past five years, an average of over 100 samples was collected annually. Nevertheless, each new waste stream will be sampled to obtain an accurate waste determination. HAFB personnel are continually working to reduce the volume of hazardous waste generated by base operations through pollution prevention initiatives.

D-4.2 Sampling Procedures and Methodology

In many cases, samples will be collected from drums containing waste for characterization. This section outlines the procedures and methods to be followed for sampling drums containing liquid and non-liquid organic and inorganic wastes. Sample handling, sample documentation, and sampling quality assurance and quality control are outlined in Section D-4.4. HAFB personnel or their designated contractor will conduct the sampling. The physical, chemical, and waste specific parameters of each waste are considered to determine the most appropriate type of sampling equipment and sampling strategy. Sampling personnel will be knowledgeable of and have experience with the sampling techniques outlined below.

As part of the inventory, a visual inspection of the drum and its contents is conducted and recorded. Once a visual inspection and inventory has been completed, the container to be sampled is opened. Only sampling equipment constructed of materials that are compatible with wastes and not susceptible to reactions that might alter or bias the physical or chemical characteristics of organic and inorganic wastes is used.

The recommended method of drum sampling liquid waste in 40 CFR §264.13(b)(3) is through the use of a disposable glass Composite Liquid Waste Sampler (**COLIWAS**A) or equivalent method. Other sampling methods capable of achieving a composite sample are acceptable for waste sampling; however, proper decontamination of equipment is required if disposable equipment is not used. Sampling and analysis will be conducted in accordance with most current EPA's *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*.

For non-liquid waste, the same procedure will be followed for staging and visual inspection. Sample collection can be accomplished using a stainless steel spoon or equivalent method. Contamination control procedures outlined in Section D-4.4.2 will be followed during sample collection.

D-4.3 Health and Safety Procedures

If deemed necessary, personnel performing sampling activities will use personal protective equipment such as rubber gloves, boots, aprons, Tyvek coveralls, and eye protection. Sampling personnel will be trained in hazardous waste sampling and have a minimum of one year sampling experience. If a new hire or other individual has less than

one year of sampling experience, the inexperienced individual must be accompanied by a person who has at least one year of sampling experience. These personnel will also have 40-hour Occupational Safety and Health Administration training as specified in 29 CFR §1910.120. Appropriate medical monitoring and certification will also be conducted.

D-4.4 Sampling QA/QC Procedures

All sampling conducted for the purpose of characterizing wastes will use appropriate quality assurance/quality control (QA/QC) procedures. Additionally, HAFB will ensure that waste characterization information is accurate by making the following determinations:

- Whether the waste was characterized at the point of generation, in compliance with 40 CFR §§ 268.7(a)(3) and 268.9(c);
- Whether routinely generated wastes are re-characterized to ensure the waste's characterization is accurate and up to date, in compliance with 40 CFR § 264.13(a)(3);
- Whether generators have appropriately identified when the process or operation generating routinely generated wastes has changed, in compliance with 40 CFR § 264.13(a)(3)(i); and
- Whether generators are trained in the applicable waste characterization requirements as required by 40 CFR § 264.16.

Procedures for sample documentation, equipment, handling and custody are discussed below.

D-4.4.1 Documentation of Activities

Sample containers will be uniquely identified to indicate the generating shop or facility and the date and activities will be documented according to most recent appropriate EPA methods. An adhesive label will be affixed to the sample container containing the following information:

- Collector's initials;
- Sample identification;
- Analytical methods requested;

- Generating facility;
- Sample date; and
- Sample time.

Any other distinguishing characteristics or information required by the laboratory or project personnel will be added to the label.

D-4.4.2 Contamination Control Procedures

Only compatible sampling tools and containers will be used for sample collection and storage. Sampling tools and equipment will be protected from contamination sources prior to sampling and will be decontaminated before and between samples, if reused. Sample containers will also be protected from contamination sources. Sampling personnel will wear clean chemical-resistant gloves when handling sampling equipment and samples. Gloves will be decontaminated or disposed of between samples.

D-4.4.3 Sample Handling and Chain of Custody

Chain-of-custody (COC) forms will be used and procedures will be followed to track possession of the samples from the time they are collected until the analytical data from the samples are received and recorded. For all samples, procedures will begin once sampling is complete. The following information will be recorded when samples of waste are collected:

- The type of waste collected, and a brief description;
- The names and signatures of the samplers;
- The sample number and the date and time of sample collection;
- The names of any persons involved in transferring samples; and
- The shipping number (e.g., airbill number) for samples shipped to off-site laboratories.

A sample will be considered under custody if it is:

- In the possession of the sampling team;
- In view of the sampling team; or
- Transferred to a secure area.

An area is considered secure only when it is locked and access is controlled. The sampling team leader is responsible for custody of the samples until they have been properly packaged, documented, and released to a courier or directly to the analytical laboratory. A triplicate COC record form will be used for sample tracking.

D-4.5 Sample Container and Preservation Requirements

Samples will be collected in pre-cleaned sampling containers and will be kept cold during storage, transportation, and shipping, as necessary. Containers, preservatives, and holding time requirements for sample types that will be collected vary widely and should be coordinated with the analytical laboratory prior to sample collection. In addition, current analytical methods should be verified with the laboratory prior to sample collection.

At the end of each sampling event, samples will be packaged in shipping containers with double-bagged ice packs to maintain a temperature of less than 4 degrees C, as necessary. The samples will be carefully packaged so that they will not break during shipping. Each shipping container will be shipped to the analytical laboratory by an overnight delivery service or transported directly by a contracted laboratory.

D-4.6 Laboratory Analysis

Design and execution of the sampling program will be coordinated with an analytical chemist experienced in hazardous waste testing. The laboratory will follow standard analytical and quality assurance/quality control (QA/QC) procedures specified in the most recent appropriate EPA methods. The following is a summary of the laboratory specifications.

Typically, the laboratory report will contain the following:

- Unique laboratory identification;
- Sample identification;
- Sampling date;
- Preparation date;
- Analysis date;
- Preparation batch;
- Preparation method;

- Analysis batch;
- Analysis method;
- Analyte;
- Results;
- Footnotes/data qualifiers;
- Units;
- Sample matrix;
- Sample-specific detection limit;
- Dilution factor;
- Case narrative (if necessary); and
- Laboratory control sample results.

Appropriate EPA methods address most of the procedures proposed in this SAP. The laboratory will be required to achieve the required or estimated detection limits specified in the appropriate EPA methods. If equivalent methods are used, these should be justified and approved in advance. Approval for any equivalent methods employed by the laboratory will be at the discretion of HAFB and the New Mexico Environment Department (NMED).