Part A and Part B Permit Renewal Application for the

TRIASSIC PARK
WASTE DISPOSAL FACILITY

RCRA Permit No. NM0001002484

Chaves County, New Mexico

Volume 1
Permit Application Parts A and B / Permit

October 17, 2011
Revision 1 - April 30, 2012

Prepared for:

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DD Manufacturer Information

Application Organization Summary

Permit Application Section	Name	Notes on 2011/2012 Application	Location in October 2000 Application
Volume 1			
Introduction			
	Table of Contents	New	---
	Application Organization Summary	New	---
	Introduction	New	---
	List of Acronyms	Updated	Introduction
	RCRA Regulatory Crosswalk	Updated	Appendix A
Part A Permit Application			
	Certification of Permit Application	Updated	Part A
	EPA Hazardous Waste Permit Application	Updated	Part A
	Facility Property Plat	No change	Part A
Part B Permit Application			
1	General Facility Standards	Permit application has been revised to reflect only landfill operation and elimination of previously permitted operations for waste treatment and liquid waste disposal.	The October 2000 permit application provides the basis for text that has been updated for the current application.
2	Treatment, Storage, and Disposal		
3	Groundwater Protection		
4	Waste Analysis Plan		
5	Procedures to Prevent Hazards		
6	Contingency Plan		
7	Personnel Training		
8	Closure and Post-Closure of Permitted Units		
9	Waste Management		
10	Corrective Action		
11	40 CFR 264 Subpart AA, BB & CC Regulations		
12	References		

Application Organization Summary

Permit Application Section	Name	Notes on 2011/2012 Application	Location in October 2000 Application
Permit			
Part 1	General Permit Conditions	Text provides the approved permit issued by NMED HWB in 2002 with requested changes in redline/strikeout format.	Permit was written by the NMED HWB and was not included in the October 2000 application.
Part 2	General Facility Conditions		
Part 3	Hazardous Waste Storage In Containers		
Part 4	Hazardous Waste Storage and Treatment in Tanks		
Part 5	Treatment in the Surface Impoundment		
Part 6	Hazardous Waste Disposal In The Landfill		
Part 7	Vadose Zone Monitoring		
Part 8	Closure and Post-Closure Care		
Part 9	Corrective Action for Regulated Units		
Part 10	Corrective Action for Solid Waste Management Units		
Volume 2			
Attachment[1]			
A	General Facility Description and Information	Revised from permit	---
B	Procedures to Prevent Hazards	Revised from permit	---
C	Contingency Plan	Revised from permit	---
C1	Emergency Equipment	No change from permit	Volume II Appendix M
C2	Emergency Coordinators	Revised from permit	Volume II Appendix K
C3	Coordinating Agreements	Revised from permit	Volume II Appendix J
C4	Evacuation Plan	No change from permit	Volume II Appendix L
D	Inspection Procedures	Revised from permit	---
D1	Inspection Schedules and Checklists	Revised from permit	---
E	Personnel Training	Revised from permit	---

[1] Where revisions to the current permit attachments have been made, the revisions are shown in redline/strikeout format.

Application Organization Summary

Permit Application Section	Name	Notes on 2011/2012 Application	Location in October 2000 Application
F	Waste Analysis Plan	Revised from permit	---
F1	Rationale for Analytical Parameter Selection	Revised from permit	---
F2	Example Waste Profile Form	No change from permit	Volume II Appendix H
F3	Example Chain-of-Custody Form	No change from permit	---
F4	Waste Characterization Using Acceptable Knowledge	No change from permit	---
G	Air Quality	Revised from permit	---
H	Ground Water Monitoring Waiver Request	Revised from permit	---
I	Vadose Zone Monitoring System Work Plan	Revised from permit	Volume II Appendix N
J	Action Leakage Rate and Response Action Plan	Revised from permit	Volume VI Appendix G
K	Part A Permit Application	In Volume 1 rather than appendix in permit	Part A
L	Engineering Report	Revised from permit	---
L1	Engineering Drawings	Volume 3	Volume III Appendix A
L2	Specifications for Landfill Liner and Cover System and Associated Facilities Construction	From October 2000 application; provided in Attachment Z	Volume IV Appendix C
L3	Tank Integrity Assessment Certification	No longer applicable	Volume II Appendix I
L4	New Landfill Engineering Calculations	New	Original calculations in Volumes IV, V, and VI
L5	Landfill Stormwater and Leachate Recirculation Modeling	New	---
M	Construction Quality Assurance Plan	Revised from permit	Volume IV Appendix B
N	Operations and Maintenance Plan	Revised from permit	Volume II Appendix O
O	Closure Plan	Revised from permit	---
O1	Compliance Schedules for Closure	Revised from permit	---
O2	Financial Assurance for Closure	Revised from permit	---

Application Organization Summary

Permit Application Section	Name	Notes on 2011/2012 Application	Location in October 2000 Application
P	Post-Closure Care Plan	Revised from permit	---
P1	Financial Assurance for Post-Closure Care	Revised from permit	---
Q	Statistics for Release Determination	Revised from permit	---
R	Action Levels for Corrective Action	Placeholder for future determination	---
R1	Background Concentrations for Soil	Placeholder for future determination	---
R2	Vadose Zone Baseline Concentrations for Non-Leachates	Placeholder for future determination	---
R3	Background Concentrations for Vadose Zone Water	Placeholder for future determination	---
S	Vadose Zone Monitoring Indicator Parameters	Placeholder for future determination	---
Volume 3			
Attachment			
L1	Engineering Drawings	Revised from October 2000 application	Volume III Appendix A
OCTOBER 2000 PERMIT APPLICATION APPENDICES			
Volume 4			
Attachment			
	October 2000 Application Appendix		**Volume II**
	RCRA Permit Application Checklist	Introduction in Regulatory Crosswalk	Appendix A
T	Oil Well Log	From October 2000 application	Appendix B
U	Lithology Logs and Plugging Logs	From October 2000 application	Appendix C
V	Geophysical Logs	From October 2000 application	Appendix D

Application Organization Summary

Permit Application Section	Name	Notes on 2011/2012 Application	Location in October 2000 Application
W	Geotechnical Laboratory Results	From October 2000 application	Appendix E
X	Grain Size Analyses	From October 2000 application	Appendix F
Y	Cross-Sections	From October 2000 application	Appendix G
	Example Waste Profile Sheet	Attachment F2	Appendix H
	Tank Certification Statement and Example Inspection Sheet (no longer applicable)	Not included; no longer applicable	Appendix I
	Coordinating Agreements	Attachment C3	Appendix J
	List of Emergency Coordinators	Attachment C2	Appendix K
	Evacuation Plans	Attachment C4	Appendix L
	Location, Description, and Capabilities of Emergency Equipment	Attachment C1	Appendix M
	Vadose Zone Monitoring System Work Plan	Attachment I	Appendix N
	Operation and Maintenance Plan	Attachment N	Appendix O
			Volume III
	Design Drawings	Attachment L1 in Volume 3	Appendix A
			Volume IV
	Construction Quality Assurance Plan	Attachment M	Appendix B
Z	Construction Specifications	From October 2000 application	Appendix C
Volume 5			
Attachment			
AA	Laboratory Test Results	From October 2000 application	Appendix D
BB	Engineering Calculations - Calculations from October 2000 permit provided except calculations no longer applicable have been removed	Attachment L4 contains new landfill engineering calculations	Appendix E

Application Organization Summary

Permit Application Section	Name	Notes on 2011/2012 Application	Location in October 2000 Application
			Volume V
BB	Engineering Calculations - Calculations from October 2000 permit provided except calculations no longer applicable have been removed	Attachment L4 contains new landfill engineering calculations	Appendix E
			Volume VI
BB	Engineering Calculations - Calculations from October 2000 permit provided except calculations no longer applicable have been removed	Attachment L4 contains new landfill engineering calculations	Appendix E
CC	Surface Water Control Plan	From October 2000 application	Appendix F
	Action Leakage Rate and Response Action Plan	Attachment J	Appendix G
DD	Manufacturer Information	From October 2000 application	Appendix H

Introduction

The Triassic Park Waste Disposal Facility (Facility) is permitted as a Resource Conservation and Recovery Act (RCRA) Subtitle C waste disposal facility. The Facility owner and operator is Gandy Marley, Inc. (GMI), who received permit authorization for the Facility from the New Mexico Environment Department (NMED) in a Final Order on March 18, 2002. The Facility has not yet been constructed. The Facility will be located in southeastern New Mexico on approximately 480 acres of privately owned land in Chaves County, New Mexico. By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum.

A landfill will be utilized for the disposal of hazardous waste that meets the RCRA land disposal restrictions (LDRs). The Facility will accept polychlorinated biphenyl (PCB) wastes that are not regulated by the Toxic Substances Control Act (TSCA); that is, only PCB wastes at concentrations of less than 500 parts per million (ppm) for bulk PCB remediation waste.

This permit renewal application is submitted to address the requirements of the New Mexico Administrative Code Title 20, Chapter 4, Part 1 (20.4.1 NMAC). Part A of the renewal application includes information required by 40 CFR §270.13. Part B of the renewal application includes information required by 40 CFR §270.14 and §270.21.

Pursuant to the New Mexico Hazardous Waste Regulations and permit Section 1.2.1, the term of the permit is 10 years from the date of issuance. An application to renew the permit must be submitted at least 180 calendar days before the expiration date of the permit (permit Section 1.2.2). Since the permit was issued on March 18, 2002, an application for permit renewal was submitted when due on October 17, 2011.

In the renewal application, the permittees are seeking the following changes to the permit:

- Elimination of the provisions allowing for the treatment of hazardous waste prior to disposal, including the use of an evaporation pond for managing wastewaters and a stabilization process for treating liquids, sludges and solids to ensure that no free liquids are present and that all LDRs are met prior to placing the wastes in the landfill.
- Elimination of the provisions allowing for solid waste storage in two container storage areas that would have been used to store waste prior to treatment or disposal.
- Elimination of the provisions allowing the utilization of four aboveground storage tanks to accumulate regulated bulk liquid hazardous wastes prior to stabilization.
- Requirement that all wastes meet the LDRs and other requirements for disposal prior to their acceptance for disposal in the landfill.
- Revisions to the landfill leachate collection system and management plan.
- Revisions and updates to the engineering drawings to reflect the changes in the Facility.

The permit renewal application includes proposed changes to the text of the current permit and permit attachments in redline/strikeout format, so that all changes proposed under the permit renewal are clearly evident. The Part B permit application is presented as an original document. The changes to Part B may be reviewed in consistent changes highlighted in the permit attachments. The version of the permit used to create the renewal application is the version posted on the NMED website. The engineering design drawings provided in permit Attachment L1 are similarly marked to show drawings that are new, revised, or eliminated.

This permit renewal application includes all materials that are being revised from the original permit. Portions of the original permit that are applicable to the permit renewal are also being resubmitted with this application. The table of contents of this permit renewal application is followed by an application organization table, which indicates which sections of the application contents have been revised and which sections are supporting information from the original October 2000 permit application.

List of Acronyms

ALR	action leakage rate
ANOVA	analysis of variance
ASTM	American Society for Testing and Materials
AUY	animal unit year-long
BLM	U.S. Bureau of Land Management
CFR	Code of Federal Regulations
CQA	construction quality assurance
DOT	U.S. Department of Transportation
EC	emergency coordinator
EPA	U.S. Environmental Protection Agency
gpad	gallons per acre per day
HAS	health and safety
HDPE	high-density polyethylene
HELP	Hydrological Evaluation of Landfill Performance
FIRMB	Hazardous and Radioactive Materials Bureau
HSWA	Hazardous and Solid Waste Amendments
LCRS	leachate collection and removal system
LDRs	RCRA land disposal restrictions
LDRS	leak detection and removal system
MSDS	material safety data sheet
MTR	minimum technology requirements
NFPA	National Fire Protection Association
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NOAA	National Oceanic and Atmospheric Administration
NRC	National Response Center
OCD	Oil Conservation Division
OJT	on-the-job training
ONA	Outstanding Natural Area
OSHA	Occupational Safety and Health Administration
PA	public address
PCB	polychlorinated biphenyl
PMO	preventive maintenance order
PPE	personal protective equipment
ppm	parts per million
ppmw	parts per million by weight
PQL	practical quantitation limit
QA/QC	quality assurance/quality control
RFA	RCRA Facility Assessment
RCRA	Resource Conservation and Recovery Act
SCBA	self contained breathing apparatus
SWMU	Solid Waste Management Unit
TCE	trichloroethylene

TCLP	Toxicity Characteristic Leaching Procedure
TDS	total dissolved solids
TOC	total organic carbon
TSCA	Toxic Substances Control Act
USGS	U.S. Geological Survey
VZMS	vadose zone monitoring system

Regulatory Requirements Crosswalk

20.4.1.900 NMAC Regulatory Requirement	Description of Requirement	Location in the Renewal Application	Explanation of Why Requirement is Not Applicable (N/A)
§270.13	Revised Part A Application	Part A Application	
§270.14(b)(1)	General Facility Description	Section 1.1 and Permit Attachment A	
§270.14(b)(2)	Chemical and Physical Analyses of Waste	Section 4.5 and Permit Attachments F, F1, F2, F3, and F4	
§270.14(b)(3)	Waste Analysis Plan	Section 4 and Permit Attachments F, F1, F2, F3, and F4	
§270.14(b)(4)	Security Procedures	Section 5.1 and Permit Attachment B	
§270.14 (b)(5)	Inspection Schedule	Section 5.2 and Permit Attachments D and D1	
§270.14(b)(6)	Preparedness and Prevention Waiver	N/A	Permittee is not requesting a preparedness and prevention waiver.
§270.14(b)(7)	Contingency Plan	Section 6 and Permit Attachment C	
§270.14(b)(8)(i)	Prevent hazards in uploading operations	Section 5.4.1 and Permit Attachment B	
§270.14(b)(8)(ii)	Prevent runoff from hazardous waste handling areas	Section 5.4.2 and Permit Attachment B	
§270.14(b)(8)(iii)	Prevent contamination of water supplies	Section 5.4.4 and Permit Attachment B	
§270.14(b)(8)(iv)	Mitigate effects of equipment failure and power outages	Section 5.4.5 and Permit Attachment B	
§270.14(b)(8)(v)	Prevent undue exposure of personnel to hazardous waste	Section 5.4.6 and Permit Attachment B	
§270.14.(b)(8)(vi)	Prevent releases to atmosphere	Section 5.4.8 and Permit Attachment B	

Regulatory Requirements Crosswalk

20.4.1.900 NMAC Regulatory Requirement	Description of Requirement	Location in the Renewal Application	Explanation of Why Requirement is Not Applicable (N/A)
§270.14(b)(9)	Description of precautions to prevent accidental ignition or reaction of ignitable reactive, or incompatible wastes	Section 5.5 and Permit Attachment B	
§270.14(b)(10)	Traffic patterns, estimated volume, and control	Section 1.4 and Permit Attachment A	
§270.14(b)(11)(i)	Facility location information	Section 1.3 and Permit Attachment A	
§270.14(b)(11)(ii)	Seismic standard requirements	N/A	Refer to Appendix VI of Part 264, *Political Jurisdictions in Which Compliance with §264.18(a) Must Be Demonstrated.* The Triassic Park Waste Disposal Facility is located in Chaves County, New Mexico, which is not listed in Part 264, Appendix VI. No further information is required to demonstrate compliance with §264.18(a), *Location Standards.*
§270.14(b)(11)(iii) and (iv)	100-year floodplain standard	Section 1.3.1 and Permit Attachment A	
§270.14(b)(11)(v)	Compliance with 264.18(b)	N/A	As the Triassic Park Waste Disposal Facility is not in a flood plain, this requirement is not applicable.
§270.14(b)(12)	Personnel Training Program	Section 7 and Permit Attachment E	
§270.14(b)(13)	Closure and Post-Closure Plans	Section 8 and Permit Attachments O, O1, O2, P, and P1	
§270.14(b)(14)	Documentation of closed units (264.119)	N/A	The Triassic Park Waste Disposal Facility has not been constructed. Therefore, no units have opened or closed. This requirement is not applicable.

Regulatory Requirements Crosswalk

20.4.1.900 NMAC Regulatory Requirement	Description of Requirement	Location in the Renewal Application	Explanation of Why Requirement is Not Applicable (N/A)
§270.14(b)(15)	Closure cost estimate (264.142) and documentation (264.143)	Sections 8.7, 8.8, Table 8-3 and Permit Attachment O2 and Table O2-1	
§270.14(b)(16)	Post closure cost estimate (264.144) and documentation (264.145)	Sections 8.2, 8.7, Table 8-4 and Permit Attachment P1 and Table P1-1	
§270.14(b)(17)	Documentation of insurance (264.147)	Section 8.8.3	
§270.14(b)(18)	Proof of coverage by a State financial mechanism in compliance with §264.149 or §264.150	N/A	§264.149 and §264.150 are not applicable to the Facility
§270.14(b)(19)	Topographic map requirements	Part B Permit Application Figures 3-2 and 3-18	
§270.14(b)(20)	Additional information required by regulator	N/A	No additional information has been required at this time.
§270.14(b)(21)	Extension or petition for land disposal facilities	N/A	No extension has been requested.
§270.14(b)(22)	Summary of the pre-application meeting		No pre-application meeting was held.
§270.14(c)(1)	Summary of groundwater monitoring data obtained during interim status	N/A	The Triassic Park Waste Disposal Facility was never in interim status.
§270.14(c)(2)	Identification of the uppermost aquifer	Section 3.6.2.2 and Permit Attachment H	
§270.14(c)(3)	Delineation of waste management area, property boundary, point of compliance, and groundwater monitoring wells	Attachments A, H, and I	
§270.14(c)(4)	Description of any plume of contamination	N/A	There is not a contamination plume associated with the site.
§270.14(c)(5)	Describe proposed groundwater monitoring program to meet requirements of 40 CFR §264.97	Section 3.7 and Permit Attachments H and I	

Regulatory Requirements Crosswalk

20.4.1.900 NMAC Regulatory Requirement	Description of Requirement	Location in the Renewal Application	Explanation of Why Requirement is Not Applicable (N/A)
§270.14(c)(6)	Describe proposed detection monitoring program to meet requirements of 40 CFR §264.98	Section 3.7 and Permit Attachments H and I	
§270.14(c)(7)	Information relative to contamination in excess of limits	N/A	There is no contamination in excess of limits at the site.
§270.14(c)(8)	Information relative to contamination in excess of limits	N/A	No contamination has entered the groundwater from a regulated unit.
§270.14(d)	Information on SWMUs	N/A	There are no existing SWMUs.
§270.15	Requirements for storage in containers	N/A	The Triassic Park Waste Disposal Facility will not store hazardous waste in containers.
§270.16 thru §270.20	Information for tank systems, surface impoundments, waste piles, incinerators, and land treatment facilities	N/A	The Triassic Park Waste Disposal Facility will not include units covered by §270.16 thru §270.20.
§270.21(a)	Specific Part B information requirements for landfills List of Hazardous Waste	Part A List of Hazardous Waste	
§270.21(b)(1)(i)	Detailed plans, engineering report of landfill design Liner system	Section 2.5 and Permit Attachments L, L1, L2, L4, L5, and M	
§270.21(b)(1)(ii)	Detailed plans of the double liner leak (leachate) detection, collection and removal system	Section 2.5.1.2 and Permit Attachments L, L1, L2, L4, L5, and M	
§270.21(b)(1)(iii)	Design of leak detection system if located in a saturated zone	Section 2.5.1.4 and Permit Attachments I, L, and L1	
§270.21(b)(1)(iv)	Construction Quality Assurance plan required under §264.19	Section 2.5.2.3 and Permit Attachment M	
§270.21(b)(1)(v)	Proposed action leakage rate with rationale required under §264.302 and response action plan if required under §264.303	Section 2.5.3.8 and Permit Attachment J	

Regulatory Requirements Crosswalk

20.4.1.900 NMAC Regulatory Requirement	Description of Requirement	Location in the Renewal Application	Explanation of Why Requirement is Not Applicable (N/A)
§270.21(b)(2)	Control of run-on	Section 2.5.1.6 and Permit Attachments L, L1, and L4	
§270.21(b)(3)	Control of runoff	Section 2.5.1.6 and Permit Attachments L, L1, and L4	
§270.21(b)(4)	Run-on and runoff control system management	Sections 2.5.1.6 and Permit Attachments D, D1, L, and N	
§270.21(b)(4)	Control of wind dispersal of particulate matter	Sections 2.5.1.7 and Permit Attachments L and N	
§270.21(c)	Description of how liner system, leachate collection and removal system, leak detection system, cover system, and appurtenances for run-on and runoff will be inspected	Section 5.2.2 and Permit Attachments D and D1	
§270.21(d)	Description of landfill inspection	Section 5.2.2 and Permit Attachments D and D1	
§270.21(e)	Detailed plans and engineering report of final cover	Section 8.2.2 and Permit Attachments L, L1, and O	
§270.21(f)	Explain how ignitable and reactive waste will be landfilled under requirements of §264.312	Section 5.5 and Permit Attachment N	
§270.21(g)	Explain how incompatible wastes will be landfilled under requirements of §264.313	Section 5.5 and Permit Attachment N	
§270.21(h)	Waste landfilled before May 8, 1985	N/A	No waste disposal has occurred at the site.
§270.21(i)	Explain how containers of hazardous waste are to be landfilled as required by §264.315 or 264.316	Permit Attachment N	
§270.21(j)	Waste management plan for EPA Hazardous Waste nos. F020,F021, F023, F026, and F027	N/A	Triassic Park does not plan to accept EPA Hazardous Waste Nos. F020, F021, F023, F026, and F027.

Gandy Marley, Inc.
Triassic Park Waste Disposal Facility
Certification of Permit Renewal Application
October, 2011 Submittal

I certify under penalty of law that this document and all attachments were prepared under by direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

H Dale Gandy
Signature

10-9-11
Date

OMB# 2050-0024; Expires 11/30/2011

SEND COMPLETED FORM TO: The Appropriate State or Regional Office.	United States Environmental Protection Agency **RCRA SUBTITLE C SITE IDENTIFICATION FORM**

1. Reason for Submittal — MARK ALL BOX(ES) THAT APPLY

Reason for Submittal:

- ☐ To provide an Initial Notification (first time submitting site identification information / to obtain an EPA ID number for this location)
- ☐ To provide a Subsequent Notification (to update site identification information for this location)
- ☐ As a component of a First RCRA Hazardous Waste Part A Permit Application
- ☒ As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # 1)
- ☐ As a component of the Hazardous Waste Report (If marked, see sub-bullet below)
  - ☐ Site was a TSD facility and/or generator of ≥1,000 kg of hazardous waste, >1 kg of acute hazardous waste, or >100 kg of acute hazardous waste spill cleanup in one or more months of the report year (or State equivalent LQG regulations)

2. Site EPA ID Number	**EPA ID Number** N M 0 0 0 1 0 0 2 4 8 4
3. Site Name	**Name:** Triassic Park Waste Disposal Facility
4. Site Location Information	**Street Address:** U.S. Hwy. 380, 36 miles west of Tatum, New Mexico **City, Town, or Village:** Tatum — **County:** Chaves **State:** New Mexico — **Country:** U.S. — **Zip Code:** 88267
5. Site Land Type	☒ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other
6. NAICS Code(s) for the Site (at least 5-digit codes)	**A.** 5 6 2 2 1 1 — **C.** **B.** — **D.**
7. Site Mailing Address	**Street or P.O. Box:** P.O. Box 1658 **City, Town, or Village:** Roswell **State:** New Mexico — **Country:** U.S. — **Zip Code:** 88202
8. Site Contact Person	**First Name:** Larry — **MI:** — **Last:** Gandy **Title:** Vice President **Street or P.O. Box:** P.O. Box 1658 **City, Town or Village:** Roswell **State:** New Mexico — **Country:** U.S. — **Zip Code:** 88202 **Email:** Lgandy@gandycorporation.com **Phone:** 575-347-0434 — **Ext.:** — **Fax:**
9. Legal Owner and Operator of the Site	**A. Name of Site's Legal Owner:** Gandy Marley Inc. — **Date Became Owner:** July 22, 2000 **Owner Type:** ☒ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other **Street or P.O. Box:** P.O. Box 1658 **City, Town, or Village:** Roswell — **Phone:** 575-347-0434 **State:** New Mexico — **Country:** U.S. — **Zip Code:** 88202 **B. Name of Site's Operator:** Gandy Marley, Inc. — **Date Became Operator:** 1998 **Operator Type:** ☒ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

10. Type of Regulated Waste Activity (at your site)
Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities; Complete all parts 1-7.

Y ☐ N ☒ **1. Generator of Hazardous Waste**
If "Yes", mark only one of the following – a, b, or c.

☐ a. LQG: Generates, in any calendar month, 1,000 kg/mo (2,200 lbs./mo.) or more of hazardous waste; **or** Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lbs./mo) of acute hazardous waste; **or** Generates, in any calendar month, **or** accumulates at any time, more than 100 kg/mo (220 lbs./mo) of acute hazardous spill cleanup material.

☐ b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs./mo) of non-acute hazardous waste.

☐ c. CESQG: Less than 100 kg/mo (220 lbs./mo) of non-acute hazardous waste.

If "Yes" above, indicate other generator activities.

Y ☐ N ☐ d. Short-Term Generator (generate from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section.

Y ☐ N ☐ e. United States Importer of Hazardous Waste

Y ☐ N ☐ f. Mixed Waste (hazardous and radioactive) Generator

Y ☐ N ☒ **2. Transporter of Hazardous Waste**
If "Yes", mark all that apply.

☐ a. Transporter

☐ b. Transfer Facility (at your site)

Y ☒ N ☐ **3. Treater, Storer, or Disposer of Hazardous Waste** Note: A hazardous waste permit is required for these activities.

Y ☐ N ☒ **4. Recycler of Hazardous Waste**

Y ☐ N ☒ **5. Exempt Boiler and/or Industrial Furnace**
If "Yes", mark all that apply.

☐ a. Small Quantity On-site Burner Exemption

☐ b. Smelting, Melting, and Refining Furnace Exemption

Y ☐ N ☒ **6. Underground Injection Control**

Y ☒ N ☐ **7. Receives Hazardous Waste from Off-site**

B. Universal Waste Activities; Complete all parts 1-2.

Y ☐ N ☒ **1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste managed at your site. If "Yes", mark all that apply.**

a. Batteries ☐

b. Pesticides ☐

c. Mercury containing equipment ☐

d. Lamps ☐

e. Other (specify) ______________ ☐

f. Other (specify) ______________ ☐

g. Other (specify) ______________ ☐

Y ☐ N ☒ **2. Destination Facility for Universal Waste**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities; Complete all parts 1-4.

Y ☐ N ☒ **1. Used Oil Transporter**
If "Yes", mark all that apply.

☐ a. Transporter

☐ b. Transfer Facility (at your site)

Y ☐ N ☒ **2. Used Oil Processor and/or Re-refiner**
If "Yes", mark all that apply.

☐ a. Processor

☐ b. Re-refiner

Y ☐ N ☒ **3. Off-Specification Used Oil Burner**

Y ☐ N ☒ **4. Used Oil Fuel Marketer**
If "Yes", mark all that apply.

☐ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner

☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

D. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K

- You must check with your State to determine if you are eligible to manage laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K

☐ 1. Opting into or currently operating under 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories
See the item-by-item instructions for definitions of types of eligible academic entities. Mark all that apply:

☐ a. College or University

☐ b. Teaching Hospital that is owned by or has a formal written affiliation agreement with a college or university

☐ c. Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or university

☐ 2. Withdrawing from 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories

11. Description of Hazardous Waste

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

See attached	sheets					

B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-Regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

EPA ID Number |N|M|0||0|0|1||0|0|2||4|8|4| OMB#: 2050-0024; Expires 11/30/2011

12. Notification of Hazardous Secondary Material (HSM) Activity

Y ☐ N ☒ Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25)?

If "Yes", you must fill out the Addendum to the Site Identification Form: Notification for Managing Hazardous Secondary Material.

13. Comments

14. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. For the RCRA Hazardous Waste Part A Permit Application, all owner(s) and operator(s) must sign (see 40 CFR 270.10(b) and 270.11).

Signature of legal owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)
H. Lee Dailey	President	10/07/11

EPA ID Number N M 0 0 0 1 0 0 2 4 8 4 OMB#: 2050-0034; Expires 7/31/2012

United States Environmental Protection Agency

HARDOUS WASTE PERMIT INFORMATION FORM

1. Facility Permit Contact	**First Name:** Larry	**MI:**	**Last Name:** Gandy
	Contact Title: Vice President		
	Phone: 575-347-0434	**Ext.:**	**Email:** Lgandy@gandycorporation.con
2. Facility Permit Contact Mailing Address	**Street or P.O. Box:** P.O. Box 1658		
	City, Town, or Village: Roswell		
	State: New Mexico		
	Country: U.S.		**Zip Code:** 88202
3. Operator Mailing Address and Telephone Number	**Street or P.O. Box:** P.O. Box 1658		
	City, Town, or Village: Roswell		
	State: New Mexico		**Phone:** 575-347-0434
	Country: U.S.		**Zip Code:** 88202
4. Facility Existence Date	**Facility Existence Date (mm/dd/yyyy):** 1998		

5. Other Environmental Permits

A. Facility Type *(Enter code)*	**B. Permit Number**													**C. Description**
R	N	M	0	0	0	1	0	0	2	4	8	4		Hazardous Waste Disposal Permit
		5		6		2		2		1			1	

6. Nature of Business:

Hazardous Waste Disposal Facility

7. Process Codes and Design Capacities – Enter information in the Section on Form Page 3

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. If more lines are needed, attach a separate sheet of paper with the additional information. For "other" processes (i.e., D99, S99, T04 and X99), describe the process (including its design capacity) in the space provided in Item 8.

B. PROCESS DESIGN CAPACITY – For each code entered in Item 7.A; enter the capacity of the process.

1. **AMOUNT – Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.**
2. **UNIT OF MEASURE – For each amount entered in Item 7.B(1), enter the code in Item 7.B(2) from the list of unit of measure codes below that describes the unit of measure used. Select only from the units of measure in this list.**

C. PROCESS TOTAL NUMBER OF UNITS – Enter the total number of units for each corresponding process code.

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity
	Disposal	
D79	Underground Injection Well Disposal	Gallons; Liters; Gallons Per Day; or Liters Per Day
D80	Landfill	Acre-feet; Hectares-meter; Acres; Cubic Meters; Hectares; Cubic Yards
D81	Land Treatment	Acres or Hectares
D82	Ocean Disposal	Gallons Per Day or Liters Per Day
D83	Surface Impoundment Disposal	Gallons; Liters; Cubic Meters; or Cubic Yards
D99	Other Disposal	Any Unit of Measure Listed Below
	Storage	
S01	Container	Gallons; Liters; Cubic Meters; or Cubic Yards
S02	Tank Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
S03	Waste Pile	Cubic Yards or Cubic Meters
S04	Surface Impoundment	Gallons; Liters; Cubic Meters; or Cubic Yards
S05	Drip Pad	Gallons; Liters; Cubic Meters; Hectares; or Cubic Yards
S06	Containment Building Storage	Cubic Yards or Cubic Meters
S99	Other Storage	Any Unit of Measure Listed Below
	Treatment	
T01	Tank Treatment	Gallons Per Day; Liters Per Day
T02	Surface Impoundment	Gallons Per Day; Liters Per Day
T03	Incinerator	Short Tons Per Hour; Metric Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Gallons Per Day; Metric Tons Per Hour; or Million BTU Per Hour
T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Short Tons Per Day; BTUs Per Hour; Gallons Per Day; Liters Per Hour; or Million BTU Per Hour
T80	Boiler	Gallons; Liters; Gallons Per Hour; Liters Per Hour; BTUs Per Hour; or Million BTU Per Hour

Process Code	Process	Appropriate Unit of Measure for Process Design Capacity
	Treatment (Continued)	**(for T81 – T94)**
T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; Liters Per Hour; Kilograms Per Hour; or Million BTU Per Hour
T82	Lime Kiln	
T83	Aggregate Kiln	
T84	Phosphate Kiln	
T85	Coke Oven	
T86	Blast Furnace	
T87	Smelting, Melting, or Refining Furnace	
T88	Titanium Dioxide Chloride Oxidation Reactor	
T89	Methane Reforming Furnace	
T90	Pulping Liquor Recovery Furnace	
T91	Combustion Device Used in the Recovery of Sulfur Values from Spent Sulfuric Acid	
T92	Halogen Acid Furnaces	
T93	Other Industrial Furnaces Listed in 40 CFR 260.10	
T94	Containment Building Treatment	Cubic Yards; Cubic Meters; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; BTU Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million BTU Per Hour
	Miscellaneous (Subpart X)	
X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day; Pounds Per Hour; Kilograms Per Hour; Gallons Per Hour; Liters Per Hour; or Gallons Per Day
X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; BTU Per Hour; or Million BTU Per Hour
X04	Geologic Repository	Cubic Yards; Cubic Meters; Acre-feet; Hectare-meter; Gallons; or Liters
X99	Other Subpart X	Any Unit of Measure Listed Below

Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code
Gallons	**G**	**Short Tons Per Hour**	**D**	**Cubic Yards**	**Y**
Gallons Per Hour	**E**	**Short Tons Per Day**	**N**	**Cubic Meters**	**C**
Gallons Per Day	**U**	**Metric Tons Per Hour**	**W**	**Acres**	**B**
Liters	**L**	**Metric Tons Per Day**	**S**	**Acre-feet**	**A**
Liters Per Hour	**H**	**Pounds Per Hour**	**J**	**Hectares**	**Q**
Liters Per Day	**V**	**Kilograms Per Hour**	**X**	**Hectare-meter**	**F**
		Million BTU Per Hour	**X**	**BTU Per Hour**	**I**

7. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 7 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	1	S	0	2	533.788	G	001	
	1	D	8	0	553.200	Y	001	
	2							
	3							
	4							
	5							
	6							
	7							
	8							
	9							
1	0							
1	1							
1	2							
1	3							

Note: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the line sequentially, taking into account any lines that will be used for "other" process (i.e., D99, S99, T04, and X99) in Item 8.

8. Other Processes (Follow instructions from Item 7 for D99, S99, T04, and X99 process codes)

Line Number (Enter #s in sequence with Item 7)		A. Process Code (From list above)			B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure	C. Process Total Number of Units	For Official Use Only
X	2	T	0	4	100.00	U	001	
					NA			

9. Description of Hazardous Wastes - Enter Information in the Sections on Form Page 5

A. EPA HAZARDOUS WASTE NUMBER – Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR Part 261, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY – For each listed waste entered in Item 9.A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in Item 9.A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE – For each quantity entered in Item 9.B, enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure, taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all listed hazardous wastes.

For non-listed waste: For each characteristic or toxic contaminant entered in Item 9.A, select the code(s) from the list of process codes contained in Items 7.A and 8.A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. **Enter the first two as described above.**
2. **Enter "000" in the extreme right box of Item 9.D(1).**
3. **Use additional sheet, enter line number from previous sheet, and enter additional code(s) in Item 9.E.**

2. PROCESS DESCRIPTION: If code is not listed for a process that will be used, describe the process in Item 9.D(2) or in Item 9.E(2).

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. **Select one of the EPA Hazardous Waste Numbers and enter it in Item 9.A. On the same line complete Items 9.B, 9.C, and 9.D by estimating the total annual quantity of the waste and describing all the processes to be used to store, treat, and/or dispose of the waste.**
2. **In Item 9.A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In Item 9.D.2 on that line enter "included with above" and make no other entries on that line.**
3. **Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.**

EXAMPLE FOR COMPLETING Item 9 (shown in line numbers X-1, X-2, X-3, and X-4 below) – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operations. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)									(2) PROCESS DESCRIPTION (If code is not entered in 9.D(1))
X	1	K	0	5	4	900	P	T	0	3	D	8	0				
X	2	D	0	0	2	400	P	T	0	3	D	8	0				
X	3	D	0	0	1	100	P	T	0	3	D	8	0				
X	4	D	0	0	2												Included With Above

9. Description of Hazardous Wastes *(Continued. Use additional sheet(s) as necessary; number pages as 5a, etc.)*

Line Number	A. EPA Hazardous Waste No. (Enter code)	B. Estimated Annual Qty of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter Code)	D. PROCESSES (2) PROCESS DESCRIPTION (If code is not entered in 9.D(1))
1					
2		SEE	ATTACHED		
3		SHEETS			
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
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35					
36					

10. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all spring, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

11. Facility Drawing

All existing facilities must include a scale drawing of the facility (see instructions for more detail).

12. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas (see instructions for more detail).

13. Comments

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
D001	Only those ignitable wastes which can be treated by permitted methods prior to placement in the landfill.	42,120	T	D80, T01, S01, S02, T02	
D002	Only those corrosive wastes which can be treated by permitted methods prior to placement in the landfill.	42,120	T	D80, T01, S01, S02, T02	
D003	Only those reactive wastes which can be treated by permitted methods prior to placement in the landfill.	42,120	T	D80, T01, S01, S02, T02	
D004	Arsenic	42,120	T	D80, T01, S01, S02, T02	
D005	Barium	42,120	T	D80, T01, S01, S02, T02	
D006	Cadmium	42,120	T	D80, T01, S01, S02, T02	
D007	Chromium	42,120	T	D80, T01, S01, S02, T02	
D008	Lead	42,120	T	D80, T01, S01, S02, T02	
D009	Mercury	42,120	T	D80, T01, S01, S02, T02	
D010	Selenium	42,120	T	D80, T01, S01, S02, T02	
D011	Silver	42,120	T	D80, T01, S01, S02, T02	
D012	Endrin	42,120	T	D80, T01, S01, S02, T02	
D013	Lindane	42,120	T	D80, T01, S01, S02, T02	
D014	Methoxychlor	42,120	T	D80, T01, S01, S02, T02	
D015	Toxaphene	42,120	T	D80, T01, S01, S02, T02	
D016	2,4-D	42,120	T	D80, T01, S01, S02, T02	
D017	2,4,5-TP (Silvex)	42,120	T	D80, T01, S01, S02, T02	
D018	Benzene	42,120	T	D80, T01, S01, S02, T02	
D019	Carbon tetrachloride	42,120	T	D80, T01, S01, S02, T02	
D020	Chlordane	42,120	T	D80, T01, S01, S02, T02	
D021	Chlorobenzene	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
D022	Chloroform	42,120	T	D80, T01, S01, S02, T02	
D023	o-Cresol	42,120	T	D80, T01, S01, S02, T02	
D024	m-Cresol	42,120	T	D80, T01, S01, S02, T02	
D025	p-Cresol	42,120	T	D80, T01, S01, S02, T02	
D026	Cresol	42,120	T	D80, T01, S01, S02, T02	
D027	1,4-Dichlorobenzene	42,120	T	D80, T01, S01, S02, T02	
D028	1,2-Dichloroethane	42,120	T	D80, T01, S01, S02, T02	
D029	1,1-Dichloroethylene	42,120	T	D80, T01, S01, S02, T02	
D030	2,4-Dinitrotoluene	42,120	T	D80, T01, S01, S02, T02	
D031	Heptachlor (and its epoxide)	42,120	T	D80, T01, S01, S02, T02	
D032	Hexachlorobenzene	42,120	T	D80, T01, S01, S02, T02	
D033	Hexachlorobutadiene	42,120	T	D80, T01, S01, S02, T02	
D034	Hexachloroethane	42,120	T	D80, T01, S01, S02, T02	
D035	Methyl ethyl ketone	42,120	T	D80, T01, S01, S02, T02	
D036	Nitrobenzene	42,120	T	D80, T01, S01, S02, T02	
D037	Pentrachlorophenol	42,120	T	D80, T01, S01, S02, T02	
D038	Pyridine	42,120	T	D80, T01, S01, S02, T02	
D039	Tetrachloroethylene	42,120	T	D80, T01, S01, S02, T02	
D040	Trichloroethylene	42,120	T	D80, T01, S01, S02, T02	
D041	2,4,5-Trichlorophenol	42,120	T	D80, T01, S01, S02, T02	
D042	2,4,6-Trichlorophenol	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
D043	Vinyl chloride	42,120	T	D80, T01, S01, S02, T02	

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
F001	The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; All spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	42,120	T	D80, T01, S01, S02, T02	
F002	The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; All halogenated solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	42,120	T	D80, T01, S01, S02, T02	
F003	The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; All spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	42,120	T	D80, T01, S01, S02, T02	
F004	The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene: All spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	42,120	T	D80, T01, S01, S02, T02	
F005	The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; All spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
F006	Wastewater treatment sludges from electroplating operations except from the following processes:(1) Sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum	42,120	T	D80, T01, S01, S02, T02	
F007	Spent cyanide plating bath solutions from electroplating operations	42,120	T	D80, T01, S01, S02, T02	
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process	42,120	T	D80, T01, S01, S02, T02	
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process	42,120	T	D80, T01, S01, S02, T02	
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process	42,120	T	D80, T01, S01, S02, T02	
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations	42,120	T	D80, T01, S01, S02, T02	
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process	42,120	T	D80, T01, S01, S02, T02	
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process	42,120	T	D80, T01, S01, S02, T02	
F024	Process wastes, including but not limited to, distillation residues, heavy ends, tars, and reactor clean-out wastes from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution. (This listing does not include wastewaters, wastewater treatment sludges, spent catalysts, and wastes listed in §261.31 or §261.32.)	42,120	T	D80, T01, S01, S02, T02	
F025	Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution	42,120	T	D80, T01, S01, S02, T02	
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, F027.	42,120	T	D80, T01, S01, S02, T02	
F032	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with 40 CFR 261.35 of this chapter and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
F034	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving process generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	42,120	T	D80, T01, S01, S02, T02	
F035	Wastewaters (except those that have not come into contact with process contaminants), process residuals, preservative drippage, and spent formulations from wood preserving process generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.	42,120	T	D80, T01, S01, S02, T02	
F037	Petroleum refinery primary oil/water/solids separation sludge-Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in: oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and stormwater units receiving dry weather flow. Sludge generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges generated in aggressive biological treatment units as defined in 40 CFR 261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and K051 wastes are not included in this listing	42,120	T	D80, T01, S01, S02, T02	
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge-Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in: induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated from non-contact once-through cooling waters segregated for treatment from other process or oily cooling waters, sludges and floats generated in aggressive biological treatment units as defined in 40 CFR 261.31(b)(2) (including sludges and floats generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units) and F037, K048, and K051 wastes are not included in this listing	42,120	T	D80, T01, S01, S02, T02	
F039	Leachate (liquids that have percolated through land disposed wastes) resulting from the disposal of more than one restricted waste classified as hazardous under subpart D of this part. (Leachate resulting from the disposal of one or more of the following EPA Hazardous Wastes and no other Hazardous Wastes retains its EPA Hazardous Waste Number(s): F020, F021, F022, F026, F027, and/or F028.)	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol	42,120	T	D80, T01, S01, S02, T02	
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments	42,120	T	D80, T01, S01, S02, T02	
K003	Wastewater treatment sludge from the production of molybdate orange pigments	42,120	T	D80, T01, S01, S02, T02	
K004	Wastewater treatment sludge from the production of zinc yellow pigments	42,120	T	D80, T01, S01, S02, T02	
K005	Wastewater treatment sludge from the production of chrome green pigments	42,120	T	D80, T01, S01, S02, T02	
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated)	42,120	T	D80, T01, S01, S02, T02	
K007	Wastewater treatment sludge from the production of iron blue pigments	42,120	T	D80, T01, S01, S02, T02	
K008	Oven residue from the production of chrome oxide green pigments	42,120	T	D80, T01, S01, S02, T02	
K009	Distillation bottoms from the production of acetaldehyde from ethylene	42,120	T	D80, T01, S01, S02, T02	
K010	Distillation side cuts from the production of acetaldehyde from ethylene	42,120	T	D80, T01, S01, S02, T02	
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile	42,120	T	D80, T01, S01, S02, T02	
K013	Bottom stream from the acetonitrile column in the production of acrylonitrile	42,120	T	D80, T01, S01, S02, T02	
K014	Bottoms from the acetonitrile purification column in the production of acrylonitrile	42,120	T	D80, T01, S01, S02, T02	
K015	Still bottoms from the distillation of benzyl chloride	42,120	T	D80, T01, S01, S02, T02	
K016	Heavy ends or distillation residues from the production of carbon tetrachloride	42,120	T	D80, T01, S01, S02, T02	
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin	42,120	T	D80, T01, S01, S02, T02	
K018	Heavy ends from the fractionation column in ethyl chloride production	42,120	T	D80, T01, S01, S02, T02	
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production	42,120	T	D80, T01, S01, S02, T02	
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production	42,120	T	D80, T01, S01, S02, T02	
K021	Aqueous spent antimony catalyst waste from fluoromethanes production	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
K022	Distillation bottom tars from the production of phenol/acetone from cumene	42,120	T	D80, T01, S01, S02, T02	
K023	Distillation light ends from the production of phthalic anhydride from naphthalene	42,120	T	D80, T01, S01, S02, T02	
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene	42,120	T	D80, T01, S01, S02, T02	
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene	42,120	T	D80, T01, S01, S02, T02	
K026	Stripping still tails from the production of methy ethyl pyridines	42,120	T	D80, T01, S01, S02, T02	
K027	Centrifuge and distillation residues from toluene diisocyanate production	42,120	T	D80, T01, S01, S02, T02	
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane	42,120	T	D80, T01, S01, S02, T02	
K029	Waste from the product steam stripper in the production of 1,1,1-trichloroethane	42,120	T	D80, T01, S01, S02, T02	
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene	42,120	T	D80, T01, S01, S02, T02	
K031	By-product salts generated in the production of MSMA and cacodylic acid	42,120	T	D80, T01, S01, S02, T02	
K032	Wastewater treatment sludge from the production of chlordane	42,120	T	D80, T01, S01, S02, T02	
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane	42,120	T	D80, T01, S01, S02, T02	
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane	42,120	T	D80, T01, S01, S02, T02	
K035	Wastewater treatment sludges generated in the production of creosote	42,120	T	D80, T01, S01, S02, T02	
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton	42,120	T	D80, T01, S01, S02, T02	
K037	Wastewater treatment sludges from the production of disulfoton	42,120	T	D80, T01, S01, S02, T02	
K038	Wastewater from the washing and stripping of phorate production	42,120	T	D80, T01, S01, S02, T02	
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate	42,120	T	D80, T01, S01, S02, T02	
K040	Wastewater treatment sludge from the production of phorate	42,120	T	D80, T01, S01, S02, T02	
K041	Wastewater treatment sludge from the production toxaphene	42,120	T	D80, T01, S01, S02, T02	
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	*CHARACTERISTIC OR CONTAMINANT*	*ESTIMATED ANNUAL QUANTITY OF WASTE*	*UNIT OF MEASURE*	*PROCESS CODES*	*PROCESS DESCRIPTION*
K043	2,6-Dichlorophenol waste from the production of 2,4-D	42,120	T	D80, T01, S01, S02, T02	
K044	Wastewater treatment sludges from the manufacturing and processing of explosives	42,120	T	D80, T01, S01, S02, T02	
K045	Spent carbon from the treatment of wastewater containing explosives	42,120	T	D80, T01, S01, S02, T02	
K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds	42,120	T	D80, T01, S01, S02, T02	
K047	Pink/red water from TNT operations	42,120	T	D80, T01, S01, S02, T02	
K048	Dissolved air flotation (DAF) float from the petroleum refining industry	42,120	T	D80, T01, S01, S02, T02	
K049	Slop oil emulsion solids from the petroleum refining industry	42,120	T	D80, T01, S01, S02, T02	
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry	42,120	T	D80, T01, S01, S02, T02	
K051	API separator sludge from the petroleum refining industry	42,120	T	D80, T01, S01, S02, T02	
K052	Tank bottoms (leaded) from the petroleum refining industry	42,120	T	D80, T01, S01, S02, T02	
K060	Ammonia still lime sludge from coking operations	42,120	T	D80, T01, S01, S02, T02	
K061	Emission control dust/sludge from the primary production of steel in electric furnaces	42,120	T	D80, T01, S01, S02, T02	
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332)	42,120	T	D80, T01, S01, S02, T02	
K064	Acid plant blowdown slurry/sludge resulting from the thickening of blowdown slurry from primary copper production	42,120	T	D80, T01, S01, S02, T02	
K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities	42,120	T	D80, T01, S01, S02, T02	
K066	Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production	42,120	T	D80, T01, S01, S02, T02	
K069	Emission control dust/sludge from secondary lead smelting. (Note: This listing is stayed administratively for sludge generated from secondary acid scrubber systems. The stay will remain in effect until further administrative action is taken. If EPA takes further action effecting this stay, EPA will publish a notice of the action in the Federal Register.)	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTIO
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used	42,120	T	D80, T01, S01, S02, T02	
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production	42,120	T	D80, T01, S01, S02, T02	
K083	Distillation bottoms from aniline production	42,120	T	D80, T01, S01, S02, T02	
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds	42,120	T	D80, T01, S01, S02, T02	
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes	42,120	T	D80, T01, S01, S02, T02	
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead	42,120	T	D80, T01, S01, S02, T02	
K087	Decanter tank tar sludge from coking operations	42,120	T	D80, T01, S01, S02, T02	
K088	Spent potliners from primary aluminum reduction	42,120	T	D80, T01, S01, S02, T02	
K090	Emission control dust or sludge from ferrochromiumsilicon production	42,120	T	D80, T01, S01, S02, T02	
K091	Emission control dust or sludge from ferrochromium production	42,120	T	D80, T01, S01, S02, T02	
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene	42,120	T	D80, T01, S01, S02, T02	
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene	42,120	T	D80, T01, S01, S02, T02	
K095	Distillation bottoms from the production of 1,1,1-trichloroethane	42,120	T	D80, T01, S01, S02, T02	
K096	Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane	42,120	T	D80, T01, S01, S02, T02	
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane	42,120	T	D80, T01, S01, S02, T02	
K098	Untreated process wastewater from the production of toxaphene	42,120	T	D80, T01, S01, S02, T02	
K099	Untreated wastewater from the production of 2,4-D	42,120	T	D80, T01, S01, S02, T02	
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine	42,120	T	D80, T01, S01, S02, T02	
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene	42,120	T	D80, T01, S01, S02, T02	
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	42,120	T	D80, T01, S01, S02, T02	
K123	Process wastewater (including supernates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salt	42,120	T	D80, T01, S01, S02, T02	
K124	Reactor vent scrubber water from the production of ethylenebisdithiocarbamic acid and its salts	42,120	T	D80, T01, S01, S02, T02	
K125	Filtration, evaporation, and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts	42,120	T	D80, T01, S01, S02, T02	
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts	42,120	T	D80, T01, S01, S02, T02	
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide	42,120	T	D80, T01, S01, S02, T02	
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide	42,120	T	D80, T01, S01, S02, T02	
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene	42,120	T	D80, T01, S01, S02, T02	
K141	Process residues from the recovery of coal tar, including, but not limited to, collecting sump residues from the production of coke from coal or the recovery of coke by-products produced from coal. This listing does not include K087 (decanter tank tar sludges from coking operations).	42,120	T	D80, T01, S01, S02, T02	
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products from coal.	42,120	T	D80, T01, S01, S02, T02	
K143	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal.	42,120	T	D80, T01, S01, S02, T02	
K144	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the recovery of coke by-products produced from coal.	42,120	T	D80, T01, S01, S02, T02	
K145	Residues from naphthalene collection and recovery operations from the recovery of coke by-products produced from coal	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
K147	Tar storage tank residues from coal tar refining	42,120	T	D80, T01, S01, S02, T02	
K148	Residues from coal tar distillation, including but not limited to, still bottoms	42,120	T	D80, T01, S01, S02, T02	
K149	Distillation bottoms from the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups (this waste does not include still bottoms from the distillation of benzyl chloride).	42,120	T	D80, T01, S01, S02, T02	
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	42,120	T	D80, T01, S01, S02, T02	
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of alpha-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
P001	Warfarin, & salts, when present at concentrations greater than 0.3%, 2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1 phenylbutyl)-, & salts, when present at concentrations greater than 0.3%	42,120	T	D80, T01, S01, S02, T02	
P002	Acetamide, N-(aminothioxomethyl)-, 1-Acetyl-2-thiourea	42,120	T	D80, T01, S01, S02, T02	
P003	Acrolein, 2-Propenal	42,120	T	D80, T01, S01, S02, T02	
P004	Aldrin, 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro- 1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-	42,120	T	D80, T01, S01, S02, T02	
P005	2-Propen-1-ol, Allyl alcohol	42,120	T	D80, T01, S01, S02, T02	
P006	Aluminum phosphide	42,120	T	D80, T01, S01, S02, T02	
P007	5-(Aminomethyl)-3-isoxazolol, 3(2H)-Isoxazolone, 5-(aminomethyl)-	42,120	T	D80, T01, S01, S02, T02	
P008	4-Pyridinamine, 4-Aminopyridine	42,120	T	D80, T01, S01, S02, T02	
P009	Phenol, 2,4,6-trinitro-, ammonium salt, Ammonium picrate	42,120	T	D80, T01, S01, S02, T02	
P010	Arsenic acid H_3AsO_4	42,120	T	D80, T01, S01, S02, T02	
P011	Arsenic pentoxide, Arsenic oxide As_2O_5	42,120	T	D80, T01, S01, S02, T02	
P012	Arsenic oxide As_2O_3, Arsenic trioxide	42,120	T	D80, T01, S01, S02, T02	
P013	Barium cyanide	42,120	T	D80, T01, S01, S02, T02	
P014	Benzenethiol, Thiophenol	42,120	T	D80, T01, S01, S02, T02	
P015	Beryllium powder	42,120	T	D80, T01, S01, S02, T02	
P016	Dichloromethyl ether, Methane, oxybis[chloro-	42,120	T	D80, T01, S01, S02, T02	
P017	2-Propanone, 1-bromo-, Bromoacetone	42,120	T	D80, T01, S01, S02, T02	
P018	Strychnidin-10-one, 2,3-dimethoxy-, Brucine	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
P020	Phenol, 2-(1-methylpropyl)-4,6-dinitro-, Dinoseb	42,120	T	D80, T01, S01, S02, T02	
P021	Calcium cyanide, Calcium cyanide $Ca(CN)_2$	42,120	T	D80, T01, S01, S02, T02	
P022	Carbon disulfide	42,120	T	D80, T01, S01, S02, T02	
P023	Acetaldehyde, chloro-, Chloroacetaldehyde	42,120	T	D80, T01, S01, S02, T02	
P024	Benzenamine, 4-chloro-, p-Chloroaniline	42,120	T	D80, T01, S01, S02, T02	
P026	Thiourea, (2-chlorophenyl)-, 1-(o-Chlorophenyl)thiourea	42,120	T	D80, T01, S01, S02, T02	
P027	Propanenitrile, 3-chloro-, 3-Chloropropionitrile	42,120	T	D80, T01, S01, S02, T02	
P028	Benzene, (chloromethyl)-, Benzyl chloride	42,120	T	D80, T01, S01, S02, T02	
P029	Copper cyanide, Copper cyanide Cu(CN)	42,120	T	D80, T01, S01, S02, T02	
P030	Cyanides (soluble cyanide salts), not otherwise specified	42,120	T	D80, T01, S01, S02, T02	
P031	Ethanedinitrile, Cyanogen	42,120	T	D80, T01, S01, S02, T02	
P033	Cyanogen chloride (CN)Cl, Cyanogen chloride	42,120	T	D80, T01, S01, S02, T02	
P034	2-Cyclohexyl-4,6-dinitrophenol, Phenol, 2-cyclohexyl-4,6-dinitro-	42,120	T	D80, T01, S01, S02, T02	
P036	Dichlorophenylarsine, Arsonous dichloride, phenyl-	42,120	T	D80, T01, S01, S02, T02	
P037	Dieldrin, 2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexa- chloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aal- pha,2beta,2aalpha,3beta,6beta,6aalpha,7beta, 7aalpha)-	42,120	T	D80, T01, S01, S02, T02	
P038	Arsine, diethyl-, Diethylarsine	42,120	T	D80, T01, S01, S02, T02	
P039	Disulfoton, Phosphorodithioic acid, O,O-diethyl...S- [2-(ethylthio)ethyl] ester	42,120	T	D80, T01, S01, S02, T02	
P040	O,O-Diethyl O-pyrazinyl phosphorothioate, Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester	42,120	T	D80, T01, S01, S02, T02	
P041	Phosphoric acid, diethyl 4-nitrophenyl ester, Diethyl-p-nitrophenyl phosphate	42,120	T	D80, T01, S01, S02, T02	
P042	Epinephrine, 1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-,	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
P043	Phosphorofluoridic acid, bis(1-methylethyl) ester, Diisopropylfluorophosphate (DFP)	42,120	T	D80, T01, S01, S02, T02	
P044	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester, Dimethoate	42,120	T	D80, T01, S01, S02, T02	
P045	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[methylamino)carbonyl] oxime, Thiofanox	42,120	T	D80, T01, S01, S02, T02	
P046	Benzeneethanamine, alpha,alpha-dimethyl-, alpha,alpha-Dimethylphenethylamine	42,120	T	D80, T01, S01, S02, T02	
P047	Phenol, 2-methyl-4,6-dinitro-, & salts, 4,6-Dinitro-o-cresol, & salts	42,120	T	D80, T01, S01, S02, T02	
P048	Phenol, 2,4-dinitro-, 2,4-Dinitrophenol	42,120	T	D80, T01, S01, S02, T02	
P049	Dithiobiuret, Thioimidodicarbonic diamide $[(H_2N)C(S)]_2NH$	42,120	T	D80, T01, S01, S02, T02	
P050	Endosulfan, 6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide	42,120	T	D80, T01, S01, S02, T02	
P051	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexa- chloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta, 7aalpha)-, & metabolites, Endrin, & metabolites, Endrin	42,120	T	D80, T01, S01, S02, T02	
P054	Ethyleneimine, Aziridine	42,120	T	D80, T01, S01, S02, T02	
P056	Fluorine	42,120	T	D80, T01, S01, S02, T02	
P057	Acetamide, 2-fluoro-, Fluoroacetamide	42,120	T	D80, T01, S01, S02, T02	
P058	Acetic acid, fluoro-, sodium salt, Fluoroacetic acid, sodium salt	42,120	T	D80, T01, S01, S02, T02	
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro ...3a,4,7,7a-tetrahydro-, Heptachlor	42,120	T	D80, T01, S01, S02, T02	
P060	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa-chloro- 1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-, Isodrin	42,120	T	D80, T01, S01, S02, T02	
P062	Tetraphosphoric acid, hexaethyl ester, Hexaethyl tetraphosphate	42,120	T	D80, T01, S01, S02, T02	
P063	Hydrocyanic acid, Hydrogen cyanide	42,120	T	D80, T01, S01, S02, T02	
P064	Methyl isocyanate, Methane, isocyanato-	42,120	T	D80, T01, S01, S02, T02	
P065	Fulminic acid, mercury(2+) salt, Mercury fulminate	42,120	T	D80, T01, S01, S02, T02	
P066	Methomyl, Ethanimidothioic acid,...N-[[(methylamino)carbonyl]oxy]-, methyl ester	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
P067	Aziridine, 2-methyl-, 1,2-Propylenimine	42,120	T	D80, T01, S01, S02, T02	
P068	Methyl hydrazine, Hydrazine, methyl-	42,120	T	D80, T01, S01, S02, T02	
P069	2-Methyllactonitrile, Propanenitrile, 2-hydroxy-2-methyl-	42,120	T	D80, T01, S01, S02, T02	
P070	Propanal, 2-methyl-2-(methylthio)-,...O-[(methylami- no)carbonyl] oxime, Aldicarb	42,120	T	D80, T01, S01, S02, T02	
P071	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester, Methyl parathion	42,120	T	D80, T01, S01, S02, T02	
P072	Thiourea, 1-naphthalenyl-, alpha-Naphthylthiourea	42,120	T	D80, T01, S01, S02, T02	
P073	Nickel carbonyl $Ni(CO)_4$, (T-4)-, Nickel carbonyl	42,120	T	D80, T01, S01, S02, T02	
P074	Nickel cyanide, Nickel cyniide $Ni(CN)_2$	42,120	T	D80, T01, S01, S02, T02	
P075	Nicotine, & salts, Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts	42,120	T	D80, T01, S01, S02, T02	
P076	Nitric oxide, Nitrogen oxide NO	42,120	T	D80, T01, S01, S02, T02	
P077	p-Nitroaniline, Benzenamine, 4-nitro-	42,120	T	D80, T01, S01, S02, T02	
P078	Nitrogen dioxide, Nitrogen oxide NO_2	42,120	T	D80, T01, S01, S02, T02	
P081	1,2,3-Propanetriol, trinitrate, Nitroglycerine	42,120	T	D80, T01, S01, S02, T02	
P082	N-Nitrosodimethylamine, Methanamine, N-methyl-N-nitroso-	42,120	T	D80, T01, S01, S02, T02	
P084	N-Nitrosomethylvinylamine, Vinylamine, N-methyl-N-nitroso-	42,120	T	D80, T01, S01, S02, T02	
P085	Diphosphoramide, octamethyl-, Octamethylpyrophosphoramide	42,120	T	D80, T01, S01, S02, T02	
P087	Osmium oxide OsO_4, (T-4)-, Osmium tetroxide	42,120	T	D80, T01, S01, S02, T02	
P088	Endothall, 7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid	42,120	T	D80, T01, S01, S02, T02	
P089	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester, Parathion	42,120	T	D80, T01, S01, S02, T02	
P092	Phenylmercury acetate, Mercury, (acetato-O)phenyl-	42,120	T	D80, T01, S01, S02, T02	
P093	Thiourea, phenyl-, Phenylthiourea	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
P094	Phosphorodithioic acid, O,O-diethyl...S- [(ethylthio)methyl] ester, Phorate	42,120	T	D80, T01, S01, S02, T02	
P095	Phosgene, Carbonic dichloride	42,120	T	D80, T01, S01, S02, T02	
P096	Phosphine, Hydrogen phosphide	42,120	T	D80, T01, S01, S02, T02	
P097	Famphur, Phosphorothioic acid,...O-[4-[(dimethyl-amino)sulfonyl]phenyl] O,O-dimethyl ester	42,120	T	D80, T01, S01, S02, T02	
P098	Potassium cyanide, Potassium cyanide K(CN)	42,120	T	D80, T01, S01, S02, T02	
P099	Potassium silver cyanide, Argentate(1-), bis(cyano-C)-, potassium	42,120	T	D80, T01, S01, S02, T02	
P101	Ethyl cyanide, Propanenitrile	42,120	T	D80, T01, S01, S02, T02	
P102	Propargyl alcohol, 2-Propyn-1-ol	42,120	T	D80, T01, S01, S02, T02	
P103	Selenourea	42,120	T	D80, T01, S01, S02, T02	
P104	Silver cyanide Ag(CN), Silver cyanide	42,120	T	D80, T01, S01, S02, T02	
P105	Sodium azide	42,120	T	D80, T01, S01, S02, T02	
P106	Sodium cyanide, Sodium cyanide Na(CN)	42,120	T	D80, T01, S01, S02, T02	
P108	Strychnidin-10-one, & salts, Strychnine, & salts	42,120	T	D80, T01, S01, S02, T02	
P109	Thiodiphosphoric acid, tetraethyl ester, Tetraethyldithiopyrophosphate	42,120	T	D80, T01, S01, S02, T02	
P110	Plumbane, tetraethyl-, Tetraethyl lead	42,120	T	D80, T01, S01, S02, T02	
P111	Tetraethyl pyrophosphate, Diphosphoric acid, tetraethyl ester	42,120	T	D80, T01, S01, S02, T02	
P112	Tetranitromethane, Methane, tetranitro-	42,120	T	D80, T01, S01, S02, T02	
P113	Thallic oxide, Thallium oxide Tl_2O_3	42,120	T	D80, T01, S01, S02, T02	
P114	Selenious acid, dithallium(1+) salt, Thallium(I) selenite	42,120	T	D80, T01, S01, S02, T02	
P115	Thallium(I) sulfate, Sulfuric acid, dithallium(1+) salt	42,120	T	D80, T01, S01, S02, T02	
P116	Hydrazinecarbothioamide, Thiosemicarbazide	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
P118	Methanethiol, trichloro-, Trichloromethanethiol	42,120	T	D80, T01, S01, S02, T02	
P119	Vanadic acid, ammonium salt, Ammonium vanadate	42,120	T	D80, T01, S01, S02, T02	
P120	Vanadium oxide V_2O_5, Vanadium pentoxide	42,120	T	D80, T01, S01, S02, T02	
P121	Zinc cyanide $Zn(CN)_2$, Zinc cyanide	42,120	T	D80, T01, S01, S02, T02	
P122	Zinc phosphide Zn_3P_2, when present at concentrations greater than 10%	42,120	T	D80, T01, S01, S02, T02	
P123	Toxaphene	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U001	Acetaldehyde, Ethanal	42,120	T	D80, T01, S01, S02, T02	
U002	Acetone, 2-Propanone	42,120	T	D80, T01, S01, S02, T02	
U003	Acetonitrile	42,120	T	D80, T01, S01, S02, T02	
U004	Ethanone, 1-phenyl-, Acetophenone	42,120	T	D80, T01, S01, S02, T02	
U005	2-Acetylaminofluorene, Acetamide, N-9H-fluoren-2-yl-	42,120	T	D80, T01, S01, S02, T02	
U006	Acetyl chloride	42,120	T	D80, T01, S01, S02, T02	
U007	Acrylamide, 2-Propenamide	42,120	T	D80, T01, S01, S02, 02	
U008	Acrylic acid, 2-Propenoic acid	42,120	T	D80, T01, S01, S02, T02	
U009	Acrylonitrile, 2-Propenenitrile	42,120	T	D80, T01, S01, S02, T02	
U010	Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-, Mitomycin C	42,120	T	D80, T01, S01, S02, T02	
U011	Amitrole, 1H-1,2,4-Triazol-3-amine	42,120	T	D80, T01, S01, S02, T02	
U012	Aniline, Benzenamine	42,120	T	D80, T01, S01, S02, T02	
U014	Benzenamine, 4,4'-carbonimidoylbis [N,N-dimethyl-, Auramine	42,120	T	D80, T01, S01, S02, T02	
U015	Azaserine, L-Serine, diazoacetate (ester)	42,120	T	D80, T01, S01, S02, T02	
U016	Benz[c]acridine	42,120	T	D80, T01, S01, S02, T02	
U017	Benzal chloride, Benzene, (dichloromethyl)-	42,120	T	D80, T01, S01, S02, T02	
U018	Benz[a]anthracene	42,120	T	D80, T01, S01, S02, T02	
U019	Benzene	42,120	T	D80, T01, S01, S02, T02	
U020	Benzenesulfonic acid chloride, Benzenesulfonyl chloride	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U021	[1,1'-Biphenyl]-4,4'-diamine, Benzidine	42,120	T	D80, T01, S01, S02, T02	
U022	Benzo[a]pyrene	42,120	T	D80, T01, S01, S02, T02	
U023	Benzotrichloride, Benzene, (trichloromethyl)-	42,120	T	D80, T01, S01, S02, T02	
U024	Dichloromethoxy ethane, Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-	42,120	T	D80, T01, S01, S02, T02	
U025	Ethane, 1,1'-oxybis[2-chloro-, Dichloroethyl ether	42,120	T	D80, T01, S01, S02, T02	
U026	Chlornaphazin, Naphthalenamine, N,N'-bis(2-chloroethyl)-	42,120	T	D80, T01, S01, S02, T02	
U027	Dichloroisopropyl ether, Propane, 2,2'-oxybis[2-chloro-	42,120	T	D80, T01, S01, S02, T02	
U028	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester, Diethylhexyl phthalate	42,120	T	D80, T01, S01, S02, T02	
U029	Methane, bromo-, Methyl bromide	42,120	T	D80, T01, S01, S02, T02	
U030	Benzene, 1-bromo-4-phenoxy-, 4-Bromophenyl phenyl ether	42,120	T	D80, T01, S01, S02, T02	
U031	n-Butyl alcohol, 1-Butanol	42,120	T	D80, T01, S01, S02, T02	
U032	Calcium chromate, Chromic acid H_2CrO_4, calcium salt	42,120	T	D80, T01, S01, S02, T02	
U033	Carbon oxyfluoride, Carbonic difluoride	42,120	T	D80, T01, S01, S02, T02	
U034	Chloral, Acetaldehyde, trichloro-	42,120	T	D80, T01, S01, S02, T02	
U035	Chlorambucil, Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-	42,120	T	D80, T01, S01, S02, T02	
U036	Chlordane, alpha & gamma isomers, 4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-	42,120	T	D80, T01, S01, S02, T02	
U037	Benzene, chloro-, Chlorobenzene	42,120	T	D80, T01, S01, S02, T02	
U038	Chlorobenzilate, Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-al- pha-hydroxy-, ethyl ester	42,120	T	D80, T01, S01, S02, T02	
U039	p-Chloro-m-cresol, Phenol, 4-chloro-3-methyl-	42,120	T	D80, T01, S01, S02, T02	
U041	Epichlorohydrin, Oxirane, (chloromethyl)-	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U042	Ethene, (2-chloroethoxy)-, 2-Chloroethyl vinyl ether	42,120	T	D80, T01, S01, S02, T02	
U043	Ethene, chloro-, Vinyl chloride	42,120	T	D80, T01, S01, S02, T02	
U044	Chloroform, Methane, trichloro-	42,120	T	D80, T01, S01, S02, T02	
U045	Methane, chloro-, Methyl chloride	42,120	T	D80, T01, S01, S02, T02	
U046	Chloromethyl methyl ether, Methane, chloromethoxy-	42,120	T	D80, T01, S01, S02, T02	
U047	beta-Chloronaphthalene, Naphthalene, 2-chloro-	42,120	T	D80, T01, S01, S02, T02	
U048	o-Chlorophenol, Phenol, 2-chloro-	42,120	T	D80, T01, S01, S02, T02	
U049	4-Chloro-o-toluidine, hydrochloride, Benzenamine, 4-chloro-2-methyl-, hydrochloride	42,120	T	D80, T01, S01, S02, T02	
U050	Chrysene	42,120	T	D80, T01, S01, S02, T02	
U051	Creosote	42,120	T	D80, T01, S01, S02, T02	
U052	Cresol (Cresylic acid), Phenol, methyl-	42,120	T	D80, T01, S01, S02, T02	
U053	Crotonaldehyde, 2-Butenal	42,120	T	D80, T01, S01, S02, T02	
U055	Benzene, (1-methylethyl)-, Cumene	42,120	T	D80, T01, S01, S02, T02	
U056	Cyclohexane, Benzene, hexahydro-	42,120	T	D80, T01, S01, S02, T02	
U057	Cyclohexanone	42,120	T	D80, T01, S01, S02, T02	
U058	Cyclophosphamide, 2H-1,3,2-Oxazaphosphorin-2-amine,...N,N-bis(2-chloroethyl) tetrahydro-, 2-oxide	42,120	T	D80, T01, S01, S02, T02	
U059	5,12-Naphthacenedione, 8-acetyl-10- [(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-, Daunomycin	42,120	T	D80, T01, S01, S02, T02	
U060	DDD, Benzene, 1,1'-(2,2-dichloroethylidene)bis [4-chloro-	42,120	T	D80, T01, S01, S02, T02	
U061	DDT, Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-chloro-	42,120	T	D80, T01, S01, S02, T02	
U062	Diallate, Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	42,120	T	D80, T01, S01, S02, T02	

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EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U063	Dibenz[a,h]anthracene	42,120	T	D80, T01, S01, S02, T02	
U064	Benzo[rst]pentaphene, Dibenzo[a,i]pyrene	42,120	T	D80, T01, S01, S02, T02	
U066	1,2-Dibromo-3-chloropropane, Propane, 1,2-dibromo-3-chloro-	42,120	T	D80, T01, S01, S02, T02	
U067	Ethane, 1,2-dibromo-, Ethylene dibromide	42,120	T	D80, T01, S01, S02, T02	
U068	Methane, dibromo-, Methylene bromide	42,120	T	D80, T01, S01, S02, T02	
U069	Dibutyl phthalate, 1,2-Benzenedicarboxylic acid, dibutyl ester	42,120	T	D80, T01, S01, S02, T02	
U070	o-Dichlorobenzene, Benzene, 1,2-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U071	m-Dichlorobenzene, Benzene, 1,3-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U072	Benzene, 1,4-dichloro-, p-Dichlorobenzene	42,120	T	D80, T01, S01, S02, T02	
U073	3,3'-Dichlorobenzidine, [1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U074	1,4-Dichloro-2-butene, 2-Butene, 1,4-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U075	Methane, dichlorodifluoro-, Dichlorodifluoromethane	42,120	T	D80, T01, S01, S02, T02	
U076	Ethylidene dichloride, Ethane, 1,1-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U077	Ethylene dichloride, Ethane, 1,2-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U078	1,1-Dichloroethylene, Ethene, 1,1-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U079	1,2-Dichloroethylene, Ethene, 1,2-dichloro-, (E)-	42,120	T	D80, T01, S01, S02, T02	
U080	Methane, dichloro-, Methylene chloride	42,120	T	D80, T01, S01, S02, T02	
U081	2,4-Dichlorophenol, Phenol, 2,4-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U082	2,6-Dichlorophenol, Phenol, 2,6-dichloro-	42,120	T	D80, T01, S01, S02, T02	
U083	Propane, 1,2-dichloro-, Propylene dichloride	42,120	T	D80, T01, S01, S02, T02	
U084	1,3-Dichloropropene, 1-Propene, 1,3-dichloro-	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U085	2,2'-Bioxirane, 1,2:3,4-Diepoxybutane	42,120	T	D80, T01, S01, S02, T02	
U086	N,N'-Diethylhydrazine, Hydrazine, 1,2-diethyl-	42,120	T	D80, T01, S01, S02, T02	
U087	O,O-Diethyl S-methyl dithiophosphate, Phosphorodithioic acid, O,O-diethyl S-methyl ester	42,120	T	D80, T01, S01, S02, T02	
U088	Diethyl phthalate, 1,2-Benzenedicarboxylic acid, diethyl ester	42,120	T	D80, T01, S01, S02, T02	
U089	Diethylstilbesterol, Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-	42,120	T	D80, T01, S01, S02, T02	
U090	Dihydrosafrole, 1,3-Benzodioxole, 5-propyl-	42,120	T	D80, T01, S01, S02, T02	
U091	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-, 3,3'-Dimethoxybenzidine	42,120	T	D80, T01, S01, S02, T02	
U092	Methanamine, N-methyl-, Dimethylamine	42,120	T	D80, T01, S01, S02, T02	
U093	p-Dimethylaminoazobenzene, Benzenamine, N,N-dimethyl-4-(phenylazo)-	42,120	T	D80, T01, S01, S02, T02	
U094	Benz[a]anthracene, 7,12-dimethyl-, 7,12-Dimethylbenz[a]anthracene	42,120	T	D80, T01, S01, S02, T02	
U095	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-, 3,3'-Dimethylbenzidine, 233,3'-Dimethylbenzidine	42,120	T	D80, T01, S01, S02, T02	
U096	Hydroperoxide, 1-methyl-1-phenylethyl-, alpha,alpha-Dimethylbenzylhydroperoxide	42,120	T	D80, T01, S01, S02, T02	
U097	Carbamic chloride, dimethyl-, Dimethylcarbamoyl chloride	42,120	T	D80, T01, S01, S02, T02	
U098	1,1-Dimethylhydrazine, Hydrazine, 1,1-dimethyl-	42,120	T	D80, T01, S01, S02, T02	
U099	Hydrazine, 1,2-dimethyl-, 1,2-Dimethylhydrazine	42,120	T	D80, T01, S01, S02, T02	
U101	2,4-Dimethylphenol, Phenol, 2,4-dimethyl-	42,120	T	D80, T01, S01, S02, T02	
U102	1,2-Benzenedicarboxylic acid, dimethyl ester, Dimethyl phthalate	42,120	T	D80, T01, S01, S02, T02	
U103	Dimethyl sulfate, Sulfuric acid, dimethyl ester	42,120	T	D80, T01, S01, S02, T02	
U105	Benzene, 1-methyl-2,4-dinitro-, 2,4-Dinitrotoluene	42,120	T	D80, T01, S01, S02, T02	
U106	2,6-Dinitrotoluene, Benzene, 2-methyl-1,3-dinitro-	42,120	T	D80, T01, S01, S02, T02	
U107	Di-n-octyl phthalate, 1,2-Benzenedicarboxylic acid, dioctyl ester	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U108	1,4-Dioxane, 1,4-Diethyleneoxide	42,120	T	D80, T01, S01, S02, T02	
U109	1,2-Diphenylhydrazine, Hydrazine, 1,2-diphenyl-	42,120	T	D80, T01, S01, S02, T02	
U110	Dipropylamine, 1-Propanamine, N-propyl-	42,120	T	D80, T01, S01, S02, T02	
U111	Di-n-propylnitrosamine, 1-Propanamine, N-nitroso-N-propyl-	42,120	T	D80, T01, S01, S02, T02	
U112	Acetic acid ethyl ester, Ethyl acetate	42,120	T	D80, T01, S01, S02, T02	
U113	Ethyl acrylate, 2-Propenoic acid, ethyl ester	42,120	T	D80, T01, S01, S02, T02	
U114	Ethylenebisdithiocarbamic acid, salts & esters, Carbamodithioic acid, 1,2-ethanediylbis-,...salts & esters	42,120	T	D80, T01, S01, S02, T02	
U115	Ethylene oxide, Oxirane	42,120	T	D80, T01, S01, S02, T02	
U116	Ethylenethiourea, 2-Imidazolidinethione	42,120	T	D80, T01, S01, S02, T02	
U117	Ethyl ether, Ethane, 1,1'-oxybis-	42,120	T	D80, T01, S01, S02, T02	
U118	Ethyl methacrylate, 2-Propenoic acid, 2-methyl-, ethyl ester	42,120	T	D80, T01, S01, S02, T02	
U119	Ethyl methanesulfonate, Methanesulfonic acid, ethyl ester	42,120	T	D80, T01, S01, S02, T02	
U120	Fluoranthene	42,120	T	D80, T01, S01, S02, T02	
U121	Methane, trichlorofluoro-, Trichloromonofluoromethane	42,120	T	D80, T01, S01, S02, T02	
U122	Formaldehyde	42,120	T	D80, T01, S01, S02, T02	
U123	Formic acid	42,120	T	D80, T01, S01, S02, T02	
U124	Furfuran, Furan	42,120	T	D80, T01, S01, S02, T02	
U125	2-Furancarboxaldehyde, Furfural	42,120	T	D80, T01, S01, S02, T02	
U126	Glycidylaldehyde, Oxiranecarboxyaldehyde	42,120	T	D80, T01, S01, S02, T02	
U127	Benzene, hexachloro-, Hexachlorobenzene	42,120	T	D80, T01, S01, S02, T02	
U128	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-, Hexachlorobutadiene	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U129	Lindane, Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1al- pha,2alpha,3beta,4alpha,5alpha,6beta)-	42,120	T	D80, T01, S01, S02, T02	
U130	Hexachlorocyclopentadiene, 1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	42,120	T	D80, T01, S01, S02, T02	
U131	Hexachloroethane, Ethane, hexachloro-	42,120	T	D80, T01, S01, S02, T02	
U132	Hexachlorophene, Phenol, 2,2'-methylenebis[3,4,6-trichloro-	42,120	T	D80, T01, S01, S02, T02	
U133	Hydrazine	42,120	T	D80, T01, S01, S02, T02	
U134	Hydrogen fluoride, Hydrofluoric acid	42,120	T	D80, T01, S01, S02, T02	
U135	Hydrogen sulfide H_2S, Hydrogen sulfide	42,120	T	D80, T01, S01, S02, T02	
U136	Cacodylic acid, Arsinic acid, dimethyl-	42,120	T	D80, T01, S01, S02, T02	
U137	Indeno[1,2,3-cd]pyrene	42,120	T	D80, T01, S01, S02, T02	
U138	Methane, iodo-, Methyl iodide	42,120	T	D80, T01, S01, S02, T02	
U140	Isobutyl alcohol, 1-Propanol,	42,120	T	D80, T01, S01, S02, T02	
U141	Isosafrole, 1,3-Benzodioxole, 5-(1-propenyl)-	42,120	T	D80, T01, S01, S02, T02	
U142	Kepone, 1,3,4-Metheno-2H-cyclobuta [cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-U	42,120	T	D80, T01, S01, S02, T02	
U143	Lasiocarpine, 2-Butenoic acid, 2-methyl-, 7-[[2,3-dihydroxy-...2-(1-methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-...2,3,5,7 a-t etrahydro-1H-pyrrolizin-1-yl ester,...[1S-[1al-pha(Z),7(2S*,3R*),7aalpha]]-	42,120	T	D80, T01, S01, S02, T02	
U144	Lead acetate, Acetic acid, lead(2+) salt	42,120	T	D80, T01, S01, S02, T02	
U145	Lead phosphate, Phosphoric acid, lead(2+) salt (2:3)	42,120	T	D80, T01, S01, S02, T02	
U146	Lead, bis(acetato-O)tetrahydroxytri-, Lead subacetate	42,120	T	D80, T01, S01, S02, T02	
U147	Maleic anhydride, 2,5-Furandione	42,120	T	D80, T01, S01, S02, T02	
U148	Maleic hydrazide, 3,6-Pyridazinedione, 1,2-dihydro-	42,120	T	D80, T01, S01, S02, T02	
U149	Malononitrile, Propanedinitrile	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U150	Melphalan, L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-	42,120	T	D80, T01, S01, S02, T02	
U151	Mercury	42,120	T	D80, T01, S01, S02, T02	
U152	Methacrylonitrile, 2-Propenenitrile, 2-methyl-	42,120	T	D80, T01, S01, S02, T02	
U153	Methanethiol, Thiomethanol	42,120	T	D80, T01, S01, S02, T02	
U154	Methyl alcohol, Methanol	42,120	T	D80, T01, S01, S02, T02	
U155	Methapyrilene, 1,2-Ethanediamine, N,N-dimethyl-N'-2-pyridinyl-N'-(2- thienylmethyl)-	42,120	T	D80, T01, S01, S02, T02	
U156	Methyl chlorocarbonate, Carbonochloridic acid, methyl ester	42,120	T	D80, T01, S01, S02, T02	
U157	3-Methylcholanthrene, Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-	42,120	T	D80, T01, S01, S02, T02	
U158	4,4'-Methylenebis(2-chloroaniline), Benzenamine, 4,4'-methylenebis[2-chloro-	42,120	T	D80, T01, S01, S02, T02	
U159	Methyl ethyl ketone (MEK), 2-Butanone	42,120	T	D80, T01, S01, S02, T02	
U160	2-Butanone, peroxide, Methyl ethyl ketone peroxide	42,120	T	D80, T01, S01, S02, T02	
U161	4-Methyl-2-pentanone, Methyl isobutyl ketone, Pentanol, 4-methyl-	42,120	T	D80, T01, S01, S02, T02	
U161		42,120	T	D80, T01, S01, S02, T02	
U162	Methyl methacrylate, 2-Propenoic acid, 2-methyl-, methyl ester	42,120	T	D80, T01, S01, S02, T02	
U163	MNNG, Guanidine, N-methyl-N'-nitro-N-nitroso-	42,120	T	D80, T01, S01, S02, T02	
U164	Methylthiouracil, 4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	42,120	T	D80, T01, S01, S02, T02	
U165	Naphthalene	42,120	T	D80, T01, S01, S02, T02	
U166	1,4-Naphthalenedione, 1,4-Naphthoquinone	42,120	T	D80, T01, S01, S02, T02	
U167	1-Naphthalenamine, alpha-Naphthylamine	42,120	T	D80, T01, S01, S02, T02	
U168	beta-Naphthylamine, 2-Naphthalenamine	42,120	T	D80, T01, S01, S02, T02	
U169	Nitrobenzene, Benzene, nitro-	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U170	p-Nitrophenol, Phenol, 4-nitro-	42,120	T	D80, T01, S01, S02, T02	
U171	Propane, 2-nitro-, 2-Nitropropane	42,120	T	D80, T01, S01, S02, T02	
U172	1-Butanamine, N-butyl-N-nitroso-, N-Nitrosodi-n-butylamine	42,120	T	D80, T01, S01, S02, T02	
U173	Ethanol, 2,2'-(nitrosoimino)bis-, N-Nitrosodiethanolamine	42,120	T	D80, T01, S01, S02, T02	
U174	Ethanamine, N-ethyl-N-nitroso-, N-Nitrosodiethylamine	42,120	T	D80, T01, S01, S02, T02	
U176	N-Nitroso-N-ethylurea, Urea, N-ethyl-N-nitroso-	42,120	T	D80, T01, S01, S02, T02	
U177	Urea, N-methyl-N-nitroso-, N-Nitroso-N-methylurea	42,120	T	D80, T01, S01, S02, T02	
U178	Carbamic acid, methylnitroso-, ethyl ester, N-Nitroso-N-methylurethane	42,120	T	D80, T01, S01, S02, T02	
U179	N-Nitrosopiperidine, Piperidine, 1-nitroso-	42,120	T	D80, T01, S01, S02, T02	
U180	N-Nitrosopyrrolidine, Pyrrolidine, 1-nitroso-	42,120	T	D80, T01, S01, S02, T02	
U181	Benzenamine, 2-methyl-5-nitro-, 5-Nitro-o-toluidine	42,120	T	D80, T01, S01, S02, T02	
U182	Paraldehyde, 1,3,5-Trioxane, 2,4,6-trimethyl-	42,120	T	D80, T01, S01, S02, T02	
U183	Benzene, pentachloro-, Pentachlorobenzene	42,120	T	D80, T01, S01, S02, T02	
U184	Ethane, pentachloro-, Pentachloroethane	42,120	T	D80, T01, S01, S02, T02	
U185	Benzene, pentachloronitro-, Pentachloronitrobenzene (PCNB)	42,120	T	D80, T01, S01, S02, T02	
U186	1-Methylbutadiene, 1,3-Pentadiene	42,120	T	D80, T01, S01, S02, T02	
U187	Acetamide, N-(4-ethoxyphenyl)-, Phenacetin	42,120	T	D80, T01, S01, S02, T02	
U188	Phenol	42,120	T	D80, T01, S01, S02, T02	
U189	Sulfur phosphide, Phosphorus sulfide	42,120	T	D80, T01, S01, S02, T02	
U190	1,3-Isobenzofurandione, Phthalic anhydride	42,120	T	D80, T01, S01, S02, T02	
U191	2-Picoline2-methyl-, Pyridine, 2-methyl-	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U192	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-, Pronamide	42,120	T	D80, T01, S01, S02, T02	
U193	1,2-Oxathiolane, 2,2-dioxide, 1,3-Propane sultone	42,120	T	D80, T01, S01, S02, T02	
U194	n-Propylamine, 1-Propanamine	42,120	T	D80, T01, S01, S02, T02	
U196	Pyridine	42,120	T	D80, T01, S01, S02, T02	
U197	2,5-Cyclohexadiene-1,4-dione, p-Benzoquinone	42,120	T	D80, T01, S01, S02, T02	
U200	Reserpine, Yohimban-16-carboxylic acid, 11,17-dimethoxy-18- [(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3be- ta,16beta,17alpha,18beta,20alpha)-	42,120	T	D80, T01, S01, S02, T02	
U201	1,3-Benzenediol, Resorcinol	42,120	T	D80, T01, S01, S02, T02	
U202	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts, Saccharin, & salts	42,120	T	D80, T01, S01, S02, T02	
U203	1,3-Benzodioxole, 5-(2-propenyl)-, Safrole	42,120	T	D80, T01, S01, S02, T02	
U204	Selenium dioxide, Selenious acid	42,120	T	D80, T01, S01, S02, T02	
U205	Selenium sulfide, Selenium sulfide SeS_2	42,120	T	D80, T01, S01, S02, T02	
U206	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-...carbonyl]amino]-, Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-, D-, Streptozotocin	42,120	T	D80, T01, S01, S02, T02	
U207	Benzene, 1,2,4,5-tetrachloro-, 1,2,4,5-Tetrachlorobenzene	42,120	T	D80, T01, S01, S02, T02	
U208	Ethane, 1,1,1,2-tetrachloro-, 1,1,1,2-Tetrachloroethane	42,120	T	D80, T01, S01, S02, T02	
U209	Ethane, 1,1,2,2-tetrachloro-, 1,1,2,2-Tetrachloroethane	42,120	T	D80, T01, S01, S02, T02	
U210	Ethene, tetrachloro-, Tetrachloroethylene	42,120	T	D80, T01, S01, S02, T02	
U211	Carbon tetrachloride, Methane, tetrachloro-	42,120	T	D80, T01, S01, S02, T02	
U213	Furan, tetrahydro-, Tetrahydrofuran	42,120	T	D80, T01, S01, S02, T02	
U214	Acetic acid, thallium(1+) salt, Thallium(I) acetate	42,120	T	D80, T01, S01, S02, T02	
U215	Carbonic acid, dithallium(1+) salt, Thallium(I) carbonate	42,120	T	D80, T01, S01, S02, T02	

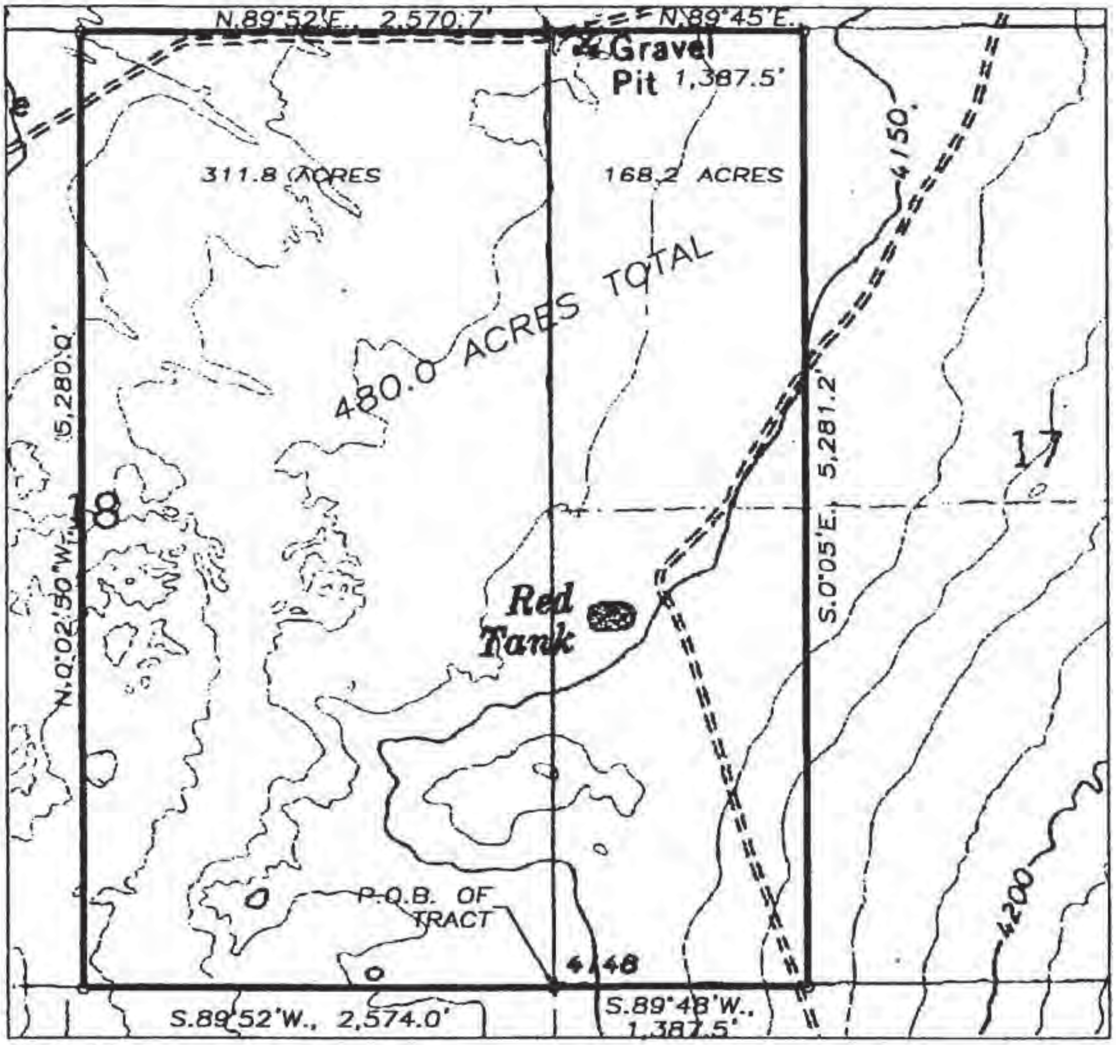
XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U216	Thallium(I) chloride, Thallium chloride Tlcl	42,120	T	D80, T01, S01, S02, T02	
U217	Nitric acid, thallium(1+) salt, Thallium(I) nitrate	42,120	T	D80, T01, S01, S02, T02	
U218	Ethanethioamide, Thioacetamide	42,120	T	D80, T01, S01, S02, T02	
U219	Thiourea	42,120	T	D80, T01, S01, S02, T02	
U220	Benzene, methyl-, Toluene	42,120	T	D80, T01, S01, S02, T02	
U221	Benzenediamine, ar-methyl-, Toluenediamine	42,120	T	D80, T01, S01, S02, T02	
U222	Benzenamine, 2-methyl-, hydrochloride, o-Toluidine hydrochloride	42,120	T	D80, T01, S01, S02, T02	
U223	Benzene, 1,3-diisocyanatomethyl-, Toluene diisocyanate	42,120	T	D80, T01, S01, S02, T02	
U225	Bromoform, Methane, tribromo-	42,120	T	D80, T01, S01, S02, T02	
U226	Ethane, 1,1,1-trichloro-, Methyl chloroform	42,120	T	D80, T01, S01, S02, T02	
U227	Ethane, 1,1,2-trichloro-, 1,1,2-Trichloroethane	42,120	T	D80, T01, S01, S02, T02	
U228	Ethene, trichloro-, Trichloroethylene	42,120	T	D80, T01, S01, S02, T02	
U234	Benzene, 1,3,5-trinitro-, 1,3,5-Trinitrobenzene	42,120	T	D80, T01, S01, S02, T02	
U235	Tris(2,3-dibromopropyl) phosphate, 1-Propanol, 2,3-dibromo-, phosphate (3:1)	42,120	T	D80, T01, S01, S02, T02	
U236	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl [1,1'-biphenyl]-4,4'-diyl)bis(azo)bis [5-amino-4-hydroxy]-, tetrasodium salt, Trypan blue	42,120	T	D80, T01, S01, S02, T02	
U237	Uracil mustard, 2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chl oroethyl)amino]-	42,120	T	D80, T01, S01, S02, T02	
U238	Ethyl carbamate (urethane), Carbamic acid, ethyl ester	42,120	T	D80, T01, S01, S02, T02	
U239	Benzene, dimethyl-, Xylene	42,120	T	D80, T01, S01, S02, T02	
U240	2,4-D, salts & esters, Acetic acid, (2,4-dichlorophenoxy)-, salts & esters	42,120	T	D80, T01, S01, S02, T02	
U243	Hexachloropropene, 1-Propene, 1,1,2,3,3,3-hexachloro-	42,120	T	D80, T01, S01, S02, T02	

XIV DESCRIPTION OF HAZARDOUS WASTES

EPA CODE	CHARACTERISTIC OR CONTAMINANT	ESTIMATED ANNUAL QUANTITY OF WASTE	UNIT OF MEASURE	PROCESS CODES	PROCESS DESCRIPTION
U244	Thioperoxydicarbonic diamide $[(H_2N)C(S)]_2S_2$, tetramethyl-, Thiram	42,120	T	D80, T01, S01, S02, T02	
U246	Cyanogen bromide (CN)Br	42,120	T	D80, T01, S01, S02, T02	
U247	Methoxychlor, Benzene, 1,1'-(2,2,2-trichloroethylidene)bis [4-methoxy-	42,120	T	D80, T01, S01, S02, T02	
U248	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations of 0.3% or less, Warfarin, & salts, when present at concentrations of 0.3% or less	42,120	T	D80, T01, S01, S02, T02	
U249	Zinc phosphide Zn_3P_2, when present at concentrations of 10% or less	42,120	T	D80, T01, S01, S02, T02	
U328	Benzenamine, 2-methyl-, o-Toluidine	42,120	T	D80, T01, S01, S02, T02	
U353	Benzenamine, 4-methyl-, p-Toluidine	42,120	T	D80, T01, S01, S02, T02	
U359	Ethylene glycol monoethyl ether, Ethanol, 2-ethoxy-	42,120	T	D80, T01, S01, S02, T02	

SECTIONS 17 & 18, TOWNSHIP 11 SOUTH, RANGE 31 EAST, NMPM, CHAVES COUNTY, NEW MEXICO.



DESCRIPTION:

A 480.0 ACRE TRACT OF LAND LOCATED IN SECTIONS 17 & 18, TOWNSHIP 11 SOUTH, RANGE 31 EAST, NMPM, CHAVES COUNTY, NEW MEXICO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS;

BEGINNING AT THE POINT OF BEGINNING OF SAID TRACT A POINT BEING THE SOUTH COMMON CORNER BETWEEN SAID SECTION 17 & 18 (SOUTHEAST CORNER OF SAID SECTION 18 AND THE SOUTHWEST CORNER OF SAID SECTION 17); THENCE S.89°52'W., 2,574.0 FEET ALONG THE SOUTH SECTION LINE OF SAID SECTION 18; THENCE N.0°02'50"W., 5,280.0 FEET TO THE NORTH SECTION LINE OF SECTION 18; THENCE N.89°52'E., 2,570.7 FEET, ALONG THE NORTH SECTION LINE OF SECTION 18 TO THE NORTH COMMON CORNER BETWEEN SAID SECTIONS 17 & 18; THENCE N.89°45'E., 1,387.5 FEET ALONG THE NORTH SECTION LINE OF SECTION 17; THENCE S.0°05'E., 5,281.2 FEET TO THE SOUTH SECTION LINE OF SECTION 17; THENCE S.89°48'W., 1,387.5 FEET ALONG THE SOUTH SECTION LINE OF SECTION 17, BACK TO THE POINT OF BEGINNING OF SAID TRACT, DESCRIBING 480.0 ACRES, MORE OR LESS.

1000' 0 1000' 2000'

Scale 1" = 50'

THE PREPARATION OF THIS PLAT AND THE PERFORMANCE OF THE SURVEY UPON WHICH IT IS BASED WERE DONE UNDER MY DIRECTION AND THE PLAT ACCURATELY DEPICTS THE RESULTS OF SAID SURVEY AND MEET THE REQUIREMENTS OF THE STANDARDS FOR LAND SURVEYS IN NEW MEXICO AS ADOPTED BY THE NEW MEXICO STATE BOARD OF REGISTRATION FOR PROFESSIONAL ENGINEERS AND LAND SURVEYORS.

3640

HERSCHEL L. JONES R.L.S. No.3640

GENERAL SURVEYING COMPANY P.O. BOX 1928
LOVINGTON, NEW MEXICO 88260

GANDY — MARLEY INC.

A 480.0 ACRE TRACT OF LAND LOCATED IN SECTIONS 17 & 18, TOWNSHIP 11 SOUTH, RANGE 31 EAST, NMPM, CHAVES COUNTY, NEW MEXICO.

Survey Date: 7/20/2000	Sheet 1 of 1 Sheets
Drawn By: Ed Blevins	W.O. Number
Date: 7/22/00	Scale 1" = 1000' GANDY

Permit Renewal Application
October 17, 2011

Part B Application

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List of Acronyms

ALR	action leakage rate
ANOVA	analysis of variance
ASTM	American Society for Testing and Materials
AUY	animal unit year-long
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CQA	Construction Quality Assurance
DOT	U.S. Department of Transportation
EC	emergency coordinator
EPA	U.S. Environmental Protection Agency
gpad	gallons per acre per day
HAS	health and safety
HDPE	high-density polyethylene
HELP	Hydrological Evaluation of Landfill Performance
FIRMB	Hazardous and Radioactive Materials Bureau
HSWA	Hazardous and Solid Waste Amendments
LCRS	leachate collection and removal system
LDRs	land disposal restrictions
LDRS	leak detection and removal system
MSDS	Material Safety Data Sheet
MTR	Minimum Technology Requirements
NFPA	National Fire Protection Association
NMED	New Mexico Environment Department
NOAA	National Oceanic and Atmospheric Administration
NRC	National Response Center
OCD	Oil Conservation Division
OJT	on-the-job training
ONA	Outstanding Natural Area
OSHA	Occupational Safety and Health Administration
PA	public address
PCB	polychlorinated biphenyl
PMO	preventive maintenance order
PPE	personal protective equipment
ppm	parts per million
ppmw	parts per million by weight
PQL	practical quantitation limit
QA/QC	quality assurance/quality control

RFA	RCRA Facility Assessment
RCRA	Resource Conservation and Recovery Act
SCBA	self contained breathing apparatus
SWMU	Solid Waste Management Unit
TCE	trichloroethylene
TCLP	Toxicity Characteristic Leaching Procedure
TDS	total dissolved solids
TOC	total organic carbon
TSCA	Toxic Substances Control Act
USGS	U.S. Geological Survey
VZMS	vadose zone monitoring system

1. General Facility Standards

This section provides a general description of the Triassic Park Waste Disposal Facility (the Facility), including waste management practices, site environment and climate, location information, emergency management, and traffic patterns.

1.1 General Description

The Facility will be a full-service Resource Conservation and Recovery Act (RCRA) Subtitle C waste disposal operation. The Facility will be located in southeastern New Mexico on approximately 480 acres of privately owned land in Chaves County, New Mexico (Figure 1-1). By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure 1-2.

All waste placed in the Facility will meet land disposal restrictions (LDRs) prior to disposal. The Facility will accept polychlorinated biphenyl (PCB) wastes that are not regulated by Toxic Substances Control Act (TSCA); that is, only PCB wastes at concentrations of less than 500 parts per million (ppm) for bulk PCB remediation waste.

1.1.4 Land Disposal

A landfill will be utilized for the disposal of waste that meets LDRs. Support units and structures include a chemical laboratory, administration building, weigh scale area, maintenance shop, clay processing area, clay liner material stockpiles, daily cover stockpiles, and a stormwater detention basin.

Because the Facility has not yet been constructed or operated, there are no solid waste management units (SWMUs) at this time. Satellite and/or 90-day accumulation areas may possibly be located at the chemical laboratory and the maintenance shop. Other areas at the Facility that may be designated as SWMUs include the untarping, sampling, and weigh scales area, the truck staging area, and the stormwater retention basin. Detailed information on location, unit type and dimensions, and a structural description of these units is provided in the design of the Facility contained in Permit Attachments L, L1, L2 (Engineering Report and attachments) and M (Construction Quality Assurance Plan).

1.1.5 Facility Name

Gandy Marley, Inc. (GMI) owns the Facility. The waste disposal operations covered by this permit will operate under the name of the Triassic Park Waste Disposal Facility.

1.1.6 Facility Contact

Larry Gandy, Vice President.
Gandy Marley, Inc.
P.O. Box 1658
Roswell, New Mexico 88202
575-347-0434

1.1.7 Facility Address

P.O. Box 1658
Roswell, New Mexico 88202

1.1.8 Purpose of Facility

The purpose of the Facility will be the permanent disposal of hazardous wastes in a manner protective of human health and the environment. Wastes that do not meet LDRs will not be accepted for placement into the landfill. Infectious wastes and radioactive wastes will be prohibited at this Facility. The Waste Analysis Plan (Permit Attachment F) contains more details regarding wastes that can be accepted at the Facility and wastes that are prohibited.

1.1.9 Facility Location

The Facility will be located in southeastern New Mexico on approximately 480 acres of privately owned land in Chaves County, New Mexico, Sections 17 and 18 of R31E, T11S (Figure 1-1). By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure 1-2. The only major road in the vicinity is U.S. Highway 380, which runs east and west approximately 4 miles north of the proposed site. State Highway 172, which runs north and south, is approximately 4 miles east of the proposed site. State Highway 172 is not a major thoroughfare and does not provide access to the proposed site.

1.1.10 Hazardous Waste Generation

Some hazardous waste will be generated as a result of normal Facility operations. Various support operations will likely generate such wastes. Examples of typical hazardous waste forms likely to be generated during normal Facility operations include solvents, oils, acids and bases, laboratory chemicals and equipment, paint and paint strippers, sludges, solvent contaminated solids, and personal protective equipment (PPE). Non-recyclable hazardous wastes, excluding liquids, will be disposed of on-site in accordance with the requirements outlined in Section 4.5.6 of the Waste Analysis Plan (Permit Attachment F). Any waste not meeting LDRs will be managed through off-site disposal at a facility permitted to accept the material..

1.1.11 Sanitary Waste Generation

Sanitary liquid wastes will be generated in most Facility buildings. This waste form consists primarily of shower water, janitorial wastes, rest room wastes, and liquid wastes generated from cleaning operations. Non-hazardous liquid wastes will be managed as sewage and disposed of off-site.

1.1.12 Non-Hazardous Refuse Generation

Non-hazardous municipal solid waste (MSW) and construction and demolition (C&D) waste will be generated during building and normal operations at the Facility. These wastes will include such things as cardboard packing containers, garbage, paper refuse, and construction debris. Collection, transportation, and disposal of non-recyclable waste will be contracted to a MSW and C&D waste disposal company. Recyclable wastes, such as office paper, will be sent off-site for usable materials recovery. The disposal of non-routine waste materials will be administratively controlled on a case-by-case basis in accordance with applicable regulatory requirements.

1.2 Site Environment and Climate

The selected site for the Facility is on the western edge of a geological bench known locally as the Caprock. The Caprock is characterized by rocky terrain which runs north and south. Detailed information about the geologic characteristics of the site is contained in Section 3.

The site is approximately 4,150 feet above sea level. Climatic conditions of the area are typical of semiarid regions and are characterized by dry, warm winters with minimal snow cover and hot, somewhat moister summers. The frost-free season averages from 190 to 215 days per year. The mean annual soil temperature ranges from 59 to 65 degrees Fahrenheit (°F). The average annual precipitation rate for Roswell for a 118-year record of data from 1894 to 2011 is 11.6 inches per year. Winter precipitation usually consists of occasional snowfall from November through April. Snowfall typically melts within a short period of time. Most precipitation (approximately 80 percent of the annual total) occurs between June and September.

Normally, two-thirds of the summer days reach temperatures in excess of 90°F, with maximum temperatures commonly 100°F or higher. Night temperatures during the winter months commonly fall below freezing, occasionally reaching below 0°F. Moderate temperatures are typical at the Facility throughout the year, with annual average high and low temperatures of 75°F and 45°F, respectively.

The prevailing wind is from the south. Winds of up to 40 miles per hour are common during the spring and in association with summer thunderstorms.

Area vegetation consists primarily of Tobosa, Buffalo Grass, Vine-Mesquite, Mesquite, Cactus, Sand Dropseed, Little Bluestem, Sand Bluestem, Sandbur, Three-Awn, Shinnery Oak, Yucca, and Sand Sagebrush. According to the New Mexico Forestry and Resources Conservation Division of the State Department of Energy, Minerals, and Natural Resources, there are no rare or endangered plant species located in either Section 17 or 18.

According to the Bureau of Land Management (BLM) - Roswell Resource Area, there are 54 bird species, 33 species of mammals, and 36 species of reptiles and amphibians in what is designated as the Caprock Wildlife Habitat Area. The Facility location is within that wildlife habitat designation.

Pursuant to the United States Endangered Species Act, there are 35 listed and sensitive species in Chaves County and 17 species of concern, which are identified for planning purposes only. As of February 28, 1996, the ferruginous hawk (*Buteo regalis*) is no longer listed as a candidate species but does remain a species of management concern.

The sand dune lizard (formerly the sand dune sagebrush lizard) (*Scelopurus graciosus arenicolous*) and the lesser prairie chicken are currently listed as candidate species. In 2008, the U.S. BLM adopted a Special Status Resource Management Plan for both the sand dune lizard and the lesser prairie chicken.

GMI will continue to monitor the existence of threatened or endangered species in the area. Should any threatened or endangered species be identified within the Facility area, GMI will take measures to ensure that these species are protected. GMI will implement protective measures for the wildlife population in the area, including the use of restrictive fencing around the operational portions of the Facility.

1.3 Location Information

A topographic map of the site has been developed from a 1997 aerial photograph and U.S. Geological Survey (USGS) 7.5 minute series map (Mescalero Point, New Mexico, 1973) and is presented in Drawing 3 (Permit Attachment L1). This drawing illustrates Facility boundaries, access roads, access control locations, internal roads, and site fences. The Facility layout is presented as Drawing 4 (Permit Attachment L1) of this Permit Application.

The site is located in eastern Chaves County, in an area that has historically been utilized primarily as range land for livestock grazing and for limited oil and gas activities. The residence nearest the site is owned by Marley Ranches, Ltd. and is located approximately 2.9 miles to the east-southeast. Land ownership for a

4-mile radius around the site is shown in Figure 1-1. All of the residences within a 10-mile radius of the site are listed in Figure 1-3.

The site will encompass 480 acres and will be enclosed by a 3-strand barbwire fence. Gates to the same height as the perimeter fence will be constructed. The area will be secured and monitored so that only authorized personnel or personnel being accompanied and supervised by authorized personnel are allowed on-site. Employees responsible for site security will be present at all times to prevent unauthorized entry and to report unusual events and/or emergencies. Site security personnel will be responsible for conducting regular inspections and routine maintenance of the perimeter area (see Section 5).

Land use plans and/or zoning maps have not been developed for Chaves County. All areas within the county, except those within municipal boundaries, are designated as Zone A (agricultural). The eastern half of the county is further designated as Area 1 and the western half as Area 2. Area 1 and Area 2 are zoning Land Use Areas, whose boundaries have been determined by a joint-powers agreement between the Board of Chaves County Commissioners and the Roswell City Council. Existing uses in Area 1 are livestock grazing, mineral exploration and production, wildlife habitat, and extensive recreation. Single-family dwellings require permits in Area 1. Area 2 covers an important part of the recharge area of the Roswell Artesian Basin. Existing uses in Area 2 are livestock grazing, mineral exploration and production, extensive recreation, wildlife habitat, and flood control structures and floodways. Any new parcels created in the area must be 5 acres or larger.

Approximately 2 miles northwest of the Facility location, the Mescalero Sands recreational "complex" has been established for use by off-road vehicles. The South Dunes area of Mescalero Sands has been designated as an "Outstanding Natural Area" (ONA) and is utilized by the public primarily for wildlife observation activities.

The land in the area of the Facility is used predominantly for grazing cattle and to a much lesser extent for oil and gas exploration activities. The nearest production well is 3 miles from the site. Additional information about the drilling activities in the area is contained in Section 3 of this document.

All abandoned wells in the area have been plugged in accordance with New Mexico Oil Conservation Division (OCD) regulations. These regulations require the use of mud-laden fluids, cement, and plugs in the well "in a way to confine crude petroleum oil, natural gas, or water in the strata in which it is found and to prevent it from escaping into other strata." Surface reclamation of abandoned wells prevents surface water from entering and contaminating subsurface strata.

1.3.1 Flood Plain Information

Sections 17 and 18, T11S, R31E are included on Federal Insurance Rate Map 35005C1775D. This map has not been printed because this is a non-participating community, a status that generally indicates that the area is an area of minimal flood hazard. This information was originally provided to GMI by the Director of Planning and Environmental Services, Chaves County, New Mexico, and was confirmed with the National Flood Insurance Program at their website, www.msc.fema.gov on October 11, 2011.

To confirm that the Facility is an area of minimal flood hazard, stormwater runoff calculations were performed to determine whether the site falls within the flood plain of a 100-year, 24-hour storm event. Based on information in the Precipitation Frequency Atlas published by the National Oceanic and Atmospheric Association, a rainfall amount of 5.75 inches was used in the calculations. The nearest drainage to the site was determined from the USGS 7 5-minute series topographic map of the Mescalero Point Quadrangle (see Section 3.0). This drainage flows westerly from Mescalero Point, which is approximately 0.75 mile south of the site.

Stormwater runoff flows were calculated for the area using the Rational Method (see the Surface Water Control Plan in Attachment CC). A runoff coefficient of 0.3 was used in the calculations. It was determined that the maximum flow could be accommodated in a triangular channel with a width of 78 feet at a water depth of 1.2 feet. It may be concluded from this calculation that a flood plain does not exist for the drainage and that there are no flood plains within 1 mile of the site. It may be further concluded that flood plain regulations are not applicable to this Facility.

1.3.2 Fire Control and Emergency Response

Fire control and emergency response will be the responsibility of the Emergency Coordinator (EC) who is on call or duty at the time of an incident. Each EC will be trained to handle emergencies and to notify appropriate authorities (see Section 7.0). Each EC will have the authority to commit resources necessary to implement the site Contingency Plan described in Section 6.

In addition to on-site emergency response capabilities, cooperative agreements will be established with local emergency response organizations in surrounding communities to respond to and assist in any emergencies that arise at the Facility (see Section 6).

1.4 Traffic Patterns

The flow of traffic within the Facility boundary will not be significant except during shift changes. The number of employee vehicles will not be substantial enough to require elaborate signage or other traffic control systems. All personnel will be given written instructions that will caution them to be alert to other vehicles and pedestrians. Each vehicle must enter and exit through the security gate at the northeast comer of the perimeter of the Facility boundary. Drawing 26, Sheet 2 in Permit Attachment L1 illustrates traffic flow patterns for the operations and waste processing area, traffic control signage and truck staging areas.

1.4.1 Traffic Control

Access to the Facility will be gained through the security gate at the northeast comer of the perimeter fence (see Drawing 26, Sheet 2 in Permit Attachment L1). Authorization to enter the Facility will be verified for each vehicle. Visitors will be required to sign in at the guard shack and will be escorted while on-site unless other arrangements are made with the Facility. Only authorized persons will be allowed past the security gate guard shack.

1.4.2 On-Site Transportation of Wastes

All trucks transporting wastes will be stopped at the security gate prior to entering the Facility. Security personnel will record the license number, transportation company, arrival time, and other pertinent information with regard to the vehicle and driver.

After being granted access to the Facility through the security gate entrance, waste transport vehicles will be directed to the untarping/sampling area. Here, a sample of the waste will be collected for fingerprint testing, along with the shipment manifest and other pertinent documentation. While the sample is being analyzed at the chemical laboratory, the truck will be directed to the weigh scales and finally to the truck staging area. The truck will remain at the staging area until laboratory analysis verifies that the waste meets acceptance criteria and the waste characteristics are consistent with profile information from the shipment manifest.

Following determination that waste acceptance criteria have been met, the truck will be directed to the landfill, where the waste will be placed in the landfill for permanent disposal.

1.4.3 Routes

Transporters must use U.S. Highway 380 to reach the Facility. U.S. Highway 380 runs east and west between Roswell and Tatum, New Mexico as shown in Figure 1-2.

1.5 Remainder of Permit Renewal Application

The remainder of the Permit Renewal Application discusses disposal; groundwater protection; Facility design; waste analysis; procedures to prevent hazards; contingency plan; personnel training; closure; waste minimization; corrective action; and organic air emissions. A list of references used for the preparation of this application is also provided.

2. Disposal Process

This section provides a general description of the disposal process for the Facility. Detailed design drawings and associated engineering reports are contained in Permit Attachments L, Engineering Report, and L1, Engineering Drawings. The drawings and specifications present final designs for the RCRA permitted landfill. Details on the non-RCRA components of the Facility will be supplemented during the bidding and construction phase. GMI will supply the additional details on the non-RCRA components of the design to the New Mexico Environment Department (NMED) for review and approval prior to the start of construction.

2.1 Facility Overview

An overview of the Facility layout is provided in Permit Attachment L1, Drawing 4, and identifies areas to be used for waste acceptance, waste receiving, and waste disposal activities at the Facility. Each activity is described below.

2.1.1 Facility Waste Acceptance

Prior to initiation of a shipment of waste to the Facility, the generator of the waste must provide a full characterization of its waste and receive approval from the Facility to ship the waste. This process is more completely described in the Waste Analysis Plan presented in Section 4. The Facility will use the waste characterization data to perform the following activities:

- ensure that the waste can be accepted in accordance with the RCRA permit;
- verify that the Facility has the capability to properly dispose of the waste;
- identify any safety precautions that must be taken to properly manage the waste;
- use the physical characteristics and chemical composition of the waste to determine whether the waste may be accepted for disposal;
- select parameters to be tested upon arrival at the Facility to verify that the waste accepted is the waste characterized; and
- develop a cost estimate for disposal.

2.1.2 Waste Receiving

Once approved for acceptance at the Facility, the waste can be shipped. The Facility can be accessed only from New Mexico State Highway 380, as shown in Figure 1-2. When a shipment arrives at the Facility, a Facility representative will verify that the shipment was scheduled. If unscheduled shipments arrive at the Facility, the Facility manager will be consulted to determine if the appropriate paperwork has been received and the shipment can be accepted.

The shipment and shipping papers will be inspected to ensure that the correct inventory has been received, that the hazardous waste manifest is properly completed, and that an LDR certification is attached. Any discrepancies will be resolved prior to acceptance of the shipment. If discrepancies cannot be resolved, the shipment will be rejected. Representative samples of the waste will be taken and fingerprint testing will be conducted. Fingerprint testing is described in Section 4.5 of the Waste Analysis Plan. If the fingerprint test results are inconsistent with the generator's information, several actions can be taken (see Section 4.5). Waste will be received only if fingerprint tests are consistent with information provided by the waste generator. Containers and drums will be inspected for visible cracks, holes or gaps.

2.1.5 Waste Disposal

Wastes arriving at the Facility that meet LDRs and contain no free liquids will be directly landfilled. When wastes are unable to be directly landfilled, such as during landfill equipment maintenance periods or extreme weather conditions, the waste will not be unloaded and will be temporarily stored in the truck staging area.

An access ramp will be constructed from the top of the landfill to the bottom of the active portion of the landfill (see Drawings 8 and 14 in Permit Attachment L1). Bulk hazardous wastes will be placed and compacted on the bottom of the landfill in 5- to 10-foot layers or lifts. Containers (drums) will be placed upright in the cell using a forklift or barrel snatcher. Sufficient space will be left around the containers for the placement and compaction of compatible bulk hazardous wastes or soil. Materials in roll-off containers will be dumped with the bedliners at preselected locations. Containers or bulk waste can be placed adjacent to the roll-off material. A layer of cover soil sufficient to prevent wind dispersal of waste will be placed over the bulk hazardous wastes and containers following emplacement or before the end of each working day (see Section 2.5.1.7). The soil cover will be deposited on top of the waste placement face and then spread and compacted with a landfill compactor or tracked bulldozer. The minimum cover thickness will be 0.5 foot.

The landfill will be laid out in an engineered grid system consisting of blocks that are 50 feet wide, 50 feet in length, and 10 feet in depth. Grid stakes will be established by survey. A two-dimensional grid system along with lift elevation designation will provide a three-dimensional record of the location of all wastes placed in the landfill. Records of the location, date of placement, waste source, manifest, and profile numbers will be maintained at the Facility.

2.5 Landfill

This section describes the design, construction, and operation of the landfill. The detailed design for the landfill is contained in Permit Attachments L, Engineering Report, and L1, Engineering Drawings. The overall landfill will be constructed in phases, as shown on Drawing 4. The first phase to be considered will be Phase 1A. This permit application refers only to Phase 1A. However, potential expansions of the landfill in future phases have been included in the general layout drawing for completeness. Detailed design drawings (Permit Attachment L1) are only submitted for Phase 1A. The landfill design is presented on Drawings 6 through 27, and a list of these drawings is provided on Drawing 1, Sheet 2.

2.5.1 Design of Landfill

The landfill design specifies a double-lined landfill with a leachate collection and removal system (LCRS) above the primary liner and a leak detection and removal system (LDRS) between the primary and secondary liners. The detailed design specifically describes the relationship between the existing site topography and the landfill subgrade.

2.5.1.1 Nature and Quantity of Waste

As specified in the Waste Analysis Plan in Section 4, the Facility will accept RCRA hazardous waste and PCB waste, excluding selected waste. The excluded waste is listed in the Waste Analysis Plan (Section 4).

The wastes that will be accepted for placement in the landfill include all wastes listed in the Part A Permit Application. All waste to be placed in the landfill must meet LDR treatment standards. Additional details on wastes to be accepted at the Facility can be found in Section 4.1.1, Waste Analysis Plan.

The total landfill will have an area of approximately 100 acres and a capacity of approximately 10 million cubic yards of waste. The Phase 1A area will include approximately 35 acres (estimated final cover area) and have a capacity of approximately 553,200 cubic yards.

2.5.1.2 Liner Systems

The liner system will be installed to cover all surrounding earth that may come in contact with waste or leachate (see Drawings 9 and 11 in Permit Attachment L1). The primary liner system will consist of, from top to bottom, a 2-foot layer of protective soil, a geocomposite drainage layer, and a HDPE geomembrane liner. The secondary liner system will consist of a geocomposite drainage layer, HDPE geomembrane liner, geosynthetic clay layer (GCL), and 6 inches of prepared subgrade. Both the primary and secondary liner systems will extend over the floor and slope areas of the landfill

The primary and secondary geomembrane liners will be constructed of HDPE as defined in the construction specifications. This material will have sufficient strength and thickness to prevent failure as a result of pressure gradients, physical contact with waste or leachate, climatic conditions, stress of installation, and stress of daily operations. The liner systems and geosynthetic drainage layers will rest upon a prepared subgrade capable of providing support to the geosynthetics and preventing failure due to settlement, compression, or uplifting.

Initially, the Phase 1A liner system will be installed. As authorized in future permits, the liner system will be installed in stages as the landfill expands both in the vertical direction up slope and in the horizontal direction by phase. The three horizontal phases of landfill expansion are shown in Drawings 4, 6 and 7 in Permit Attachment L1. The benching technique considered for expansion of the landfill vertically up slope is shown in Drawings 8 through 11 (Permit Attachment L1) for Phase 1A. Geosynthetic liner component tie-ins for the vertical expansion will be made on the access ramps leading into the landfill.

Stresses to the liner system can result from consolidation settlement of the subgrade during waste filling and localized equipment loading during protective soil placement. The subgrade consists of the 6 inch thickness of prepared soil subgrade and the existing ground formations below the landfill (see Drawing 7, Permit Attachment L1). Because the existing ground formations have been prestressed by overburden forces prior to landfill excavation, additional consolidation settlement during waste filling will be minimal.

Consolidation settlement of the 6 inch prepared soil subgrade layer will also be minimal because it is limited by the thickness of this layer and because this material will be compacted during installation. Localized equipment loading to the liner during protective soil placement will be controlled by specifying maximum equipment ground pressures in the construction specifications and by monitoring the placement of this material. Monitoring can be performed by individuals operating the placement equipment or by grade checkers who will observe the material placement to assure that appropriate thicknesses have been installed.

2.5.1.3 Leachate Collection and Removal System (LCRS)

The LCRS will be located above the primary liner system. Drawing 12 in Permit Attachment L1 provides the design details of the LCRS. A filtered LCRS layer consisting of a geocomposite drainage material will be constructed. Within the floor area of the LCRS layer will be the primary leachate collection piping, which is used to remove leachate from the landfill during the active life and post-closure care period. The piping as shown in Drawing 12 is nominally 8 inches in diameter.

As demonstrated in the engineering report (Permit Attachment L), the LCRS will be (1) constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated; (2) of sufficient strength and thickness to prevent collapse under pressure exerted by overlying wastes, waste cover material, and equipment used in the landfill; and (3) designed and operated to minimize clogging during the active life and post-closure care period through selection of an appropriate geotextile for the filtration application.

The LCRS is sloped so that any leachate above the primary liner will drain to the sump. Phase 1A includes one sump as shown in Drawings 8, 15, 16, and 17 (Permit Attachment L1). The sump and liquid removal methods will be of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer.

The sump will be lined with the same liner system components as elsewhere in the landfill except that the drainage layer will expand to include gravel and a compacted clay liner material beneath the primary and secondary geomembranes in the sump area. Leachate that collects in the sump will be pumped through a pipe to the surface of the landfill where it will be collected in temporary storage tanks.

The leachate storage tanks will be chemically resistant, double lined poly tanks anchored to a concrete crest pad as shown in Sheets 1 and 2 of Drawing 19 (Permit Attachment L1). To prevent overfilling of the tanks, an individual tank will be installed for each landfill phase, and each tank will be equipped with high-level control switches, which will automatically shut down the leachate collection or leak detection sump pumps. In addition, an alarm will be activated that will notify personnel that the system requires maintenance. Pumps will be hard piped to the leachate storage tanks, and flow meters will be installed to monitor leachate pumping from the landfill should a catastrophic tank or pipe failure occur. All piping will be located within the concrete tank pad. The pump control panel will be located inside the tank pad with electrical wiring enclosed in waterproof conduits.

The sump system will provide a method for measuring and recording the volume of liquid removed. Drainage materials will meet the minimum drainage requirements per the specifications. Sump design, filter fabric selection, floor pipe design, pump design, disposal system design, and action leakage rate (ALR) calculations involving removal of leachate flow from a 1-mm^2 hole/acre are discussed in the engineering report (Permit Attachment L). All pumpable liquid in the sump will be removed in a timely manner to prevent the head on the primary liner from exceeding 12 inches.

Leachate will be managed by recirculating the liquid and applying it to the landfill soil cover for enhanced evaporation. A moveable piping and sprinkler system will be used to distribute the water onto the soil cover. Vacuum trucks with spray bars may also be used to apply leachate to the soil cover. Management of leachate has been evaluated through calculations that are provided with the Engineering Report in Permit Attachment L. Calculations show that the leachate generation rate is much less than the potential evaporation rate within the Phase 1A landfill. Management of leachate by recirculation for enhanced evaporation keeps all leachate and potential contaminants within the lined landfill cell.

2.5.1.4 Leak Detection and Removal System (LDRS)

The design of the LDRS is similar to the design of the LCRS. The LDRS will be capable of detecting, collecting, and removing leaks of hazardous constituents through areas of the primary liner during the active life and post-closure care period. A filtered LDRS layer consisting of a geocomposite will be constructed below the primary geomembrane. Within the LDRS layer will be the LDRS piping, which will be used to detect and remove liquid from between the primary and secondary liners. The piping arrangement is shown on Drawing 18 in Permit Attachment L1.

As demonstrated in the engineering report (Permit Attachment L), the LDRS will be (1) constructed with a bottom slope of one percent or more; (2) constructed of a geocomposite with a hydraulic conductivity that exceeds 1 x 10^{-2} cm/s; (3) constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated; (4) of sufficient strength and thickness to prevent collapse under pressure exerted by overlying wastes, waste cover material, and equipment used at the landfill; and (5) designed and operated to minimize clogging during the active life and post-closure care period.

In addition, the sump and liquid removal methods are designed to be of sufficient size to collect and remove liquid from the sump and prevent liquid from backing up into the drainage layer (see ALR calculations in Permit Attachment J). A method will be provided for measuring and recording the volume of liquid present in the sump and liquid removed. All pumpable liquid in the sump will be removed in a timely manner to maintain the head on the secondary liner at less than 12 inches. The pump for the LDRS sump is located at the sump's low point so that pumpable liquids can be removed to the maximum extent possible.

2.5.1.5 Vadose Zone Monitoring System

The vadose zone monitoring system (VZMS) sump serves as a detection system for potential leakage from the secondary LDRS system. Located directly beneath the LDRS sump, leakage through the secondary liner system will flow into the VZMS sump, allowing it to be detected and removed. The vadose pipe and gravel arrangement is similar to the LCRS and LDRS arrangements. Drawings 16 through 18 (Permit Attachment L1) show the VZMS sump.

2.5.1.6 Run-On/Runoff Control

The run-on/runoff system is designed to be constructed, operated and maintained to control at least the water volume resulting from a 24-hour, 25-year storm. The run-on/runoff control system design is provided in Permit Attachment L. The purpose of the run-on/runoff control system is to prevent any contamination present on-site from migrating off-site by minimizing the volume of liquid entering the landfill and therefore, limiting the potential to transport contaminants placed in the landfill.

Run-on/runoff will be collected in one of three different collection basins, depending on the source of the water. The collection basins are listed and discussed in detail below:

- The Facility Stormwater Detention Basin
- The Phase 1A Landfill Stormwater Collection Basin
- The Phase 1A Landfill Contaminated Water Basin

The Facility Stormwater Detention Basin is located northwest of the landfill area, as shown on Drawings 6 and 25 (Permit Attachment L1). Run-on originating from around the landfill will be directed away from the proposed landfill area using unlined landfill perimeter ditches (see Drawing 25). These ditches will prevent water from outside the landfill from entering the active portion of the landfill Based on the topography of the site, the run-on is expected to move from the east/southeast to the west/northwest and be diverted to the Stormwater Detention Basin. The Stormwater Detention Basin is also intended to collect runoff from the rest of the Facility (not including the landfill) and will be lined with a single 60-mil HDPE liner as a precaution to prevent infiltration of ponded stormwater.

The Phase 1A Landfill Stormwater Collection Basin is located at the toe of the inter-phase cut slope in the landfill, as shown on Drawings 10 and 13 (Permit Attachment L1). This basin will collect runoff from the inactive portion of the Phase 1A landfill. During the initial stages of the landfill operation, runoff from the landfill side slopes above the liner system will be channeled away from the waste by the slope drainage interceptor ditch. The water in the Stormwater Collection Basin will be handled as clean water because it will not come in contact with the landfill waste. The basin is lined with a single 60-mil HDPE liner.

The Phase 1A Landfill Contaminated Water Basin is located at the bottom of the Phase 1A landfill, as shown on Drawing 10. This basin overlies the landfill liner system. The contaminated water basin will be maintained to ensure that the adequate amount of protective cover soil (2 feet) is present over the liner system.

Runoff from the active portion of the landfill, which does not infiltrate into the LCRS, will be collected in the landfill contaminated water basin. Runoff water collected within the contaminated water basin will be managed by pumping the water to remove the standing water in the basin and applying it to the landfill soil cover for enhanced evaporation. A moveable piping and sprinkler system will be used to distribute the water onto the soil cover. Vacuum trucks with spray bars may also be used to apply water to the soil cover. Management of runoff water within the Phase 1A landfill has been evaluated through calculations that are provided with the Engineering Report in Permit Attachment L. Because evaporation rates greatly exceed precipitation rates at the site, runoff water can be removed from the basin and eliminated by enhanced evaporation. Management of runoff water by recirculation for enhanced evaporation keeps all water that has a potential to contact waste within the lined landfill cell.

2.5.1.7 Wind Dispersal Control Procedures

Wind dispersal control will consist of a daily soil cover obtained from excavation. Typically, the daily cover will consist of soil spread on top of the waste placement area to a depth of approximately 0.5 foot.

Depending on the local wind conditions, traffic, and the number of fine particles in the soil cover, dust may be generated from the surface. Typically, this dust generation is reduced by restricting traffic to predetermined haul roads on the surface of the daily cover and applying small amounts of water spray to moisten the soil surface. Water applied for dust control may include clean water supply, leachate, and runoff water collected within the landfill contaminated water basin. The water will be applied using both a piping and sprinkler system and water trucks equipped with a pump, piping, and an array of nozzles that spray very small water droplets onto the soil cover.

The frequency of the water application depends on the climate and traffic. In areas on the daily cover surface where traffic is not present, an occasional water spray will cause a crust to form on the soil surface, inhibiting dust formation. Sufficient moisture will be applied to all soil surfaces, including roads, on an as needed basis to prevent wind erosion of the daily cover. However, the application of water will be limited so that ponding in the landfill does not occur. Because the water is a topical surface application, the majority of it will evaporate or be absorbed rather than seep through the waste to become leachate.

2.5.1.8 Gas Generation Management

The landfill will not receive MSW or C&D waste, limiting the gas generated as a result of biological decomposition of organic wastes. Organic wastes placed in the landfill will meet LDRs, which will limit the organic gas generation potential. The waste acceptance procedures at the Facility will be designed to limit receipt of wastes with potential for significant gas generation. The waste acceptance program is described in Section 4.3 and outlines the procedures that will be used to test for reactive cyanides and sulfides, other reactive chemical groups, waste compatibility, and biodegradability of sorbents.

During the operational phase of the landfill, periodic checks will be made within the landfill to detect the presence of hazardous gases and volatile organics. Surveys of the active landfill surface area and the riser pipes with an organic vapor meter (OVM) or comparable device will be performed quarterly to detect the presence of organic compounds. PPE levels and respiratory protection levels will be modified accordingly, if necessary. This testing will be conducted in addition to the fingerprint testing conducted on incoming waste. The data from both tests will be evaluated to determine what steps are necessary to reduce the generation and/or release of these gases to levels which meet prescribed regulatory air quality standards.

Prior to closure of the landfill, an assessment will be made of the landfill waste gas generating potential. This assessment will be based on review of fingerprint test data and data gathered in the landfill during operations. Based on this assessment, if it is concluded that gas generation may result in gas build-ups beneath the barrier layer of the cover or releases following closure exceeding regulatory air quality standards, then provisions will be made to collect and monitor gas generation and release during the post-closure period. If this occurs, the latest technology available will be implemented into the construction of the cover system, which may require a modification to the Permit.

2.5.1.9 Cover Design

The design of the final cover is described in Section 8, Closure and Post-Closure of Permitted Units. Additional details of the final cover design are provided in Permit Attachment L of this application.

2.5.1.10 Landfill Location Description

The proposed site is in eastern Chaves County, New Mexico.

Geographic Location

The proposed site is located in a remote, unpopulated portion of New Mexico, approximately 43 miles east of the City of Roswell and 36 miles west of the City of Tatum. The primary land use in the surrounding area is ranching, which will not be impacted by landfill operations.

Geologic Setting

The proposed site is to be developed within impermeable, geologically stable sediments of the Dockum Group of Triassic age (see Section 3.4). The base of the proposed landfill will be designed to rest on 600-foot thickness of unsaturated mudstone of the Lower Dockum. This thick sequence acts as a geologic barrier to potential vertical migration of contaminants. Potential lateral migration through unsaturated Upper Dockum sediments will be retarded by the low permeability of the host sediments (siltstones and mudstones) and engineered barriers such as the liner systems.

2.5.2 Construction

Construction activities will consist of site preparation; excavation and preparation of landfill bottoms and subsurface sides; and construction of the liner, LCRS, and LDRS in accordance with the specifications and Construction Quality Assurance (CQA) Plan. The CQA plan is included as Permit Attachment M.

2.5.2.1 Site Preparation

Existing site drainage will be modified to route any run-on away from the landfill area. Additionally, drainage of the landfill area itself will be modified to route water away from the initial fill area. Access roads and weighing units will be constructed. A fence will also be installed around the Facility. These components and installations are shown in Drawing 4 (Permit Attachment L1).

2.5.2.2 Excavation and Preparation of Landfill Bottom and Subsurface Sides

The landfill will be constructed and excavated in sections to allow a smaller portion of the landfill surface to be exposed to precipitation at any one time. The initial working area of the landfill will be excavated to design depth. The excavated material will be stockpiled on unexcavated soil near the active area for use as cover material. The landfill bottom will be sloped toward the central axis of each phase to provide drainage of leachate to the sump. The U.S. Environmental Protection Agency (EPA) minimum required slope of 1 percent has been exceeded in all cases. The upper 6 inches of the subgrade will consist of a soil material that has been sized, moisture conditioned, compacted, and trimmed to provide a smooth stable surface for geosynthetic material placement.

2.5.2.3 Construction Quality Assurance Plan

The CQA Plan is provided as Permit Attachment M. Implementation of CQA procedures will result in increased leachate collection efficiency and reduced leakage through the landfill liner. Additionally, use of

CQA will result in fewer costly repairs to the landfill after wastes have been received, fewer occasions of exceeding the ALR, and a decreasing need for corrective action.

The CQA Plan describes the CQA procedures for the installation of the soil and geosynthetic components for the hazardous waste landfill, which comprise soils and geosynthetic components constructed at the Facility. These procedures apply to construction of the lining systems and final cover systems, including the LCRS and LDRS.

The objectives of the CQA program include the following:

- development of a clearly defined organizational structure within which the project can be planned and completed;
- assurance that the methods, techniques, and procedures used to collect, analyze, verify, and report data will produce sound, documented, and defensible results;
- assurance that equipment or instrumentation used in field or laboratory testing activities has been properly maintained and calibrated as required;
- assurance that the required documentation of quality performance is properly generated and that such documentation is adequate and complete for the activity;
- development of permanent project CQA document files identifiable and traceable to each activity;
- systematic control of items, equipment, materials, or activities not in conformity with established requirements or methods, and assurance of prompt and effective corrective action when nonconforming conditions are identified;
- regular evaluation of the adequacy of the CQA program by means of quality audits coupled with the effective action necessary to correct deficiencies and prevent recurrence;
- assurance that technical and CQA personnel are qualified and trained to perform the work activities to which they have been assigned; and
- assurance that subcontractors and consultants used in assisting project activities have an acceptable CQA program or are participating in accordance with the Facility CQA program guidelines.

Upon completion of construction activities, the Facility will submit certification signed by the New Mexico registered professional engineer serving as the CQA certifying engineer, which states that the unit has been constructed in accordance with the design drawings, CQA Plan, and Construction Specifications and meets the requirement of 40 CFR 264.19. Documentation supporting the certification will be maintained in the operating record and will be furnished to NMED upon request. Wastes will not be accepted at the constructed portion of the landfill until NMED either approves the certification or waives the approval requirement.

2.5.3 Operation

The landfill will be operated in a safe and proper manner, in accordance with the following requirements.

2.5.3.1 Inspections and Monitoring

Section 5, Procedures to Prevent Hazards, contains information on inspections and monitoring.

2.5.3.2 Maintenance and Repairs

The landfill structure will be maintained through a routine preventive maintenance program, which will be fully defined in the final site operations plan. Preventive maintenance will involve regular visual inspections of the landfill liner (where feasible) and review of leachate collection and analysis results. Equipment, such as pumps, generators, electrical lighting, and warning systems, will be subject to manufacturer recommended programs. Preventive maintenance information will be documented and any deviation from normal conditions will be closely tracked and corrected as necessary.

2.5.3.3 Warning Signs

Section 5, Procedures to Prevent Hazards, contains information about warning signs.

2.5.3.4 Record Keeping

All documentation pertaining to the results of waste analyses, waste compatibility analyses, and waste handling compliance will be maintained in the Facility operating record. The Facility will be capable of determining exactly where a waste has been placed within a three-dimensional grid system. Landfill inspection records will be maintained on file for at least 3 years, in accordance with 40 CFR 264.15(d) (see Section 5.2.2).

2.5.3.5 List of Hazardous Wastes to be Placed in Landfill

The wastes to be placed in the landfill are described in Section 4, Waste Analysis Plan.

2.5.3.6 Specific Requirements for Ignitable/Reactive Wastes

Wastes that do not meet LDRs, as defined in Section 4.5 of the Waste Analysis Plan, will not be placed in the landfill. Therefore, untreated ignitable and reactive waste (as defined in 20.4.1 NMAC) will not be placed in the landfill.

2.5.3.7 Procedures for Protecting Wastes

Procedures for the handling of incompatible wastes, lab packs, and containers that are less than full are discussed below.

Procedures for Ensuring Safe Disposal of Incompatible Wastes

Procedures for identifying incompatible wastes are discussed in Section 4, Waste Analysis Plan. At a minimum, incompatible wastes will be spaced a sufficient distance apart in the landfill to prevent commingling. The landfill placement operation will be based on a set of grids along the north end of the landfill and along both the east and west sides of the landfill. Incompatible waste will be placed with a minimum of one grid in between the loads. Grids are normally spaced at approximately 50- to 100-foot intervals. Therefore, the minimum spacing would be 50 feet.

Procedures for Identifying Contents and Ensuring Proper Landfilling of Incoming Lab Packs

Lab packs may be placed in the landfill only if they meet the requirements in 40 CFR 264.316. Containers must be non-leaking and appropriate to the waste being contained. Appropriate non- biodegradable sorbents will be used. The Waste Analysis Plan presented in Section 4 will ensure that lab packs meet all of the applicable requirements prior to disposal. As with all other waste, lab packs must be properly characterized prior to acceptance at the Facility and meet the LDR treatment criteria prior to disposal. Lab packs will not be accepted if incompatible wastes are placed within the same lab pack or if reactive wastes have not been treated to render them non-reactive prior to receipt at the Facility. Lab packs will meet all applicable LDRs (40 CFR 268).

Special Requirements for Bulk and Containerized Liquids

Bulk and containerized wastes will not be placed in the landfill unless they meet the requirements in 40 CFR 264.314. Containers holding bulk liquids will not be received at the Facility or placed in the landfill. Very small containers, such as ampules or containers designed to hold liquids for use other than storage, may be placed in the landfill (40 CFR 264.314[d]).

Special Requirements for Containers

Containers, except those that are very small such as ampules, will be 90 percent full when placed in tact in the landfill. Containers less than 90 percent full will be crushed to the maximum extent possible though compaction when placed in the landfill.

2.5.3.8 Action Leakage Rate

The ALR proposed for the landfill is 900 gallons per acre per day (gpad). This proposed ALR was selected based on a discussion in the preamble to the January 29, 1992 final rule for Liners and Leak Detection Systems for Hazardous Waste Land Disposal Units (57 FR 3462). A discussion of the proposed ALR and supporting calculations are presented in the engineering report in Permit Attachment L.

The average daily flow rate in the LDRS sump will be calculated in accordance with the Action Leakage Rate and Response Action Plan, which is presented in Permit Attachment J.

2.5.3.9 Response Action Plan

The elements of the response action plan for the landfill include (1) reducing the head on the liner to the maximum extent possible to aid in the prevention of leaks, (2) determine the failure mechanism of any leaks, and establish procedures to minimize the potential for reoccurrence of this failure mechanism, and (3) responding immediately and appropriately to a leak exceeding the ALR. Each of these elements is described below.

Reducing the Head on the Landfill Liner

The head on the liner will be reduced by:

- Monitoring the leachate collection system sumps weekly and after all significant precipitation events.
- Removing pumpable liquids from the sump when monitoring indicates the presence of liquid. A reasonable effort will be made to remove as much liquid as possible. As previously described, it is standard landfill design practice to locate a low point or sump box in the base of the landfill sump. The pump for the sump is located at this low point, and it is from here that pumpable liquids are removed to the maximum extent possible.
- Waste material and soil cover will be placed in the landfill in a configuration to provide slopes that will prevent ponding and drain to the contaminated water collection basin within the Phase 1A landfill liner.
- If water ponds on the surface of the daily cover due to a heavy rain event, vacuum trucks will be utilized to remove as much of the standing water as possible before it can seep into the waste.

Leak Detected Below the Action Leakage Rate

Flow rates less than the ALR are expected under normal operation conditions. However, the following actions will be taken in response to a leak below the ALR:

- determine whether the leak can be attributed to some operational disturbance such as an equipment or power failure;
- verify that the sump pump is working as designed;
- increase the pump rate on the leachate collection system pump;
- remove all standing water, if any, from the surface of the landfill;
- assess operations to determine if waste receipt should be temporarily curtailed or waste should be removed for inspection, repair, or controls;
- determine if the flow rate varies with precipitation;
- repair any damage to the exposed portion of the liner in a manner which conforms to original design specifications and by qualified technicians in accordance with the CQA Plan (Permit Attachment M);
- document any damage and repairs in the Facility operating record; and
- investigate alternative sources of liquids.

Leak Detected Above Action Leakage Rate

If a leak is detected above the ALR, the following actions will be implemented in response:

- Notify the NMED in writing of the exceedance within 7 days of the determination;
- Submit a preliminary written assessment to NMED within 14 days of the exceedance determination, as to the amounts of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned.
- Determine, to the extent practicable, the location, size, and cause of any leak;
- Determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;
- Determine any other short-term and long-term actions to be taken to mitigate or stop any leaks;
- Within 30 days after the notification that the action leakage rate has been exceeded, submit to NMED the results of the determinations described above, the results of the actions taken, a description of the actions planned;
- Monthly, as long as the action leakage rate continues to be exceeded, submit a report to NMED summarizing the results of any remedial actions taken and planned; and
- In making the determinations described in this section, either conduct the following investigation or document why such an investigation is not needed:
  - Assess the source and amount of liquid from each source collected in the sump.
  - Conduct a hazardous constituent analysis of the liquid collected in the sump and use the results to help identify the source(s) of the liquid and possible location of any leaks as well as the potential hazard associated with the liquid and its mobility.
  - Assess the seriousness of any leaks in terms of potential for escaping into the environment.

2.5.3.10 Closure

A description of landfill closure is provided in Section 8, Closure and Post-Closure of Permitted Units.

2.7 Operations and Maintenance

The regulated landfill unit will be constructed in accordance with the Design Drawing, Specifications, and CQA Plan presented in Permit Attachments L1, L2, and M. The operations and maintenance of the landfill unit will be in accordance with the Operations and Maintenance Plan presented in Permit Attachment N. In general, all maintenance and repairs to the facilities will be completed to meet the requirements of the original Design Drawings and Specifications and will be monitored in compliance with the CQA Plan.

3. Groundwater Protection

On January 12, 2000, the NMED Hazardous Waste Bureau (HWB) granted GMI a Groundwater Monitoring Waiver for its proposed Triassic Park Waste Disposal Facility. The Groundwater Monitoring Waiver and a VZMS Work Plan for liquid detection and water quality monitoring were part of the permit approval for the Triassic Park Waste Disposal Facility authorized by NMED in a Final Order on March 18, 2002. Information supporting the groundwater monitoring waiver is included in Attachment H.

Section 3 presents hydrogeologic field data that demonstrate that the proposed landfill at the Facility will not impact groundwater resources. The EPA's RCRA Groundwater Monitoring Technical Enforcement Guidance Document was used in the preparation of this material.

The proposed Facility is located in a remote portion of eastern Chaves County, New Mexico, 36 miles from the City of Tatum (Figure 3-1). Section 3.1, Geographical Setting and Topography, describes the favorable physical attributes of the proposed site location.

Climatic conditions, which are favorable for the efficient and environmentally safe operations of the proposed landfill and the ability to provide long-term isolation of hazardous waste, are described in Section 3.2. Data in this section were obtained from the National Oceanic and Atmospheric Administration's (NOAA's) recording station at Roswell, New Mexico.

Section 3.3, Soils and Land Use, describes soils, ranching, and other land uses in the area surrounding the proposed site. This section shows that the proposed hazardous waste disposal activities should have no impact on the existing occupational or recreational use of the surrounding land.

The regional and local geologic setting of the proposed landfill site is detailed in Section 3.4. Sediments of the Dockum Group of Triassic age are proposed as host rocks for this Facility. These unsaturated and low permeability sediments represent a stable geologic barrier to potential migration of contaminants from the proposed site.

Section 3.5, Surface Water and Water Balance, describes surface waters and meteorological conditions used to estimate groundwater recharge at the proposed site. Results from this section show that the proposed site's low groundwater recharge rate significantly reduces the potential for migration of contaminants to groundwater.

Regional and local aquifers are described in Section 3.6. This section documents the lack of groundwater present in the proposed Triassic host rocks and presents contaminant transport modeling results that demonstrate that the proposed landfill design, in conjunction with the site's geologic setting, will meet or surpass all RCRA minimum technology requirements.

Section 3.7, Groundwater Protection Requirements, presents the design of the VZMS, which will monitor the landfill for potential leaks and establish a network of monitor wells to monitor water quality in the uppermost saturated geologic intervals underlying the proposed Facility.

Section 3.8, Summary and Conclusions, summarizes the detailed technical data, which demonstrate that the proposed Facility is situated in a hydrologic setting that will assure long-term isolation of hazardous wastes from the environment. Technical data to support this conclusion are contained in the attachments included with this Permit Application.

3.1 Geographical Setting and Topography

The proposed site is located in a remote portion of eastern Chaves County in New Mexico. The proposed Facility area is located in the eastern half of Section 18 and western half of Section 17, T11S, R31E, encompassing 480 acres.

This site is approximately 4 miles south of U.S. Highway 380, which provides the main access to the property. Roswell, New Mexico is approximately 43 miles west of the proposed site, and Tatum, New Mexico is approximately 36 miles to the east. Other New Mexico communities in the region include Lovington (42 miles to the southeast) and Artesia (50 miles to the southwest).

3.1.1 Physiographic Setting

The proposed site lies within a region of transition between the northern extension of the Chihuahuan Desert and the Southern High Plains. The Caprock escarpment, located approximately 2 miles east of the proposed site, delineates the western boundary of the Southern High Plains province, which, in west Texas and eastern New Mexico, is known as the Llano Estacado. The Llano Estacado is a flat-lying elevated plain, whose grass-covered surface is remarkably different from the windblown, sandy desert environment to the west.

3.1.2 Topography

The proposed site is located on the far eastern flank of the Pecos River Basin. The land surface gently slopes to the west at approximately 40 to 50 feet per mile toward the river. This sloping plain is characterized by low-relief hummocky wind-blown deposits, sand ridges, and dunes. The average elevation above sea level of the proposed site is 4,150 feet.

The Caprock escarpment (or Mescalero Rim) is one of the most prominent topographic features in southeastern New Mexico. East of the proposed site, the escarpment has approximately 200 feet of relief. On top of the Caprock, the land surface consists of low-relief undulating plains.

Figure 3-2 contains a portion of the USGS topographic map coverage of the proposed site. The Caprock escarpment is well illustrated in the southeastern corner of the mapped area. The proposed site and surrounding area are covered by two USGS 71/2° quadrangle maps: Mescalero Point and Mescalero Point NE.

3.2 Climate

The information used to evaluate the climate of the project area was obtained from climatological data summaries from the Class A recording station in Roswell, New Mexico. This recording station is part of the National Climatic Center of NOAA. The local climatological data summaries provided extreme and normal values of the meteorological parameters (for the period of record at the Roswell Municipal Airport and more recent data from the Roswell Industrial Air Center) that were used to characterize the area's climate.

The climate of the region is semiarid, with generally mild temperatures, low precipitation and humidity, and a high evaporation rate. Winds are most commonly from the south and moderate. During the winter, the weather is dominated by a high-pressure system often situated in the central portion of the western United States and a low-pressure system commonly located in north-central Mexico. During the summer, the region is affected by a low-pressure system normally situated over Arizona.

3.2.1 Temperatures

Moderate temperatures are typical throughout the year, although seasonal changes are distinct. Mean annual temperatures in southeastern New Mexico are near 60°F (Eagleman, 1976). Temperatures in December through February show a large diurnal variation, averaging 36°F at Roswell. On approximately 75 percent of winter mornings, temperatures are below freezing, and afternoon maximum temperatures average in the high fifties. Afternoon winter temperatures of 70°F or more are not uncommon. Nighttime lows average near 23°F, occasionally dipping as low as 14°F. Generally, there are only two or three winter days when the temperature fails to rise above freezing.

Table 3-1 shows the average monthly and average daily maximum/minimum temperatures recorded for Roswell for a typical year.

3.2.2 Precipitation

Precipitation is light and unevenly distributed throughout the year. Winter is the season of least precipitation, averaging less than 0.6 inch of rainfall per month. Snow averages about 5 inches per year at the site and seldom remains on the ground for more than a day because of the typically above-freezing temperatures in the afternoon. More than half the annual precipitation comes from frequent thunderstorms associated with monsoon season moisture in June through September. Rains are usually brief but often intense.

Precipitation for the project area varies greatly from year to year. For example, Roswell's record low and high annual precipitation are 2.9 inches in 2003 and 32.9 inches in 1941. The maximum 24-hour rainfall was 5.65 inches in October 1901. An average precipitation rate for Roswell, for a 118-year period from 1878 to 2010, is 11.6 inches per year. Table 3-2 shows monthly precipitation rates for the Roswell area for a 5-year period and compares annual rates to the average precipitation.

3.2.3 Wind

Prevailing winds are from the south, with a normal mean wind speed at Roswell of 9.6 mph. An annual wind rose for a four-year period is shown in Figure 3-3. This wind rose shows the predominant southerly winds occurring 14 percent of the time.

3.3 Soils and Land Use

The proposed site is located in a rural portion of Chaves County, New Mexico. This section describes soil profiles of the land surface in this area, existing vegetation, and the current land usage.

3.3.1 Soil Profiles

Information on soil profiles at the proposed site has been obtained from the National Cooperative Soil Survey. This survey covers Chaves County and was made cooperatively by the Soil Conservation Service, the BLM, and the New Mexico Agricultural Experiment Station.

There are two types of soils present on the proposed site. The Roswell-Faskin-Jalmar Association is present on the sandy slopes throughout the property. The Alama Series is restricted to topographically lower drainage areas and is associated with flood plain deposits.

3.3.1.1 Roswell-Faskin-Jalmar Association

This association consists of excessively drained and well-drained soils with slopes of 0 to 15%. The association is about 40% Roswell soils, 25% Faskin soils, 15% Jalmar soils, and the remainder being a mixture of various soil types. The soils of this association are used for grazing and wildlife habitat. Vegetation is mainly sand dropseed, little bluestem, sand bluestem, sandbur, three-awn, shinnery oak, yucca, and sand sagebrush. Elevation ranges from 3,500 to 4,100 feet. The frost-free season ranges from 190 to 205 days per year.

Roswell soils are deep, gently undulating to rolling, and rapidly permeable. They are found in hummocky or billowy areas of deep sands. They consist of a surface layer of light brown fine sand. The underlying material is pink fine sand.

Faskin soils are deep, level to nearly level, and moderately permeable. They are intermingled with Roswell soils in depressions. They have a surface layer of brown and strong brown fine sand and loamy fine sand. The subsoil is yellowish red sandy clay loam and reddish brown clay loam.

Jalmar soils are deep, evenly deposited, and moderately permeable. They are intermingled with Roswell soils in depressions. They consist of a surface layer of brown, reddish yellow, and yellowish red fine sand and loamy fine sand. The subsoil is light reddish brown, heavy loamy fine sand, and sandy clay loam.

3.3.1.2 Alama Series

The Alama Series consists of deep, well-drained soils formed in alluvium on flood plains. Slopes are 1% to 3%. Elevation is 3,400 to 3,600 feet. These soils are used for grazing, watershed, and wildlife habitat. Vegetation is mainly tobosa, buffalo grass, vine-mesquite, mesquite, and cactus. The frost- free season ranges from 200 to 215 days per year.

In a representative profile, the surface layer of these soils is brown loam about 3 inches thick. The subsoil is reddish brown clay loam and silty day loam about 16 inches thick. The substratum is stratified reddish brown and light reddish brown sandy clay loam, silty clay loam, and loam to a depth of 69 inches or more. The soil profile is strongly calcareous and moderately alkaline throughout.

Permeability is moderately slow, and available water capacity is 11 to 12 inches. Effective rooting depth is 69 inches or more.

3.3.2 Land Ownership and Use

The property for the proposed site is owned by GMI. Adjacent lands are both federally and privately owned. Generally, lands to the west are owned by the BLM, and lands to the east are privately owned.

The predominant land use in this area is grazing. With existing vegetation, approximately one section of land is required to sustain five animal units year-long. Intermittently, the land is the site of exploratory drilling for gas and oil wells, but there are no abandoned well sites within the proposed Facility boundary, and the nearest production well is approximately 3 miles from the proposed site.

The BLM has developed a recreation area known as Mescalero Sands approximately 2 miles northwest of the proposed site. The recreation area allows hikers and recreational vehicles in the sand dunes.

3.4 Geology

This section describes the regional and geologic setting of the proposed landfill

3.4.1 Regional Geology

The geologic formations present within the region range in age from Quaternary through Triassic. Those include Quaternary alluvium, Tertiary Ogallala Formation, and the Triassic Dockum Group. Permian sediments do not outcrop in this region but, because they underlie the proposed host sediments, they are also discussed in this section.

3.4.1.1 Regional Stratigraphy

The stratigraphic relationship of the formations discussed in this section is illustrated in Figure 3-4. Information concerning formation tops and thicknesses was obtained from well logs from the New Mexico Oil Conservation Division (OCD) office in Hobbs, New Mexico. Representative oil well logs are provided in Attachment T.

Quaternary

The surface throughout the project area is covered by alluvial deposits of Quaternary age. These deposits are comprised of fine-grained, red-brown sands, interbedded with red-brown silts and clays. A major source of these sediments was the topographically higher Ogallala Formation, as evidenced by the abundant granitic cobbles, chert pebbles, and fragments of petrified wood found throughout this unit. The thickness of these alluvial deposits along the eastern flank of the Pecos River Basin in Chaves County varies from a few feet to as much as 50 feet.

Tertiary

The "Caprock," which is the surface expression of the Tertiary Ogallala Formation, unconformably overlies Triassic sediments in southeastern New Mexico. This flat-lying sandstone and conglomeritic unit is approximately 300 to 400 feet thick. It consists of fluviatile sand, silt, clay, and gravel capped by caliche. The sand deposits of the Ogallala Formation consist of fine- to medium-grained quartz grains, which are silty and calcareous. Bedding features range from indistinctly bedded to massive to crossbedded. The formation varies from unconsolidated to weakly cohesive and contains local quartzite lenses. The sand intervals of the Ogallala Formation occur in various shades of gray and red.

Ogallala Formation silt and clay deposits are reddish brown, dusky red, and pink and contain caliche nodules. Gravels occur as basal conglomerates in intra-formational channel deposits and consist primarily of quartz, quartzite, sandstone, limestone, chert, igneous rock, and metamorphic rock. There are abundant petrified wood fragments throughout this unit.

Triassic

Triassic sediments are the potential host rocks for the proposed Facility and, as such, are described in more detail than the other formations. The Depositional Framework of the Lower Dockum Group (Triassic), Texas Bureau of Economic Geology, No. 97, 1979, by McGowen was used as a major reference for gathering information on the characteristics of Triassic sediments.

Triassic sediments unconformably overlie Permian sequences in Texas and New Mexico and have been classified as the Triassic Dockum Group. The Dockum Group is comprised of a complexly interrelated series of fluvial and lacustrine mudstone, siltstone, sandstone, and silty dolomite deposits that can be as much as 2,000 feet thick in this part of the Permian Basin. These sediments accumulated in a variety of continental depositional settings, including braided and meandering streams, alluvial fan deltas, lacustrine deltas, lacustrine systems, and mud flats.

The Triassic Dockum Group is divided into an Upper and Lower Unit. The Upper Dockum Unit is very near the surface within the project boundary, covered only by a thin veneer of Quaternary sediments. The character of this unit, also know as the Chinle Formation, is a series of fluvial sediments. These sediments conformably overlie the Lower Dockum Unit and consist of red-green micaceous mudstones, interbedded with thin, discontinuous lenses of siltstone and silty sandstones. A continental fluvial depositional environment predominated during Upper Dockum time, when the Triassic basin was filled with lacustrine sediments. The Chinle Formation is widespread in the southwestern United States.

The Lower Dockum accumulated in a fluvial lacustrine basin defined by the Amarillo Uplift on the north and the Glass Mountains on the south. As presented in the basin map shown on Figure 3-5, the Lower Dockum represents sediments from a large, regional depositional system. For any given portion of this basin, these sediments tend to be very homogeneous and not subject to abrupt local changes. This basin was peripherally filled, receiving sediment from the east, south, and west. Chief sediment sources were Paleozoic sedimentary rocks. Lowlands to the east and west were traversed chiefly by meandering streams. Higher gradient streams with flashy discharge existed at northern and southern ends of the basin. The large shallow lake (or lakes) was the last portion of the basin to be filled. The lacustrine sediments that accumulated here consist primarily of low-energy mudstone.

The proposed site, situated on the western flank of the Triassic paleobasin, is underlain by thick sequences of Lower Dockum mudstones. In Triassic times this area was dominated by meandering streams. The former tectonic belts were more than 200 miles away, and the regional slopes were relatively low. Surface exposures today in these areas consist of thick sequences of maroon-red-purple variegated mudstones with thin discontinuous layers of siltstones and silty sandstones.

The stratigraphy of Lower Dockum sediments in east-central New Mexico is significantly different from that of the proposed site. Figure 3-6, a subsurface sand percent map of this unit, was compiled from drill hole data from more than 1,500 oil wells throughout the basin. Thick sequences of sandstones at the northern and southern portions of the basin are shown projecting inward toward the center of the basin. In the New Mexico portion of this basin, these sand accumulations are related to the occurrence of the Santa Rosa Sandstones. This medium-to-coarse grained, white to buff sandstone represents the lowermost Triassic depositional unit and is a major aquifer in this portion of New Mexico.

Figure 3-6 illustrates that the great accumulation of Santa Rosa Sands that fills the northern portion of the Triassic paleobasin pinches out before reaching the Facility site. During the Lower Dockum time, the Facility site was part of a low-relief area with little fluvial deposition. The McGowen report specifies sand percentages of the Lower Dockum group in the Facility site area to be in the 10 to 20% range. This is consistent with data gathered from the two deeper drill holes completed north and south of the site boundary. There is a basal sand unit in the Lower Dockum below the site, but it appears not to be depositionally related to the Santa Rosa Sandstone.

Permian

Permian sediments are important to the geologic setting because they are immediately below the proposed Triassic host rocks. The deeper formations of Permian age were deposited in a restricted marine environment and thus contain salt deposits, which make the groundwater produced from them too brackish for use.

Permian sediments underlying the Triassic units in the project area are assigned to the Artesia Group. Oil well logs from the New Mexico OCD in Hobbs, New Mexico, have provided sufficient data to identify the Dewey Lake Formation, Rustler Formation, and Yates Formation from the upper portion of this group. Geologic literature describes these Permian sediments to be gently dipping to the east. This fact was confirmed by using oil well log data to construct a graphic 3-point solution, as shown in Figure 3-7. Using the top of the anhydrite (Rustler) as a marker bed, the following simple calculations were made:

Known Point Elevations of Marker Bed

A = Lowest elevation - 2,975 feet
C = Highest elevation - 3,148 feet
B = Middle elevation - 3,091 feet

Strike Determination

Strike is defined as the direction of a horizontal line along the bedding plane and is calculated as follows:

D = point along AC with the same elevation as B (BD is strike)

$$AD = AC \times \frac{\text{difference in elevation between A and B}}{\text{difference in elevation between A and C}}$$

$$AD = 18{,}500 \text{ ft} \times \frac{3091 - 2975}{3148 - 2975} = 12{,}405 \text{ ft}$$

CD = 18,500 ft – 12,405 ft = 6,095 ft

BD = direction of strike = N6°E

Dip Determination

Dip is defined as the angle of the bedding plane measured from a horizontal line perpendicular to the strike and is calculated as follows:

E = point along strike, therefore, E(elevation) = B(elevation)

$$\text{Tangent of dip angle} = \frac{\text{E(elevation) - A(elevation)}}{\text{AE}}$$

$$\text{Tangent of dip angle} = \frac{3091 \text{ ft} - 2975 \text{ ft}}{7520 \text{ ft}} = \frac{116 \text{ ft}}{7520 \text{ ft}} = .015$$

Dip angle = Tangent $^{-1}$ (.015)

Dip angle = 0°52'

These calculations indicate a north-south strike and a dip of less than 1° to the east. These results are consistent with the reported regional dip for Permian (and Triassic) sediments along the western flank of the Permian Basin.

Dewey Lake Formation—The uppermost Permian sediments underlying the Triassic sequence in the project area correlate to the Dewey Lake Formation. These sediments are predominately red to red-brown mudstones and siltstones and are virtually indistinguishable from the overlying Triassic sediments. Geologic literature reports a conformable relationship between these sediments and the overlying Triassic sediments. There are approximately 240 feet of Permian redbeds in this section.

Rustler Formation—The top of the Rustler Formation was identified on OCD well logs and corresponds to the top of a 40-foot bed of anhydrite. These anhydrites are visible in outcrop on the hills immediately east of the Pecos River drainage east of Roswell, New Mexico. Underlying the anhydrite are approximately 500 feet of halite (salt). The Rustler Formation represents the youngest anhydrite sequence in the Permian Basin.

Yates Formation—Unconformably underlying the Rustler, the Yates Formation is composed primarily of interbedded sandstone with minor dolostone and limestone. The sands are light gray and fine to very fine grained. Limestone is white to very light gray microcrystalline lime mudstone with a chalky texture. Dolostone is pink to light gray and microcrystalline

3.4.1.2 Regional Structure

The tectonic setting and seismic activity are discussed in this section.

Tectonic Setting

The proposed Facility site is located on the western flank of the Permian Basin of west Texas. Because of the distance from tectonic centers and the minimal seismic activity, this is considered one of the more geologically stable regions within the United States.

The region underwent intense deformation, however, during late Paleozoic times. Major uplifting occurred along the Ouachita Tectonic Belt and the Wichita System of Texas and Oklahoma (shown in Figure 3-5). The Sacramento and Sangre de Cristo uplifts in northeastern New Mexico were also active during late Paleozoic time. The overall structural configuration of the Permian Basin was established at this time.

This period of intense deformation was followed by a long period of gradual subsidence. The sea covered the region, and throughout the remainder of Permian era, the Permian Basin was slowly filled with several thousand feet of evaporites, carbonates, and shales. As discussed in Section 3.4.1.1, non-marine deposition began in Triassic time with the accumulation of lacustrine/fluvial sediments into a large shallow lake.

During the late Cretaceous to early Tertiary Laramide Orogeny, there was renewed uplifting along the Sacramento, Sangre de Cristo, and other ranges within the Rocky Mountains. This orogeny uplifted the region to its present position and supplied sediments for the Tertiary Ogallala Formation.

Seismic Activity

The Permian Basin is an area of moderate to low seismic activity. Data obtained from the National Geophysical Data Center of NOAA indicate a total of 102 observed earthquakes within a 250-km (155-mile) radius of the proposed site. These data reflect observations made from 1930 to 1993.

As shown in Figure 3-8, there were no recorded earthquakes with a magnitude greater than 3.9 within 70 miles of the proposed site and no recorded seismic activity within a radius of 45 miles. The distance from any tectonic centers and the low recorded seismic activity suggest that the proposed site is located in an extremely stable environment where activity is not expected. Consequently, damage from earthquake activity is not anticipated.

3.4.2 Site Geology

Figure 3-9 illustrates the surficial geology on and adjacent to the proposed site. This section will provide detailed descriptions of the proposed Triassic host sediments and the Quaternary alluvium that overlies these sediments only.

3.4.2.1 Site Stratigraphy

Specific data for this section was obtained through drilling activities described in Section 3.4.3. Figure 3-10 is a stratigraphic cross-section based on this drilling, illustrating relationships between the proposed Triassic host sediments and adjacent formations. Other site-specific cross-sections are located in Attachment Y.

Quaternary

The thickness of Quaternary alluvial deposits at the site varies from less than 10 feet to 35 feet. The upper portion of these sediments consists of fine to very fine, wind-blown yellow-brown sands. Below this sand are varying thicknesses of red-brown to yellow-brown siltstones and silty mudstones.

Scattered throughout these sediments are small chert pebbles and granitic cobbles derived from the Tertiary Ogallala Formation.

A caliche zone (Mescalero Caliche) is present in most of this unit. The caliche is found immediately under the top wind-blown sands and coats and fills fractures within the more consolidated siltstones. Where the Quaternary alluvium is quite thin, this caliche is found coating Triassic sediments.

Triassic

Drilling at the site has delineated 1,175 feet of Dockum sediments. Two distinct units can be identified in these sediments: the Upper Dockum (475 feet thick) and the Lower Dockum (700 feet thick). Within the proposed Facility boundary the thickness of the Upper Dockum unit never exceeds 100 feet. Upper Dockum sediments are in contact with the overlying Quaternary alluvium throughout the project area.

Upper Dockum—This unit consists of variegated (red-brown-green) mudstones interbedded with reddish gray siltstones and reddish-gray-green sandy siltstones. The siltstones are micaceous (predominantly muscovite), indicating they were part of a relatively active fluvial system capable of transporting material into the basin from distant source rocks.

From examination of lithology and down-hole electric logs, it is estimated that mudstones comprise 30 percent of the unit. Lithologies of the remainder of the unit are evenly divided between siltstones and sandy siltstones. However, as the geotechnical properties of these two lithologies are very similar, this geologic discussion will simply refer to them both as siltstone. Mudstones were found to have an average permeability of 2.45×10^{-7} cm/s, and the siltstones average 1.22×10^{-5} cm/s.

These sediments were deposited in a fluvial environment. Mudstone and siltstone bodies are very lenticular and are found to pinch out abruptly. Accordingly, individual lithologies are not correlatable over significant distances (thousands of feet).

Cross sections prepared from the close-spaced drilling within the proposed Facility boundary establish an understanding of the fluvial nature of this unit (see Attachment Y, Cross-Sections). Figure 3-11 shows the locations of drill holes for the close-spaced drilling pattern and provides an index of cross-sections that illustrate the character of the Upper Dockum Unit. Also shown on Figure 3-11 is the location of the "most favorable" area for the construction of the proposed landfill. Figure 3-12 shows the lithology of the site. As shown in the cross sections on Figures 3-10 and 3-12, the lithology of this area is predominantly mudstone, with thin beds of siltstones. The lenticular nature of the mudstone and siltstone bodies is also shown in these cross-sections. Cross sections 3-1 and 3-2 in Attachment Y show the facies relationships of the "most favorable" area.

The fluvial nature of the Upper Dockum Unit has led to the scouring of channels into the underlying Lower Dockum Unit. This scouring and the pinching-out of fluvial sediments have resulted in the local development of an undulatory surface on top of the Lower Dockum Unit. This phenomenon is well illustrated in cross sections 3-3, 3-4, and 3-5 in Attachment Y.

Lower Dockum—The Lower Dockum Unit, described in Section 3.4.1.1, has a completely different character from the upper unit. The lower unit represents a time of relatively quiet lacustrine deposition, which resulted in the accumulation of thick sequences of predominantly mudstones interbedded with thin siltstones. These sediments are very homogeneous, in contrast with the abrupt facies changes present in the more active Upper Dockum depositional system.

Most of the close-spaced drilling within the proposed Facility boundary "bottomed" in Lower Dockum mudstones. These mudstones were consistently a moderate reddish brown color, which according to McGowen (1979) is associated with low stand lacustrine and mud flat deposition.

The 1995 confirmation drilling provided some important data on this unit. As illustrated in Figure 3- 13, all three holes penetrated the clays of the Lower Dockum unit. PB-36 encountered 64 feet of this unit, PB-37 encountered 55 feet, and PB-38 encountered 18 feet. A total of 10 feet of core of Lower Dockum were collected from PB-36 at a depth of 138 to 148 feet and 7 feet of Lower Dockum were collected from PB-37 at a depth of 148 to 155 feet. Four representative samples of this core were sent to AGRA Earth & Environmental laboratories for permeability analyses. The results of these analyses confirm the Lower Dockum to be a very impermeable unit (average permeability of 5.7 x 10^{-8} cm/s), capable of performing as a geologic barrier to downward migration from the proposed landfill. Following are the results of the core analyses:

Core Interval	Permeability (cm/sec)
PB-36 (144'-445')	5.2 x 10^{-8}
PB-36 (147'-148')	6.8 x 10^{-8}
PB-37 (150'-151')	5.8 x 10^{-8}
PB-37 (154'-155')	4.9 x 10^{-8}

3.4.2.2 Site Structure

There are no mapped or otherwise identified faults on or adjacent to the project area. Color air photos of the area were examined for surface lineations, which can reflect faulting in the subsurface. All surface lineations observed on these photos were attributed to man-made features (i.e., fences, roads, etc.).

Subsurface drilling did not encounter displacement or repeating of geologic sequences that would be indicative of faulting. In the Upper Dockum Unit, there are abrupt changes in lithologies, but these are attributed to depositional processes associated with an active fluvial system. The fluvial nature of the Upper Dockum Unit has led to the scouring of channels into the underlying Lower Dockum Unit. This scouring and the pinching-out of fluvial sediments have resulted in the local development of an undulatory surface on top of the Lower Dockum Unit (Figure 3-14). Figure 3-14 also shows the northeast dip of the Lower Dockum.

3.4.3 Site Investigation Activities

Triassic sediments in eastern Chaves County were initially identified as excellent host rocks for proposed hazardous waste disposal because they (1) contain thick sequences of low permeability clays; (2) occur in remote, unpopulated areas; and (3) produce virtually no groundwater. This section describes the series of exploration activities undertaken to verify and document the suitability of the site for hazardous waste disposal.

As part of this permit application, a total of 41 drill holes were completed. The lithologies of these holes were recorded and a geophysical log was run on each drill hole. A total of 31 of these drill holes were completed within the project boundary (Figure 3-15).

3.4.3.1 Preliminary Evaluation Activities

The first phase in determining an appropriate disposal site was to identify potential sites with exposed or near-surface Triassic sediments. To identify such sites, color aerial photos were obtained of areas underlain by Triassic sediments in eastern Chaves County (Figure 3-16). The areas exhibiting the characteristic coloration associated with the Triassic sediments on the photos were then plotted on topographic maps. The locations with desirable geology were screened for additional factors, including accessibility and land ownership. From this process, a prioritization of sites was developed and a shallow drilling program designed.

In July and September 1993, two shallow drilling programs were conducted to examine Triassic sediments underlying the Quaternary alluvium. Average depth of these holes was 40 to 60 feet, and the drilling was conducted on a spacing of approximately 1,000 feet between holes. As shown in Figure 3-17, three areas encompassing seven sections were examined. The objective of this drilling was to identify an area where the Triassic sediments were unsaturated, were situated close to the surface, and contained low permeability clays. An Ingersol Rand 1500 air-rotary drill was used to perform this work. This air-rotary technique was used because of the high quality of drill cuttings it produces and because the presence of any subsurface water can be easily detected.

Of all areas investigated, the surface and near-surface geology in the vicinity of Red Tank (the proposed site) was found to be the most favorable. Over most of this area, the thickness of Quaternary alluvium averaged approximately 10 feet, and the shallow drilling indicated the presence of unsaturated mudstones underlying the alluvium. Five shallow core holes were completed, adjacent to rotary air holes, to obtain preliminary geotechnical data on the near-surface Triassic sediments. As a result of the shallow depth of these sediments, many of the clays were very dry and brittle. This presented some difficulty in obtaining "undisturbed" core samples. Despite these difficulties, materials testing results showed low permeabilities for Triassic clays, ranging from 1×10^{-7} to 3×10^{-8} cm/s. These values, along with the local geologic setting, established the Red Tank area as an area conducive to more detailed site characterization.

Two deep holes (WW-1 and WW-2) were drilled to the base of the Dockum Group in November 1993. These holes encountered an unsaturated thickness of 600 to 650 feet of Lower Dockum mudstones consisting primarily of reddish brown, maroon, and purple mudstones with thin intervals of reddish brown silts.

Lithologic logs developed from cuttings samples and down-hole geophysical logs (gamma and thermal neutron) confirm the homogeneity of this thick mudstone interval. In addition, samples of drill cuttings from one of the deep holes (WW-2) were taken to the University of New Mexico's Diagnoses Laboratory for a grain size analysis. This analysis showed a remarkably constant grain size distribution throughout the sequence, which is consistent with the technical definition of a mudstone. This procedure involved desegregating, centrifuging, drying, wet sieving, and weighing the samples. A complete procedure and the results of this analysis are contained in Attachment X, Grain Size Analyses.

The 600- to 650-foot mudstone interval rests on a basal sandstone unit that is approximately 50 feet thick. This basal unit is present in oil well logs in the area as a clean to a silty sand. The deep drilling did not retrieve any cuttings from this basal unit. The drilling was performed with air, and the moisture in this unit prevented the return of cuttings to the surface. Casing was placed in these holes, and water levels were taken (Section 3.6.2).

WW-1 and WW-2 were drilled north and south of the project boundary to characterize the nature of the Lower Dockum. Because of the consistent, continuous depositional environment within the lacustrine sediments at the Lower Dockum, it was decided (and approved by the NMED) that it was unnecessary to penetrate the entire Lower Dockum sediments within the site boundary. Such penetration would have certainly violated the integrity of the formation in the area of the planned hazardous waste landfill and in all likelihood would not have provided additional geologic information.

Details for the closure of the two deep wells (WW 1 and WW 2) will be provided for review and approval by NMED prior to plugging. Both wells will be abandoned prior to the start of any facility construction.

3.4.3.2 1994 Site Characterization Activities

In June 1994, a drilling plan for site characterization activities at the proposed site was prepared and submitted to the NMED Hazardous and Radioactive Materials Bureau. The plan identified drilling locations, depths and methods, proposed geotechnical tests and methods, and down-hole geophysical logging methods. The 100-foot depth was sufficient to penetrate the base of the Upper Dockum (with the exception of the easternmost portion of the site). The plan was approved as submitted.

Drilling operations commenced on July 17, 1994 and a total of 36 drill holes were completed. There were three distinct phases of this drilling program: (1) close-spaced pattern drilling in the area of the proposed site (to a depth of 100 feet) to obtain detailed lithologic and hydrologic information for the design of a landfill, (2) stratigraphic drilling across the project area (to a depth of 200 feet) to correlate the site geology with the regional setting, and (3) selected core drilling in the proposed site for geotechnical samples. Samples of drill cuttings were collected and logged for each hole (see Attachment U, Lithology Logs and Plugging Logs). Southwest Geophysical Services, Inc. conducted down-hole geophysical logging of each drill hole. These electrical surveys consisted of thermal neutron and gamma logs. The electric logs provide lithologic information from drill holes to supplement and verify the lithologic interpretations based on drill cuttings. Copies of all geophysical logs can be found in Attachment V.

An air-rotary rig (Ingersol Rand 1500) was used for this work. Drilling with air provides cleaner drill cuttings than drilling with water, and usually a good indication of water saturation. However, in the case of the Upper Dockum sediments on the Facility site, this drilling technique was not always successful in identifying water saturation. This failure was a result of the low to very low permeabilities of the silty sands and the low amount of water saturation. The pressure of the air from the drilling process prevented water from immediately entering the holes. If groundwater was present, it was not always detected until the hole had stabilized and a geophysical log was taken. Geophysical logs on all 31 drill holes within the site boundary encountered no saturated Upper Dockum sediments.

Three core holes were completed and a total of 85 feet of core recovered. A CME-55 hollow-stem auger rig using a continuous sampler was used to collect these samples. The dry, brittle nature of these shallow, unsaturated sediments made the recovery of undisturbed core samples difficult.

Representative core samples of mudstones, siltstones, and sandy siltstones were sent to materials testing laboratories for measurement of geotechnical parameters to be used in the Facility design and contaminant transport modeling. In addition to core samples, 11 backhoe pits were dug adjacent to drill holes for the collection of bulk samples. Proctor tests were performed on these bulk samples to provide information required for design studies. All geotechnical laboratory results are contained in Attachment W.

3.4.3.3 1995 Confirmation Drilling Program

In order to confirm the unsaturated nature of the Upper Dockum sediments on the eastern boundary of the proposed Facility, a drilling plan was submitted to Mr. Bob Sweeney of NMED on June 26, 1995. This plan was modified and approved in a letter from Mr. Ronald A. Kern, dated July 12, 1995. A three-hole drilling program was conducted on the GMI site on July 24 and 25, 1995. Mr. Bob Sweeney visited the site and observed the drilling operations on Monday, July 24, 1995.

Holes PB-36, PB-37, and PB-38 were completed as an extension to an existing east-west line of drill holes. The westernmost drill hole was located on the eastern boundary of the proposed landfill. The other two holes were drilled 1,000 feet apart and examined the area immediately east of the proposed landfill. All surface locations for these drill holes were surveyed.

No groundwater saturation was encountered. All holes were completed with air so that saturated sediments could have easily been detected. Lithology logs describing drill hole cuttings were prepared in the field and down-hole geophysical logs were run on each hole. The geophysical logs included gamma ray, thermal neutron, and caliper profiles.

3.4.3.4 1999 Drilling Program

In order to further clarify the subsurface stratigraphy and groundwater conditions underlying and adjacent to the proposed site within the upper Dockum and its contact with the Lower Dockum, a drilling program was conducted in August 1999 consisting of 10 drill holes. This drilling program was conducted at the request of NMED and in accordance with the Final Work Plan for Stratigraphic and Groundwater Characterization Program, dated July 28, 1999. The results of this program were documented in Final Report for 1999 Stratigraphic and Groundwater Characterization Program, dated September 10, 1999 (Montgomery Watson).

The results of this program 1999 demonstrated that the subsurface stratigraphy underlying the proposed site is both continuous with and predictable from previous drilling results, as shown in Figure 3-14. There were no unexplainable features within the depositional environment. In all cases, the depth of the contact between the Upper Dockum and the Lower Dockum sediments was encountered where it was estimated to be. There was no groundwater within these sediments.

The groundwater characterization drilling demonstrated that there is even less groundwater in the vicinity of the site than originally thought. Pooled surface waters have the potential of migrating through the surface alluvial sediments. Limited saturation encountered one-mile northeast of the site in the Upper Dockum now appears to have been an isolated occurrence of perched groundwater. Upper Dockum sediments underlying the site and extending 0.75 mile downgradient have been examined by over 40 drill holes and found to be unsaturated.

3.5 Surface Water and Water Balance

This section describes surface waters and meteorological conditions used to estimate groundwater recharge at the proposed site.

3.5.1 Surface Water

There are no perennial stream drainages on or near the proposed site. The nearest surface drainage is the Pecos River, approximately 30 miles to the west.

There is one small stock tank (Red Tank) within the proposed Facility boundary and several additional tanks on adjacent lands. These tanks are approximately 200 feet by 200 feet and contain water for livestock. The tanks are clay-lined and retain water from runoff or receive water from an underground pipeline. Water in the pipeline is supplied from three water wells on the Marley Ranch located in Section 10, T11S, R31E. These wells are east of the Mescalero Rim and produce water from the Ogallala Formation. In the past, water from the springs along the Caprock escarpment was used in this pipeline, but now water is pumped from the Ogallala Formation. The pipeline is owned and maintained by the Marley Ranch to provide water to cattle operations below the Caprock.

Once the site is designated as a disposal area, cattle operations on this property will cease and the Marley Ranch will stop using Red Tank. They will also re-route their pipeline, as appropriate, to avoid landfill operations and continue to supply water to their cattle operations below the Caprock.

3.5.2 Water Balance

The water balance analysis estimated groundwater recharge from direct precipitation and surface water bodies at the proposed landfill site. This information is useful for assessing the potential migration of contaminants released at or near the surface to groundwater. The groundwater recharge rate is directly related to the potential for contaminants spilled or leaked at the surface to reach groundwater. In areas with little or no groundwater recharge, there is less potential for groundwater contamination from releases of hazardous substances than in high recharge areas, because the mechanisms to transport potential contamination are limited.

A water balance requires quantification of the hydrologic components, which can result in changes in the amount of water stored in the area of interest. Often, water balances are calculated for an entire watershed to understand the relative importance of the hydrologic components within that area. For this analysis, the water balance was performed to estimate groundwater recharge at the proposed landfill site.

Groundwater recharge at the proposed site can be estimated by summing precipitation and infiltration from surface water bodies at the site and subtracting evapotranspiration and surface runoff. As no natural surface water bodies exist at the site, groundwater recharge is estimated as the difference between direct precipitation and evapotranspiration. This assumes no surface runoff at the site.

The water balance used precipitation data collected at the Roswell weather station indicating that mean annual precipitation is 10.61 inches (Section 3.2.2). This annual mean is used as the average precipitation at the proposed site.

Evapotranspiration refers to the processes that return water to the atmosphere by a combination of direct evaporation and transpiration by plants. It is the largest item in the water budget because most of the precipitation that falls in the area returns almost immediately to the atmosphere without becoming part of the surface water or groundwater systems. On semi-arid rangeland, much of the precipitation that does not evaporate immediately is taken up fairly rapidly by plants and transpired. In a regional water balance conducted in southeastern New Mexico, it was estimated that approximately 96 percent of total precipitation is lost to evapotranspiration (Hunter, 1985). This number corresponds to data presented for the Rio Grande Basin by Todd (1983), which estimated that 95.4 percent of total precipitation was being lost to evapotranspiration.

Assuming a mean annual precipitation rate of 10.61 inches, of which 96 percent is lost to evapotranspiration, the net recharge to groundwater is estimated as 0.42 inch per year. This low groundwater recharge rate significantly reduces the potential for groundwater contamination from spills or leaks at the proposed Facility.

The purpose of this water balance is to provide a conceptual understanding of the hydrologic components at the site. The amount of groundwater recharge is a reflection of the arid climate of the region. The net recharge estimate of 0.42 inch per year (based on average hydrologic components) represents the expected long term annual conditions at the site. The relatively low recharge rate appears to be reasonable given the unsaturated conditions of the Upper Dockum within the site boundaries. Using the highest recorded annual precipitation value of 32.92 inches yields only a slightly higher recharge rate of 1.32 inches (assuming an evapotranspiration rate of 0.96). This short-term (1-year) increase in recharge is unlikely to have a significant impact on the unsaturated flow regime at the proposed site.

3.6 Groundwater

This section describes regional and local aquifers.

3.6.1 Regional Aquifers

In the region surrounding the proposed site, there are two geologic units that have produced groundwater, the Triassic and the Tertiary Ogallala Formation. Very minor amounts of groundwater have been produced from Triassic sediments, but the Tertiary Ogallala Formation is a major aquifer in southeastern New Mexico, west Texas, and several other western states.

An updated record of all water wells within a 10-mile radius of the Facility was obtained from the New Mexico Office of the State Engineer (OSE) WATERS database in October 2011. No water wells are located within 3 miles of the Facility. Water wells within a 10-mile radius are listed in Table 3-3 and shown in Figure 3-18. Water wells identified for the Permit Application dated October 2000 within a 4-mile radius, along with oil well locations and the locations for all site investigation drilling activities, are shown in Figure 3-19.

A total of 33 water wells were reported, 17 from the Ogallala Formation and 16 from the Triassic. The Triassic wells are used for livestock and wildlife (11), domestic (4), and irrigation (1). The nearest well to the site is located approximately 3 miles to the northeast (domestic well RA 10249). This well is located at the base of the Mescalero Escarpment and is 100 feet deep. Completion depths and details were not available for all of the Triassic wells. For the nine wells for which data are available, eight range in depth from 218 to 650 ft bgs. These wells likely penetrate the Lower Dockum sediments (including the Santa Rosa Sandstone equivalent). One well (RA 11023 POD1) was completed at a shallow depth of 101 ft bgs and is used for irrigation. This well penetrates Triassic sediments based on its surface location; however, due to the shallow depth, the source of water could be from surficial alluvial sediments.

The following description of selected wells was included in the October 2000 permit application; this information was not available through the OSE WATERS database.

- RA 8577 was drilled to a depth of 614 feet in 1992. Its initial production was 4 gallons per minute.
- RA 9320 was drilled in 1996 to a depth of 650. The estimated yield was 6 gallons per minute; however, the water was determined to be not potable. The well was plugged and abandoned on November 25, 1996.
- RA 9568 was drilled to a depth of 550 feet in 1998. It was a dry hole and was plugged and abandoned on August 14, 1998.
- RA 9670 was drilled in 1998 to a depth of 587. The estimated initial yield was 2 gallons per minute.

3.6.1.1 Ogallala Aquifer

The Ogallala Aquifer is the primary freshwater aquifer within the regional study area and serves as the principal source of groundwater in the Southern High Plains. The saturated thickness of the Ogallala Aquifer ranges from a few feet to approximately 300 feet in the Southern High Plains. Groundwater within the Ogallala Aquifer is typically under water table conditions, with a regional hydraulic gradient toward the southeast ranging from approximately 10 feet per mile (ft/mi) to 15 ft/mi. The average hydraulic conductivity of the Ogallala Aquifer ranges from 3.5×10^{-4} cm/s to 9.5×10^{-3} cm/s.

The Ogallala Aquifer is recharged primarily through the infiltration of precipitation. The rate of recharge is believed to be less than 1 inch/year. Groundwater discharge from the Ogallala Aquifer occurs naturally through springs, underflow, evaporation, and transpiration, but groundwater is also removed artificially through pumpage and catchment. Currently, the rate of withdrawal exceeds the rate of recharge for much of the Ogallala Aquifer.

3.6.1.2 Triassic

Regionally, the only aquifer within Triassic sediments is the Lower Dockum Aquifer. However, because the Upper Dockum is known to have permeable facies that locally produce low quantities of good to poor quality water, it is included in this section.

Lower Dockum Aquifer

The major aquifer within the Lower Dockum is the Santa Rosa Sandstone. This sandstone is present along the northern and southern flanks of the Permian Basin and is a principal source of groundwater in Roosevelt and Curry Counties, New Mexico. The Santa Rosa Sandstone is not present along the western flank of the Permian Basin, which includes the proposed site.

Where the Santa Rosa Aquifer has been studied, hydrochemical analyses and groundwater oxygen isotopes indicate that it is distinctly different from the Ogallala Aquifer. The thick, impermeable clays within the Triassic section have been sufficiently impermeable to prevent hydraulic communication between these aquifers.

Upper Dockum Aquifer

There is no regional aquifer developed within Upper Dockum sediments. In local areas, recharge to the Upper Dockum is provided through vertical infiltration from overlying aquifers which are water- bearing units within the Ogallala Formation. This relationship has been illustrated in Figure 3-10.

3.6.2 Site Groundwater

Potential Triassic host sediments within the proposed Facility boundary are unsaturated. Detailed drilling within this boundary has encountered no groundwater. Drilling outside the proposed Facility boundary has identified saturated zones in both the Upper and Lower Dockum Units. The following subsections contain descriptions of these saturated zones.

3.6.2.1 Ogallala Aquifer

The western boundary of the Ogallala Aquifer, represented by the Caprock escarpment, is located topographically/stratigraphically above and 2 miles east of the proposed site. The Ogallala Aquifer is not present at the Facility site. At the base of the escarpment, along the contact of the Ogallala Formation and the underlying Upper Dockum, are numerous springs, which are a result of downward-migrating Ogallala groundwater coming into contact with low permeability zones within the Upper Dockum and being diverted to the surface.

3.6.2.2 Upper Dockum - "Uppermost Aquifer"

For the purpose of this application, the uppermost aquifer is considered to be the Upper Dockum Unit. The EPA has defined the uppermost aquifer as the geologic formation, group of formations, or part of a formation that is the aquifer nearest to the ground surface capable of yielding a significant amount of groundwater to wells or springs. The Upper Dockum Unit certainly does not yield a significant amount of groundwater. However, preliminary drilling in the site area has found portions of this unit to be water-bearing and to possess consistent hydrologic characteristics.

The identification of a confining layer on the lower boundary is an essential factor in the identification of the uppermost aquifer. The thick sequence of mudstones of the Lower Dockum Unit (as discussed in Section 3.4.2.1) represents a high-integrity aquitard, effectively confining the aquifer. Although there is a saturated basal sandstone in this unit, the 600 to 650 feet of mudstones separating the Upper Dockum sediments from this sandstone are of sufficiently low permeability to prevent hydraulic communication between the Upper and Lower Dockum Units.

As previously discussed in Section 3.6.2.1, several springs are present where the Ogallala Formation crops out, two miles east of the Facility site, along the 200-foot high Caprock escarpment. These springs are present where the Ogallala sands unconformably overlie impermeable Dockum mudstones and claystones and the groundwater moves laterally to the surface. Where these water-bearing Ogallala sands are in contact with more permeable units of the Upper Dockum, saturation of these underlying sediments occurs. The result, as illustrated in Figure 3-10, is the formation of a groundwater divide east of the proposed site. The majority of the groundwater entering the Upper Dockum flows to the east, conforming to the regional dip of the unit. There is also a minor flow component which slopes away from the unconformable contact, creating a steep hydraulic gradient towards the west. This gradient does not extend beneath the Facility site. As shown in Figure 3-20, this gradient must lie immediately east of PB-38, which is still unsaturated, whereas holes WW-1 and PB-26 are saturated.

Where groundwater has been observed in the Upper Dockum, not all lithologies within the unit are saturated. Air drilling through these sediments found the mudstones to be unsaturated. The more permeable sandy siltstone facies were water-bearing below depths of 135 to 150 feet. These saturated lithologies were encountered approximately 2,500 feet east (downdip) of the proposed landfill site, beyond the proposed Facility boundary (Figure 3-20). It is extremely significant that this saturation does not extend beneath the Facility site. All 31 drill holes within the site boundary, as shown on Figure 3-15, were unsaturated. For this reason, there were no groundwater production tests conducted.

Exploratory drilling west of the proposed Facility boundary (updip), near the outcrop of the Upper Dockum Unit, the small sandy hills located along the section line between Section 18, T11S, R31E and Section 13, T1 1S, R30E, encountered an isolated occurrence of groundwater (Figure 3-19). In a single drill hole (PB-14), at a depth of 42 feet, a small accumulation of groundwater was found in a depression developed on the surface of the underlying Lower Dockum mudstones. This depression is consistent with the "scouring" of the Upper Dockum fluvial sediments into the Lower Dockum mudstones (Section 3.4.3.2). Closer spaced drilling in the vicinity of this occurrence encountered no other such accumulations. This isolated "pooling" is most likely a result of surface runoff entering the subsurface from the nearby outcrop and being caught in a small "stratigraphic trap."

Because of the identification of groundwater in borehole 14, an offset (borehole 14o) was completed 400 feet to the east (down-gradient). This borehole location was in addition to those pre-approved by the NMED, but determining the potential extent of groundwater saturation was important. Borehole 14o was drilled to a depth of 100 feet.

There was no saturation observed while drilling this offset, but the geophysical log indicated the presence of fluid at the bottom of this borehole. The top of the fluid was observed to be at a depth of 92.0 feet, indicating a maximum apparent concentration of 3.5 feet. This is an apparent concentration because a 2.25-inch probe will displace approximately one-half of the volume of the hole. Regardless of all of these factors, there was approximately 1 gallon of fluid in the bottom of this borehole introduced by a heavy rainfall that occurred after the hole was drilled and before it could be logged. Due to the impermeable nature of the Lower Dockum mudstones, the water did not infiltrate into the formation and was trapped in the bottom of the hole.

The hole was cased with 3-inch plastic tubing and monitored for several weeks. No additional water entered the hole, and, in fact, the gallon of water eventually dispersed into the Lower Dockum. An examination of the log for PB-14o shows the bottom of the sandy silt unit (Upper Dockum) to be a depth of 36 feet. If the Upper Dockum was the source of the water, the hole would have equilibrated or filled to a depth of at least 36 feet. The fluid did not migrate upward through several hundred feet of Lower Dockum mudstones; therefore, there is no apparent subsurface source for the small quantity of water shown in the log for this hole.

Water Level Measurements—After the stratigraphically trapped water (cross section 3-3 in Attachment Y) was encountered, temporary casing was placed in the drill hole (PB-14) so that piezometric water levels could be measured. For the first six weeks after casing the drill hole, the water was pumped from the hole weekly. After each pumping event, the water returned to a static level of 42 feet. Subsequent water level measurements have confirmed a static water level in this drill hole.

In addition to casing drill hole PB-14, nine other drill holes, located downdip, were also cased. Although the Upper Dockum is unsaturated in these other drill holes, the holes were examined weekly for six weeks. No water was observed except for that previously described in PB-14o. The drill holes that were cased with 3-inch plastic casing and the perforated intervals for these holes are as follows:

Hole No.	Perforated Zone	Base of Upper Dockum
PB-14	30-80	42'
PB-14o	20-40	36'
PB-33	20-55	52'
PB-18	60-80	78'
PB-16	60-80	79'
PB-15	30-65	62'
PB-13	30-50	48'
PB-9	40-80	72'
PB-7	20-40	38'
PB-17	60-85	80'

The intent of installing casing in these 10 holes was to allow any groundwater in the vicinity of these drill holes to collect for detection purposes. The depths of the cased intervals varied because there is an approximate 1° regional dip to the east. All cased intervals extend down to the bottom of the Upper Dockum sand. Slits were cut in the PVC casing every foot throughout the perforated zones.

Water Quality—Preliminary water quality data were obtained from limited chemical analyses on a sample of the stratigraphically trapped groundwater from drill hole PB-14. These results include the following measurements:

- Total dissolved solids (TDS): 4,920 milligrams per liter (mg/L)
- Alkalinity: 396 mg/L
- Sodium: 1,640 mg/L
- Magnesium: 103 mg/L

These preliminary data indicate that water from the Upper Dockum is of poor quality. The most significant parameter is TDS; water with TDS values of greater than 1,000 mg/L is considered to be unfit for human consumption.

3.6.2.3 Lower Dockum Aquifer

The basal sandstone of the Lower Dockum Unit is the water-bearing portion of this unit. As shown in Figure 3-10, this unit is overlain by a thick sequence (600 to 650 feet) of low permeability mudstones that act as an aquitard. The recharge area for the Lower Dockum Aquifer is the Pecos River drainage to the west. Groundwater flow direction is easterly, along the regional dip of this unit.

Most of the shallow drilling in the site area has "bottomed" in the upper portion of the aquitard. Two holes (WW-1 and WW-2) were drilled to approximately the base of the Triassic section and encountered water from the Lower Dockum Aquifer (Figure 3-20). Hole WW-1 also penetrated a saturated zone in the Upper Dockum Unit, resulting in a mixing of these groundwaters in this drill hole.

Both holes were drilled with an air-rotary rig and drill cutting samples were collected. WW-1 was completed to a depth of 820 feet and, at the time of drilling, no water saturation was apparent in the drill cuttings. WW-2 was completed to a depth of 710 feet; however, circulation was lost at a depth of 645 feet. Loss of circulation commonly occurs when drill cuttings are too wet for the air pressure of the rig to remove the cuttings from the hole. It is likely that the basal sandstone of the Lower Dockum Unit was penetrated at this depth.

Water Level Measurements—Temporary plastic casing was placed in each of the two holes immediately after completion. In July 1994, geophysical logs were run for each hole, and water levels were identified. WW-1 had a water level of 155 feet. This level is 20 feet above the Upper/Lower Dockum contact, and it is likely that groundwater from both units is present in this drill hole. A water level of 467 feet was observed for WW-2. This finding indicates that there is a hydrostatic head pressure within the Lower Dockum Aquifer of 178 feet.

Both of these cased holes were pumped and allowed to recover. After a sufficient recovery period, a static water level (155 feet for WW-1 and 467 feet for WW-2) was maintained.

Water Quality—Preliminary water quality data are presented only for WW-2. This drill hole encountered groundwater from the Lower Dockum. Because groundwater from the Upper Dockum and Lower Dockum was mixed in drill hole WW-1, preliminary water quality data from WW-1 do not accurately characterize either aquifer and are not presented. The results from WW-2 include the following:

- TDS: 18,800 mg/L
- Alkalinity: 83 mg/L
- Sodium: 7,030 mg/L
- Magnesium: 87 mg/L

These preliminary data indicate that the water quality of the Lower Dockum is saline. The extremely high TDS values are indicative of long formation retention times, which reflects low groundwater flow and low permeability conditions within the Lower Dockum aquifer.

3.6.3 Contaminant Transport Modeling

For the purpose of this application, two types of groundwater modeling were performed to estimate potential contaminant transport times. One approach is extremely conservative and presents a "worst-case" scenario. One of the many conservative assumptions used in these calculations, despite field evidence, is that contaminant transport will take place under saturated conditions. A second, more realistic approach, assumes unsaturated flow conditions.

3.6.3.1 Saturated Flow Modeling

Saturated flow modeling was used to simulate potential leakage or infiltration from the Facility landfill. The objective of contaminant transport modeling was to calculate the time necessary for a hypothetical leak from the landfill to reach the uppermost aquifer. Travel time was calculated using a steady-state groundwater flow model. The model was based on results of the site investigation and geologic characterization, which indicated that perched groundwater exists upgradient and downgradient of the site (Section 3.6.2.2).

Perched groundwater located approximately 2,500 feet downgradient of the proposed landfill is the uppermost aquifer that could be affected by a contaminant. For the purpose of calculating travel time to the uppermost aquifer, contaminants were assumed to travel from the location of the Upper Dockum/Lower Dockum contact at borehole PB-3 to the perched groundwater downgradient of the site (Figure 3-20). This location was chosen for contaminant transport modeling because it represents the shortest distance from the proposed landfill to downgradient groundwater. The Lower Dockum unit will act as a barrier limiting the vertical migration of contaminants because of its lower permeability and contaminated groundwater will preferentially migrate along the Upper Dockum/Lower Dockum contact until reaching the uppermost aquifer, located 2,500 feet downgradient of the site.

As mentioned in Section 3.4.3.2, representative core samples from the Upper and Lower Dockum were sent to a materials testing laboratory for measurement of geotechnical parameters, including hydraulic conductivity (1994 Site Investigation).

The following assumptions were made during modeling groundwater flow and contaminant transport to the uppermost aquifer. All of these assumptions are believed to be conservative in that they result in shorter travel times to the uppermost aquifer:

- It was assumed that contaminants would migrate completely through siltstones, along the Upper Dockum/Lower Dockum contact. A saturated hydraulic conductivity value of the siltstone unit (1.22×10^{-5} cm/s) was used for calculating travel time. In reality, both higher permeability siltstones and lower permeability mudstones (2.45×10^{-7} cm/s) will exist along the migration pathway. As contaminant velocity is directly proportional to the permeability value that is used in the calculation, using a value approximately two orders of magnitude greater than the lower permeability unit results in an extremely conservative estimate of travel time to the uppermost aquifer.

- It is reasonable to assume that any lateral migration of contaminants from the proposed landfill will occur in the most permeable units (siltstones/sandstones) within the Upper Dockum unit. However, the fluvial depositional environment of the Upper Dockum resulted in the formation of discontinuous lenses of various lithologies. This discontinuous deposition pattern (fades changes) is well illustrated in cross sections shown in Figure 3-13. Using these cross sections as a specific example, any lateral migration within the siltstones/sandstones at the base of the Upper Dockum unit will encounter a lower permeability mudstones fades approximately 1,000 feet downgradient from the eastern edge of the proposed landfill. This permeability barrier will severely retard continued migration. In the contaminant modeling for this section, these lithologic changes were not credited. Instead, it was assumed that there was a continuous siltstone/sandstone migration pathway from the proposed landfill to the uppermost aquifer. This assumption, based on the discontinuous, fluvial deposition environment within the Upper Dockum, is considered to be conservative;

- To provide an additional degree of conservatism for the travel time calculations, a non-reactive contaminant was assumed to be transported in the groundwater at the interstitial water velocity. Most contaminants are reactive, which results in longer travel times. The ratio of the reactive transport time to non-reactive travel time is given by the retardation coefficient. The retardation coefficient can be calculated, for organic contaminants, by using Equation 1:

$$R = 1 + \frac{(\rho_b \,\&\, F_{oc} * K_{oc})}{\phi} \tag{1}$$

where R = retardation coefficient
ρ_b = bulk density
K_{oc} = organic carbon partition coefficient
F_{oc} = fraction of organic carbon
ϕ = porosity

- For a typical reactive compound such as trichloroethylene (TCE), a retardation coefficient of 4.89 is calculated using measured values of 0.0089 for the fraction of organic carbon, 1.96 g/cm^3 for bulk density, and 0.48 for the porosity of the siltstone; and a handbook value of 107.15 cm^3/g for the organic carbon partition coefficient (Knox et al., 1993). This means that TCE would require 489 percent more time to reach the uppermost aquifer than a non-reactive contaminant;

- The Upper Dockum sediments in the area of the proposed landfill and extending approximately 2,500 feet downgradient from the landfill are unsaturated. For the purpose of this contaminant transport modeling, it was assumed that these sediments were saturated and that lateral migration occurred under steady-state conditions. Due to our understanding of the subsurface conditions of the Upper Dockum unit at the proposed site, this assumption is also considered to be conservative. Assuming saturated conditions results in a conservative estimate of travel time to the uppermost aquifer because unsaturated hydraulic conductivities are orders of magnitude less than saturated values, especially at low water contents (Fetter, 1988). Assuming saturated conditions may result in slightly underestimating hydraulic gradients, especially at short distances; however, at longer distances hydraulic gradients will approach saturated values. Most importantly, while hydraulic gradients vary only by a factor of two or three, this variation is more than offset by the use of values for hydraulic conductivity. The hydraulic conductivity values are orders of magnitude greater during saturated conditions.

- Saturated hydraulic conductivity and porosity values for the Upper Dockum siltstone used during modeling were based on laboratory tests of cores collected during the drilling program. Average saturated hydraulic conductivity and porosity values for the siltstone were 1.22 x 10^{-5} cm/s and 0.48, respectively.

- Travel time was calculated using a steady-state model represented by Darcy's Law as shown in Equation 2 (Fetter, 1988).

$$q = K_{sat} \frac{dh}{dl} \tag{2}$$

where q = darcy flux
K_{sat} = saturated hydraulic conductivity
h = hydraulic head
l = length

- The hydraulic gradient used in the model was calculated by dividing the elevation difference between the location of the hypothetical leak and the perched downgradient water (4055-4025) by the distance between these sites (2,500 feet). This calculation results in a hydraulic gradient of 0.012 and a darcy flux of 1.46 x 10^{-7} cm/s.

- Interstitial water velocity was calculated using Equation 3. Water content was assumed to be 0.48 based on the assumption of saturated flow.

$$v = \frac{q}{\theta} \tag{3}$$

where v = interstitial water velocity
q = darcy flux
θ = water content

The results of the modeling indicate that a solute would travel at an interstitial velocity of 3.05 x 10^{-7} cm/s and would require 7,920 years to reach the uppermost aquifer. This estimate of travel time is extremely conservative for the following reasons: (1) the saturated hydraulic conductivity of the siltstone used in the calculations is two orders of magnitude greater than the hydraulic conductivity of the mudstone; (2) non-reactive chemical transport was assumed; and (3) saturated hydraulic conductivity values used in the model are orders of magnitude greater than unsaturated values.

To confirm this travel time, similar calculations were conducted using the results of the 1995 confirmation drilling program. A hydraulic gradient of 0.0135 was calculated between drill holes PB-36 and PB-38. The same modeling parameters and equations were applied to this gradient. It was estimated that the time required for contaminants to migrate 2500 feet from the eastern boundary of the proposed landfill to the uppermost aquifer will be 7,042 years.

3.6.3.2 Unsaturated Flow Modeling

Unsaturated flow modeling was performed to simulate potential leakage or infiltration from the proposed hazardous waste landfill. Site characterization data indicate unsaturated conditions in the strata surrounding the proposed landfill. The unsaturated flow model developed by Mckee and Bumb (1988) predicts the extent of wetting fronts emanating from leakage sources on the base and side slopes of the landfill. Leakage rates were based on preliminary HELP (Hydrologic Evaluation of Landfill Performance) modeling results presented in Tables 3-3 and 3-4. The modeling results help illustrate how the natural hydrological conditions at the site inhibit subsurface fluid flow. [Note: These HELP modeling results should not be confused with those presented in the engineering report in the October 2000 Permit Application (provided in Calculation E-28 in Attachment BB).] Three separate simulations were performed to account for the heterogeneities at the site. The first simulation predicts the soil moisture distribution in the Lower Dockum from leakage sources at the base of the landfill. The second simulation predicts the lateral movement of the wetting front into the Upper Dockum from leakage sources on the side slopes of the landfill. The third simulation predicts fluid movement through the clay berm and adjacent Quaternary alluvium along the perimeter of the landfill. The predicted wetting fronts led to the estimation of unsaturated hydraulic conductivities, darcy flux rates, interstitial water velocities and approximate contaminant travel times to the nearest aquifers. The primary modeling objectives include the following:

- prediction of the effective saturation distribution (wetting front) emanating from the landfill source;
- determination of the unsaturated hydraulic conductivity and advective transport rates; and
- breakthrough time of the wetting front at the edge of the clay berm.

Modeling Methodology

Unsaturated flow modeling was performed using the exact steady-state solution developed by Mckee and Bumb (1988) and Bumb and Mckee et al. (1988). The steady-state solution derived from the Richards equation (1931) of unsaturated flow provides more conservative results in lieu of transient based solutions.

The Mckee and Bumb (1988) and Bumb and Mckee et al. (1988) steady-state solution for a continuous point source in an infinite isotropic medium is governed by the following equation:

$$\Delta\eta_\infty = \frac{Q^{\exp\left[\frac{\alpha}{2}\left(z-z'-\sqrt{r^2+(z-z')^2}\right)\right]}}{4\pi\sqrt{r^2+(z-z')^2}}$$

$$r = \sqrt{(x-x')^2-(y-y')^2} \tag{4}$$

$$\Delta\eta_\infty = \text{hydraulic potential}$$

$$S = S_r + (S_m - S_r)(\alpha\eta / K_o)^{1/n}$$

$$S_e = (\alpha\eta / K_o)^{1/n}$$

At the Facility site, the evapotranspiration rate is high with respect to precipitation. According to Mckee and Bumb (1988), the soils in semiarid regions of the western United States are at or below residual saturation (S_r). Therefore, the observed initial moisture contents are probably at or near the residual moisture content. Generally fluid flow is inhibited at soil moisture contents at or below the residual moisture content. The amount of saturation above the residual moisture content is referred to as the effective saturation. Unsaturated hydraulic conductivity is a function of the effective saturation and is expressed in the following equation (Mckee and Bumb, 1988; Bumb and Mckee et al., 1988):

$$K(\theta) = K_o S_e^n \tag{5}$$

Brooks and Corey (1964) correlated the N exponent with the pore size distribution index a. Mckee and Bumb (1988) by confirmation of theoretical derivations by Irmay (1954) suggest an optimal value of 3 for η.

Under steady-state conditions flow is driven by the force of gravity as the matric potential approaches unity (Hillel, 1980). Therefore, under steady-state conditions the unsaturated hydraulic conductivity ($K(\theta)$) is equal to the darcy flux ($q(\theta)$), which in turn is multiplied by the unit area to obtain a leakage or discharge rate (Q). The following equations express these relationships:

$$q(\theta) = K(\theta)$$

$$Q = \frac{q(\theta)}{A} \tag{6}$$

The average interstitial water velocity was used to estimate advective transport rates of non-reactive conservative solutes. Approximate travel times to the nearest aquifers can be estimated from the interstitial water velocity using the following expression:

$$v = \frac{q}{\theta} \tag{7}$$

In summary, modeling assumptions include steady state unsaturated flow in an infinite domain, a continuous leakage source, flow through porous medium, complete saturation of the soil beneath the source, and initial uniform saturation of the medium. The modeling does not account for secondary permeability features such as faults, fractures and macropores.

Input Parameters

Input parameters and initial boundary conditions were based on observed field conditions, landfill design specification, and preliminary HELP modeling results. [Note: These preliminary HELP modeling results were based on a landfill liner design which did not incorporate a double liner system on the side slope areas. These results should not be confused with the HELP modeling results presented in the engineering report in the October 2000 Permit Application (provided in Calculation E-28 in Attachment BB). The results presented in the engineering report support the currently proposed landfill design which incorporates a double liner in all areas and does not indicate any leakage from the landfill.] Average hydraulic parameters for the Lower and Upper Dockum and landfill design specifications are presented in this section. Input parameters used for the unsaturated flow modeling are presented in Table 3-6.

The source term geometry was based on the east-west geologic cross section. Modeled source coordinates correspond to the basal and eastern slope dimensions of the proposed landfill. Conservative average leakage rates from the preliminary HELP modeling were used as source terms along the base (8.58 gpad) and eastern side slope (40.86 gpad) of the landfill to provide conservative "worst-case" estimate of unsaturated flow. The leakage rate for the floor of the landfill was based on HELP modeling simulations between 70 and 200 years. The initial leakage rates for the first 50 years of HELP modeling were excluded from the average because these rates were extremely low and probably not representative of steady state conditions. These simulated leakage rates are based on extreme conditions such as waste moisture content conditions which exceed the field capacity of the waste and a termination of leachate pumping following the 30-year post-closure period. Average site-specific saturated hydraulic conductivity values for the Upper Dockum siltstone (1.22×10^{-5} cm/s) and Lower Dockum (5.68×10^{-8} cm/s) were used as initial conditions for the first two modeling simulations. The design specifications of the clay berm require material with a permeability on the order of 10^{-7} cm/s. The saturated hydraulic conductivity of the Quaternary alluvium was assumed to be three orders of magnitude less than that of the clay berm. The effective saturation values for the Upper and Lower Dockum simulations were based on site-specific average initial moisture contents (Stoller, 1994). The bubbling pressures for the Upper and Lower Dock-urn, clay berm, and Quaternary alluvium simulations were based on average values of similar types of geologic materials reported by Bumb and Mckee et al. (1988).

Initial boundary conditions are presented in Figure 3-21, which shows a schematic of the proposed landfill and surrounding hydrostratigraphy. As displayed in Figure 3-21, the Lower Dockum Aquifer is approximately 600 feet (200 meters) below the site. The perched aquifer in the Upper Dockum is located approximately 2,500 feet (755 meters) to the east. The clay berm surrounding the proposed landfill is approximately 20 feet (6 meters) thick and rests on top of the Upper Dockum. The initial soil moisture contents of the surrounding day berm and strata are assumed to be uniform and at residual saturation.

Modeling Results

The steady state unsaturated flow modeling results are presented in Figures 3-22 through 3-26. The Upper Dockum and clay berm results are presented as a function of lateral distance from the landfill source. The Lower Dockum results are presented as a function of depth from the source. The results of the modeling simulations are in reference to the landfill source.

Figure 3-22 displays the effective saturation at various distances from the source. As the wetting front disperses from the landfill source the chart shows abrupt decreases in saturation. The clay berm/Quaternary alluvium and Upper Dockum simulations show the sharpest decrease in saturation with S_e values decreasing by nearly an order of magnitude at less than 100 meters from the source. Although the effective saturation dissipates less rapidly in the Lower Dockum, moisture contents decrease by nearly on order of magnitude at approximately 200 meters from the landfill source. The modeling results indicate that the Lower Dockum maintains greater saturation than the Upper Dockum, clay berm and Quaternary alluvium because fluid movement is driven primarily by gravitational forces; therefore fluid migration is greatest in the vertical direction.

Figures 3-23 and 3-24 display the unsaturated hydraulic conductivity and interstitial water velocity results, respectively. Comparison of these data to the effective saturation distributions (Figure 3-22) shows the high degree of correlation between unsaturated flow and soil moisture content. Figures 3-23 and 3-24 show abrupt decreases in unsaturated hydraulic conductivity and interstitial water velocity, respectively, at relatively short distances from the source. Although Figure 3-24 shows that the interstitial water velocities decrease exponentially over distance, gross travel times may be estimated. The simulated interstitial water velocities were used to compute the following contaminant travel times of non-reactive solutes:

- contaminant travel time from the base of the landfill to the Lower Dockum Aquifer, located approximately 200 meters (600 feet) below the site, is estimated at 4,084,674 years;
- contaminant travel time from the eastern slope of the landfill to the perched groundwater in the Upper Dockum at a lateral distance of 755 meters (2,500 feet) was estimated at 3.4 billion years;
- breakthrough time of the wetting front at the edge of the clay berm (a travel distance of 6 meters or (20 feet) was estimated at 866 years; and
- contaminant travel time through the clay berm and Quaternary alluvium to a point above the perched groundwater (a distance of 755 meters) was estimated at 574,507,913 years.

Figures 3-25 and 3-26 display the steady state leakage per unit area as a function of distance from the source. Figure 3-26 also shows that the leakage rate at the edge of the clay berm (6 meters from the source) is approximately 10 gpad but quickly dissipates in the Quaternary alluvium. Despite the high leakage rate (10 to 11 gpad), calculations indicate that it would take a wetting front approximately 866 years to reach the outer edge of the berm.

Explanation of equation parameters:

A = area [L^2]
k = hydraulic conductivity [L/T]
K_o = hydraulic conductivity at maximum saturation [L/T]
n = power in the power-law relationship for K as a function of soil saturation
Q = flow rate or strength of point source [L^3/T]
R = distance from point source [L]
S = saturation of the soil
S_e = effective saturation
S_m = maximum saturation
S_r = irreducible or residual saturation
v = velocity of particles
x,y,z = Cartesian coordinates, z defined positive downward [L]
x',y',z' = location of point source [L]
α = constant defined by n/β [l/L]
β = bubbling pressure [L]

θ = volumetric moisture content

ø = porosity

$\Delta\eta$ = hydraulic potential

3.7 Groundwater Protection Requirements

The following sections present general monitoring requirements and detection monitoring requirements, respectively.

3.7.1 General Monitoring Requirements

The selection of a monitoring program to identify contaminant releases from the proposed Facility was based on results of the geologic characterization and RCRA guidance. For the purposes of designing a monitoring program for the site, the Upper Dockum Unit was considered the uppermost aquifer (Section 3.6.2.2). This unit is not saturated within the Facility boundaries.

Two major geologic factors influence the design of a program to monitor potential contaminant releases from the site. These factors are the intermittent nature of saturation in the Upper Dockum downgradient of the Facility and the presence of a low permeability layer (the Lower Dockum) that significantly limits the potential for vertical migration of contaminants. These two factors influence potential groundwater transport pathways for contaminants released from the Facility, and therefore affect the placement of monitoring devises.

There is no regional aquifer within the Upper Dockum; however, adjacent to the project boundary, permeable zones have been observed to be saturated. Exploratory drilling upgradient and downgradient of the site has identified isolated pockets of groundwater in permeable facies of the Upper Dockum (Section 3.6.2.2). Downgradient of the site, perched groundwater was detected above the Upper Dockum/Lower Dockum contact, approximately 2,500 feet east of the proposed landfill. Upgradient of the site, an isolated pocket of groundwater was detected at bore hole 14. The low permeability of the underlying Lower Dockum will prevent significant vertical migration of groundwater and will direct flow downdip along the Upper Dockum/Lower Dockum contact in the direction of perched groundwater east of the site. Therefore, potential contaminant releases from the proposed Facility will preferentially migrate downdip along the Upper Dockum/Lower Dockum contact.

Given the geologic and hydrologic features controlling the movement of groundwater at the site, monitoring the Upper Dockum is the most effective manner in which to immediately detect potential releases from the Facility. However, the placement of monitoring wells in the Upper Dockum is limited due to the fact that this unit is unsaturated within the site boundary. The utility of placing groundwater monitoring wells 2,500 feet downgradient of the landfill is questionable. The most effective monitoring program will involve vadose zone monitoring.

A formal groundwater monitoring waiver was submitted to NMED in January 2000 and approved January 12, 2000. As part of the groundwater monitoring waiver, a VZMS was proposed, and was approved in the 2002 permit. Details of the VZMS are presented in Section 3.7.2.

3.7.2 Vadose Zone Monitoring Requirements

The VZMS consists of two components. The first is a vadose zone sump beneath the landfill LCRS and LDRS sumps. The second component is a network of vadose zone monitoring wells downdip and updip of the landfill with respect to the dip of the geologic formation stratigraphy. The intent of the VZMS sump is to provide an immediate indication if there is any leakage from the double composite liner system. Leakage from the secondary liner will be intercepted by the VZMS sump, which will be checked daily for the presence of liquids. The vadose zone monitoring wells are intended to detect any water flowing from the facilities in a lateral (downdip) direction.

The design of the VZMS is shown in the Design Drawings 15 through 19 in Attachment L1. It includes a 60-mil HDPE liner system below the bottom of the secondary liner system in the area of the sump. The vadose zone liner system is limited to an area directly beneath the sump, as this is the area expected to have the most liquids ponded for the longest period of time. Above the HDPE liner in the vadose zone sump, a drainage gravel surrounds a side slope riser pipe that extends into the sump. The sideslope riser pipe allows a pump to be installed in the sump to remove accumulated liquids.

The VZMS, shown in the design drawings (Permit Attachment L1) and described above, is expected to be a much more immediate indicator of leakage from the landfill than a groundwater monitoring system in the deep regional aquifer. Given the geologic and hydraulic conditions at the base of the landfill (unsaturated Upper Dockum siltstones and claystones), any fluids leaking from the landfill will best be monitored by the VZMS sump and vadose zone monitoring wells at the Upper Dockum/Lower Dockum contact. Because each cell is graded so that leachate will collect in the sump, the sump area will have the highest hydraulic head on the liner system. A vadose liner below the sump areas will indicate quickly if liquids are escaping from the liner system in the sump area. The VZMS sump will not only provide an indication that the LDRS sump is leaking, but will also provide access to remove the leakage and minimize head buildup in the sump and in liners above. The VZMS sump for the landfill will be monitored for the presence of liquids whenever the primary or secondary sumps are monitored. As described in Section 5.2.2, these systems will be checked daily during active operations and closure.

Details of the location, depth and construction for the vadose zone monitoring system wells are presented in the VZMS Work Plan (Appendix I). In addition, specific procedures for monitoring and sampling the sump and wells and the required procedures for analyzing any collected liquid are presented in the VZMS Work Plan.

3.8 Summary and Conclusions

The proposed location of the Facility landfill in eastern Chaves County, New Mexico is ideal. It is located in an unpopulated portion of the county, on privately owned land, and more than 36 miles from the nearest community. The semiarid climate of this region with its high evaporation rate and lack of surface water will play an important role in the proposed site's ability to confine and control material placed in the landfill.

Large-scale ranching is the primary land use for this portion of Chaves County. However, setting aside the 480 acres proposed for the Facility will have no impact on the ranching industry in the region, as these acres support fewer than five animal units year-long. Because the economic stimulation provided by landfill-related jobs will greatly offset the minimal economic impact of the loss of grazing land, the project has the support of the surrounding community.

A geologic setting for the Facility was selected that will enable the proposed landfill to be developed in an environment that will protect groundwater resources and ensure long-term isolation of wastes. The host rocks for this Facility are the sediments of the Dockum Group of Triassic age. Because these sediments are unsaturated and of low permeability, they represent a stable geologic barrier to the potential migration of contaminants from the landfill.

The landfill will be developed within sediments of the Upper Dockum unit. These sediments, consisting of fluvial, interbedded mudstones (30 percent) and siltstones (70 percent), are unsaturated beneath the proposed site. The nearest groundwater production comes from the Tertiary Ogallala Aquifer. The western boundary of this aquifer forms a topographic feature called the Caprock, which is approximately 2 miles east and several hundred feet higher than the proposed site.

While the Upper Dockum unit is unsaturated beneath the site, it is partially saturated 2,500 feet east of the proposed landfill (downdip). The source of this groundwater is infiltration from the overlying Ogallala Aquifer. Due to this perched groundwater, the Upper Dockum unit is designated as the uppermost aquifer for the purposes of this permit application.

The hydrologic setting of the Facility is extremely protective of groundwater resources. To demonstrate the integrity of the natural barriers present at this site, conservative contaminant transport modeling was performed, in which the most conservative parameters were consistently input into the modeling process. Acceptable conclusions were obtained even though "worst-case" assumptions were used. The site's actual values will obviously provide an even larger margin of safety than the conclusions indicate.

For example, conservative transport modeling calculated that it will take 7,000 to 8,000 years for potential contaminates to migrate laterally through the sediments on the flanks of the proposed landfill to the nearest perched groundwater-bearing intervals within the uppermost aquifer. To emphasize the conservative nature of these calculations, saturated conditions were assumed for this modeling even though the Upper Dockum sediments at the proposed site are unsaturated. The migration pathway was assumed to be entirely through highly permeable siltstones, although close-spaced drilling indicated that 30 percent of this pathway would be composed of low-permeability mudstones. A non-reactive contaminant was also assumed, even though in reality a contaminant would react with the sediments through which it was traveling, adding considerably to the overall travel time.

To illustrate the conservative nature of this 7,000- to 8,000-year travel time, a second, unsaturated flow modeling approach was applied to the lateral contaminant migration scenario. This more realistic calculation resulted in an estimated travel time of 3.4 billion years.

The character of the Lower Dockum sediments is much different from that of the overlying Upper Dockum unit. The Lower Dockum consists of a 600-foot thickness of homogeneous, lacustrine mudstones overlying a thin basal sandstone. This thick sequence of unsaturated, low permeability mudstones represents a geologic barrier to the potential downward migration of contaminants from the proposed landfill. Unsaturated flow modeling estimated that 4 million years would be required for contaminants to migrate downward through these Lower Dockum mudstones and reach a Lower Dockum aquifer.

The description of the Facility, as presented in this permit application, is a result of numerous years of investigation to identify an environmentally sound site in southeastern New Mexico where hazardous wastes could be safely disposed of. The location, geology, and hydrology of the proposed site present a unique setting, where natural geologic barriers, combined with a protective landfill design, will ensure long-term isolation of hazardous wastes from the environment.

Table 3-1. Temperatures at Roswell, 1977 to 1978

Month	Monthly Average (°F)	Average Daily Maximum (°F)	Average Daily Minimum (°F)
January	38.1	55.4	20.8
February	42.9	60.9	24.8
March	49.3	57.7	30.9
April	59.7	78.2	41.2
May	68.5	86.4	50.5
June	77.0	94.2	59.8
July	79.2	94.7	63.7
August	77.9	93.4	62.3
September	70.4	86.5	54.3
October	59.6	77.0	42.2
November	46.9	64.8	29.0
December	39.3	56.8	21.8
Annual	59.1	76.3	41.8

Table 3-2. Monthly and Annual Precipitation Summary for Roswell (inches), 1977 through 1982

	Precipitation (inches)												
Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
1977	0.07	0.36	0.27	1.25	2.43	0.25	0.46	4.45	0.29	0.62	0.48	0.02	10.95
1978	0.50	0.48	0.39	0.02	1.81	4.31	0.52	3.49	3.58	1.47	1.25	0.43	18.25
1979	0.41	0.44	0.13	0.32	1.25	1.56	1.44	2.28	0.15	0.18	T	0.37	8.53
1980	0.85	0.19	0.00	1.06	0.85	0.29	0.01	2.45	6.58	T	0.77	0.15	13.20
1981	0.27	0.17	0.10	0.79	3.35	4.55	6.27	4.73	2.70	1.02	0.25	0.13	24.33
1982	0.66	0.20	0.12	0.41	0.20	0.76	1.03	0.93	2.00	0.20	0.92	1.62	9.05
											Normal		10.61

T = Trace

Table 3-3. Water Wells Within 10 Miles
Page 1 of 2

Basin	County	OSE POD Number	Use	Diversion (ac-ft/yr)	Owner	Township	Range	Section	Q64 [a]	Q16 [a]	Q4 [a]	Distance (meters)	Distance (miles)
Lea County	Lea	L 11326 S2	COM	80	Gandy Marley, Inc.	11S	31E	27	2	4	4	6,352	3.9
Lea County	Lea	L 11326				11S	31E	27	4	4	4	6,471	4.0
Lea County	Lea	L 11326 S2				11S	31E	27	4	4	4	6,471	4.0
Lea County	Chaves	L 12224 POD2	PDL	3	Fred Pearce	12S	31E	3	4	2	2	8,250	5.1
Lea County	Lea	L 05636	PRO	0	Glenn's Water Well Service	12S	32E	6	1	1	3	11,073	6.9
Lea County	Lea	L 08054	PLS	3	Nelva G. Smith	11S	32E	10	2	1	3	13,657	8.5
Lea County	Chaves	L 06749 POD2	STK	3	Cindy J. Graham	12S	31E	26		3	4	14,883	9.2
Lea County	Chaves	L 06749 POD2	COM	0	Lyman Graham	12S	31E	26		3	4	14,883	9.2
Lea County	Lea	L 10141	SRO	170	Commissioner of Public Lands of New Mexico	12S	31E	25			3	15,154	9.4
Roswell Artesian	Chaves	RA 10249	DOM	0	Daniel Orozco	10S	31E	31	4	4	3	4,999	3.1
Roswell Artesian	Chaves	RA 08576	STK	3	Fred Pearce	11S	31E	34	4	2	2	6,724	4.2
Roswell Artesian	Chaves	RA 08585	STK	3	Pearce Trust	12S	30E	2	3	1	1	7,388	4.6
Roswell Artesian	Chaves	RA 08302	STK	4	Bureau of Land Management	12S	30E	3	4	4	4	8,504	5.3
Roswell Artesian	Chaves	RA 08586	STK	3	Pearce Trust	12S	30E	3	4	4	4	8,504	5.3
Roswell Artesian	Chaves	RA 11023 POD1	IRR	3	U.S. Department of Interior Bureau of Land Management	12S	30E	11	1	1	1	8,570	5.3
Roswell Artesian	Chaves	RA 08587	STK	3	Pearce Trust	12S	30E	4	4	2	1	9,165	5.7
Roswell Artesian	Chaves	RA 02944 REPAR	DOM	3	Alf W. Guffey	10S	29E	34	1	4	4	10,965	6.8
Roswell Artesian	Chaves	RA 08589	STK	3	Pearce Trust	11S	30E	19	1	3	1	10,998	6.8
Roswell Artesian	Chaves	RA 10577	STK	3	Button Mesa Ranch, Watts Land & Cattle	10S	31E	35	1	2	1	11,014	6.8

Source: Data were downloaded from the New Mexico Office of the State Engineer WATERS database on October 13, 2011 (http://nmwrrs.ose.state.nm.us/nmwrrs/index.html).
[a] Quarters are 1=NW, 2=NE, 3=SW, and 4=SE (quarters are smallest to largest).

COM = Commercial
PDL = Non 72-12-1 Domestic & Livestock
PRO = 72-12-1 Prospecting or Development of Natural Resource
PLS = Non 72-12-1 Livestock Watering
STK = 72-12-1 Livestock Watering
SRO = Secondary Recovery of Oil
DOM = 72-12-1 Domestic One Household
IRR = Irrigation
Q = Quarter
OSE New Mexico Office of the State Engineer
POD = Point of diversion

Table 3-3. Water Wells Within 10 Miles
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Basin	County	OSE POD Number	Use	Diversion (ac-ft/yr)	Owner	Township	Range	Section	Q64 [a]	Q16 [a]	Q4 [a]	Distance (meters)	Distance (miles)
Roswell Artesian	Chaves	RA 10574	DOM	3	Sand Ranch, Watts Land & Cattle	10S	31E	35	2	2	1	11,193	7.0
Roswell Artesian	Chaves	RA 09320	STK	3	Pearce Trust	11S	29E	1		4	2	11,707	7.3
Roswell Artesian	Chaves	RA 10572	DOM	9	Sand Ranch, Watts Land & Cattle	10S	29E	23	3	3	2	11,798	7.3
Roswell Artesian	Chaves	RA 08577	STK	3	Pearce Trust	10S	29E	34			3	11,855	7.4
Roswell Artesian	Chaves	RA 10568	STK	10	Sand Ranch, Watts Land & Cattle	10S	31E	10	3	4	3	12,897	8.0
Roswell Artesian	Chaves	RA 10571	DOM	3	Sand Ranch, Watts Land & Cattle	10S	31E	10	3	4	3	12,897	8.0
Roswell Artesian	Chaves	RA 08588	STK	3	Pearce Trust	12S	30E	17	4	1	4	12,905	8.0
Roswell Artesian	Chaves	RA 09483	STK	3	Johnson Cattle Company	10S	31E	23	2	3	2	12,993	8.1
Roswell Artesian	Chaves	RA 09482	STK	3	Johnson Cattle Company	10S	31E	25	3	1	4	13,092	8.1
Roswell Artesian	Chaves	RA 10567	STK	3	Sand Ranch, Watts Land & Cattle	10S	31E	3	3	3	3	13,943	8.7
Roswell Artesian	Chaves	RA 08363	STK	1	Frates Seelingson	09S	30E	28	4	3	4	14,917	9.3
Roswell Artesian	Chaves	RA 10205	STK	3	Andrew Glenn Ranch, LLC	10S	29E	3	3	4	4	15,459	9.6
Roswell Artesian	Chaves	RA 10206	DOM	3	Andrew Glenn Ranch, LLC	10S	29E	3	3	4	4	15,459	9.6
Roswell Artesian	Chaves	RA 11306 POD1	STK	3	Kenneth Owens	09S	30E	30	4	4	4	15,551	9.7
Roswell Artesian	Lea	RA 09487	STK	3	Johnson Cattle Company	10S	32E	18	3	3	4	15,853	9.9
Roswell Artesian	Chaves	RA 09568	DOM	3	Andrus Ranch, Inc.	09S	30E	30	3	2	4	16,080	10.0

Source: Data were downloaded from the New Mexico Office of the State Engineer WATERS database on October 13, 2011 (http://nmwrrs.ose.state.nm.us/nmwrrs/index.html).
[a] Quarters are 1=NW, 2=NE, 3=SW, and 4=SE (quarters are smallest to largest).

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PLS = Non 72-12-1 Livestock Watering
STK = 72-12-1 Livestock Watering
SRO = Secondary Recovery of Oil
DOM = 72-12-1 Domestic One Household
IRR = Irrigation
Q = Quarter
OSE New Mexico Office of the State Engineer
POD = Point of diversion

Table 3-4. Triassic Park HELP Model Result Summary for Cell Floor

Time (years)	LCRS Operational Beyond 30 Years Post Closure			LCRS Not Operational Beyond 30 Years Post Closure		
	Leakage (gal/acre/day)		Final Waste Moisture Content (vol/vol)	Leakage (gal/acre/day)		Final Waste Moisture Content (vol/vol)
	Liner	Cap		Liner	Cap	
0	1.3781	NA	0.1410	1.3781	NA	0.1410
20	0.9400	0.0454	0.1222	0.9400	0.0454	0.1222
30	0.2735	0.0430	0.1181	0.2735	0.0430	0.1181
50	0.1927	0.0450	0.1125	3.4579	0.0450	0.1125
70	0.1329	0.0450	0.1087	8.0071	0.0450	0.1098
90	0.1007	0.0439	0.1059	9.1465	0.0439	0.1083
100	0.0775	0.0442	0.1049	8.5811	0.0442	0.1076
120	0.0744	0.0453	0.1029	8.8612	0.0453	0.1062
140	0.0629	0.0461	0.1013	8.6989	0.0461	0.1048
160	0.0547	0.0442	0.0999	8.5494	0.0442	0.1034
180	0.0482	0.0442	0.0987	8.4178	0.0442	0.1021
200	0.0431	0.0431	0.0976	8.2818	0.0442	0.1008

NA = Not applicable

Table 3-5. Triassic Park HELP Model Result Summary for Cell Slope

Time (years)	LCRS Operational Beyond 30 Years Post Closure			LCRS Not Operational Beyond 30 Years Post Closure		
	Leakage (gal/acre/day)		Final Waste Moisture Content (vol/vol)	Leakage (gal/acre/day)		Final Waste Moisture Content (vol/vol)
	Liner	Cap		Liner	Cap	
0	173.0000	NA	0.1410	173.0000	NA	0.1414
20	123.0000	0.0453	0.1221	123.0000	0.0453	0.1223
30	53.5373	0.0442	0.1182	53.5373	0.0442	0.1182
50	37.0011	0.0453	0.1152	37.0282	0.0453	0.1152
70	24.5001	0.0461	0.1087	24.5114	0.0452	0.1087
90	18.0529	0.0442	0.1059	18.0583	0.0449	0.1059
100	13.6143	0.0425	0.1049	13.6174	0.0430	0.1049
120	12.9000	0.0443	0.1029	12.9032	0.0450	0.1029
140	10.7627	0.0439	0.1013	10.7642	0.0450	0.1013
160	9.2002	0.0457	0.0999	9.2030	0.0439	0.0999
180	8.0161	0.0462	0.0987	8.0178	0.0457	0.0987
200	7.0994	0.0461	0.0976	7.1002	0.0462	0. 0976

Note: Initial HELP modeling results were based on landfill liner system without double liner system on side slopes. These should not be confused with HELP results presented in the Engineering Report.

NA = Not applicable

Table 3-6. Input Parameters for Unsaturated Flow Modeling

Unit	Parameter							Source Coordinates (meters)		
	β (m)	Ko (m/day)	Sr	Sm	Q (m^3/day)	n	α (1/m)	x [a]	y [a]	z [a]
Lower Dockum	0.373	4.90E-05	0.279		8.00E-05	3	8.042	0, 33, 66, 99, 132, 165, 193, 231, 264, 297, 330, 363, 396, 429, 462	0	0
Upper Dockum	0.2076	1.05E-02	0.161		3.80E-05	3	14.45	5.5, 11, 16.5, 22, 27.5, 33, 38.5, 44, 49.5, 55, 60.5, 66, 71.5, 77	0	24.5, 22.6, 20.72, 18.84, 16.96, 15.07, 13.19, 11.31, 9.42, 7.54, 5.65, 3.77, 1.88, 0
Clay berm	0.37	8.64E-05	0.126 [b]	1	3.80E-05	3	8.108	0, 5.5, 11	0	3.77, 1.88, 0
Quaternary alluvium	0.0726 [b]	8.64E-02	0.0458 [b]	1	3.80E-05	3	41.32	0, 5.5, 11	0	3.77, 1.88, 0

β = Bubbling pressure; typical values reported by Bumb and Mckee et al. (1988)
Ko = Saturated hydraulic conductivity; site-specific mean values
Sm = Maximum saturation; assumed
Sr = Residual saturation; site-specific mean values
Q = Leakage rate; based on HELP modeling results
n =Curve fitting parameter based on pre size index (Mckee and Bumb, 1988)
a =n/β

[a] Typical values reported by Bumb and Mckee et al (1988)
[b] Typical values reported by Bumb and Mckee et al. (1988)

4. Waste Analysis Plan

The Triassic Park Hazardous Waste Disposal Facility (the Facility) is a commercial facility that receives hazardous waste generated off-site for disposal. This Waste Analysis Plan (WAP) establishes Facility requirements for accepting and characterizing hazardous waste generated both off-site and on-site. The WAP requirements are established in the 1995 New Mexico Hazardous Waste Management Regulations at 20.4.1.500 NMAC incorporating 40 CFR 264.13, 20.4.1.800 NMAC incorporating 40 CFR 268.7, and 20.4.1.900 NMAC incorporating 40 CFR 270.14(b)(3). The most recent revision of this WAP will be maintained at the facility as part of the facility Operating Record. The facility will continually upgrade the WAP with regard to the LDR regulations contained in 40 CFR 268.

Section 4.1 identifies wastes that will be accepted at the Facility and wastes that are prohibited. Section 4.2 lists criteria for waste acceptance and management. Sections 4.3 and 4.4 contain pre-acceptance procedures for initial acceptance of hazardous waste received from off-site generators and management procedures for incoming shipments of waste. The various waste analysis protocols that will be required at the Facility are contained in Section 4.5. Sampling and analytical methods and protocols for quality assurance/quality control (QA/QC) are discussed in Sections 4.6 and 4.7. Section 4.8 explains the Facility's waste tracking system. Section 4.9 summarizes notification, certification, and recordkeeping requirements related to waste analysis.

4.1 Permitted and Prohibited Waste

Section 4.1.1 identifies hazardous waste permitted for acceptance at the Facility. Hazardous waste prohibited at the Facility is identified in Section 4.1.2.

4.1.1 Permitted Waste

The Facility will dispose of only those hazardous wastes listed in Part A of the Facility Permit Application. Only hazardous waste which meets the LDR treatment standards identified in 40 CFR 268, Subpart Dwill be accepted. These treatment standards are applicable to both primary contaminants and underlying constituents.

4.1.2 Prohibited Waste

The Facility will not accept the following wastes from off-site generators:

- *Dioxin-contaminated wastes:* Wastes listed in 40 CFR 268.31 as adopted by 20.4.1.800 NMAC.
- *Certain PCB-contaminated soils:* Soils with PCB concentrations greater than or equal to 500 ppm will not be accepted at the Facility, except for those soils (or other wastes) that are PCB bulk product waste or PCB remediation waste (40 CFR 761). The Facility may obtain a permit from the U.S. Environmental Protection Agency (EPA) for management of Toxic Substances Control Act (TSCA) wastes in order to accept other wastes containing PCB concentrations greater than 500 ppm. A copy of this permit will be transmitted to the New Mexico Environment Department (NMED) before such waste is accepted.
- *Organic liquids/sludges:* Liquids/sludges with organic concentrations at levels that make them subject to the treatment, storage, and disposal requirements described in 40 CFR 264 Subpart AA or CC; and that have not been treated, prior to receipt at the Facility, to applicable LDR treatment standards (40 CFR 264 Subpart AA and CC as adopted by 20.4.1.500 NMAC).

- *Explosives:* Any substance or article, including a device, that is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or that, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion.
- *Radioactive/nuclear materials:* Materials regulated by NMED or the New Mexico Oil Conservation Division and defined in 20.3.1 NMAC Subpart 14, or materials regulated under the Atomic Energy Act of 1954, as amended (including source, special nuclear materials and byproduct materials as defined in 10 CFR 20.1003).
- *Medical waste:* Waste including infectious/biologic/pathogenic solid waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. This also includes infectious waste as defined in 20.9.1.105.AL NMAC.
- *Packing house and killing plant offal:* Defined as a special waste by 20.9.1.105.BZ NMAC.
- *Certain hazardous debris:* Hazardous debris that has not been treated, prior to receipt at the Facility, to meet the LDR treatment standards.
- *Certain lab packs:* Lab packs that contain wastes [identified in 40 CFR 268, Appendix IV (adopted by reference in 20.4.1.800 NMAC)] excluded from lab packs under the alternative treatment standards of 40 CFR 268.42(c) (adopted by reference in 20.4.1.800 NMAC).
- *Compressed gases:* Gases stored at pressures higher than atmospheric.
- *Unknown or unidentified waste:* These wastes cannot be accepted at the Facility except by special provision and direction from the NMED Secretary (e.g., emergency clean-up operations) or until full characterization has been performed.

4.2 Criteria for Waste Management at the Facility

Waste managed at the Facility must meet the Facility's criteria for acceptance and management. Waste analysis (or, in some cases, acceptable process knowledge) will be used to ensure determination of:

- Complete characterization of the waste.
- Compliance with LDR treatment standards, including, where applicable, underlying constituents. If the waste stream does not meet the LDR treatment standards, the waste will be rejected.
- Compliance with the Facility's regulatory and operational limits (e.g., the waste is not included in the permitted wastes listed in Part A of this application or the waste does not meet other operational boundaries established by this WAP).

4.3 Pre-Acceptance Procedures for Off-Site Waste

Before a waste stream is accepted, all off-site generators will be required to provide a complete waste characterization (Section 4.3.1). After evaluating the paperwork supplied by the generator (Section 4.3.2), the Facility will send a representative sample of the waste to a laboratory for analysis and will evaluate the analytical results (Section 4.3.3). Finally, the Facility will notify the generator that the Facility will accept the waste stream (Section 4.3.4).

4.3.1 Waste Characterization Information Provided by the Generator

The activities associated with pre-acceptance of off-site waste streams are shown in Figure 4-1. The generator must provide the following waste characterization information for each waste stream:

- A completed Waste Profile Form signed by an authorized agent of the generator. An example of a Waste Profile Form is contained in Permit Attachment F2. This form may be changed if the Facility believes that more information is warranted or if there are changes in regulations governing the Facility.
- Other documentation that supports the information presented on the Waste Profile Form (e.g., material safety data sheets [MSDSs]).
- A description of the process that generated the waste.
- A completed Land Disposal Restriction Notification.
- All other supporting data required by 40 CFR 268.7.
- All required certifications.
- Waste analysis data used to characterize the waste and/or process knowledge documentation.
- A representative sample of the waste, of adequate volume for analysis.

If waste analysis is used to characterize the waste, the generator must supply, at a minimum, the following waste analysis data for each representative sample:

- identification of the sample medium (e.g., sludge, soil);
- information about waste stratification;
- brief description of the sampling strategy, including
  - a description of the sampling technique (i.e., biased or random);
  - rationale for selection of the number and location of samples;
  - a description of the statistical approach, if any; and
  - the sample type (i.e., grab or composite);
- identification of the analytical methods that were used and the rationale for the selection of these parameters;
- final laboratory reports including case narratives, waste analyses, and QA/QC analyses; and
- identification of the laboratory that performed the waste analyses.

The Facility will evaluate the way each representative sample was obtained in order to determine whether it is truly representative of the waste stream. The Facility will evaluate the information provided by the supplier and will use the documents listed below for guidance.

- The Sampling Plan, Section 4.6 of this document
- Standard Practice for Sampling Waste and Soil for Volatile Organics (American Society for Testing and Materials (ASTM) D4547-91)
- Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, Part III (US Environmental Protection Agency Publication SW-846, latest edition)

- RCRA Sampling Procedures Handbook (EPA Region VI)

In certain cases, generators may meet waste analysis requirements by supplying "acceptable knowledge". Acceptable knowledge includes process knowledge and waste analysis. (Permit Attachment F4 identifies acceptable knowledge requirements for foreign generators). Process knowledge includes detailed information of a waste obtained from existing published or documented waste analysis data or studies on hazardous wastes generated by processes similar to that which generated the waste, or industry or trade association hazardous waste profile studies, or EPA documents. Examples of waste streams where process knowledge may be adequate for characterization are K-listed wastes (hazardous wastes from specific sources), which are identified by comparing the specific process that generated the waste to those processes listed in 40 CFR 261.32. The application of process knowledge is appropriate where the physical/chemical make-up of the waste is well known and consistent. Process knowledge is often used in conjunction with physical and analytical analysis.

Foreign Generators shall, in addition to all of the above requirements, analyze wastes at an accredited laboratory in accordance with Section 4.7.4, Laboratory Requirements for Foreign Generators, and shall characterize all waste streams in accordance with Permit Attachment F4, Waste Characterization Using Acceptable Knowledge.

4.3.2 Paperwork Evaluation

The Facility will evaluate all of the waste characterization paperwork to determine if it adequately represents the physical and chemical characteristics of the waste stream and whether the waste stream is appropriate for management at the Facility. As part of the pre-shipment process, the Facility will work with the off-site waste generator to ensure that all necessary waste analyses and waste characterization information are provided to meet the applicable requirements for acceptance.

If waste analysis was used to characterize the waste, the Facility will evaluate the data to determine that:

- appropriate extraction and preservation techniques were used;
- appropriate sampling strategies were used;
- appropriate sample types were collected;
- appropriate parameters were selected for analysis;
- appropriate analytical methods were used;
- recommended holding times were met;
- detection limits were below applicable standards (e.g., the LDR standards); and
- the quality of the analytical data is adequate for making a waste determination based on an evaluation of the final laboratory reports.

If the data supplied are not adequate to provide a complete characterization of the waste stream, the Facility will either require additional information from the generator or will not agree to accept the waste.

All of the waste characterization information supplied by the generator will be maintained in the Facility's Operating Record. In addition, the Facility's evaluation of this information and the results of the independent analysis will be maintained in the Operating Record.

4.3.3 Representative Sample Assessment

After evaluation and approval of the sample representativeness and waste characterization data paperwork, the representative sample submitted by the generator will be analyzed by a qualified laboratory other than the one used by the generator. Based upon the Facility evaluation of the information supplied by the generator, the Facility will inform the laboratory of the medium type (e.g., aqueous or solid) and appropriate parameters for analysis. The rationale for selection will be maintained in the Facility Operating Record.

The generator's Waste Profile Form will be compared with the results of the laboratory analysis of the representative sample and with the Facility's permit to ensure that the waste is acceptable for disposal at the Facility. Should there be a discrepancy between the analytical results and the generator information, the Facility will contact the generator to resolve the discrepancy. The generator will not be authorized to ship the waste until all discrepancies are resolved. If the discrepancies cannot be resolved with the information provided by the generator, the Facility will request a new Waste Profile Form and any additional information that may be required to characterize the waste adequately. In addition, the Facility may require the generator to submit additional samples of the waste for analysis. If the generator cannot supply adequate information to provide a complete characterization of the waste stream, the Facility will not accept the waste. The generator will submit a new Waste Profile Form for each new waste stream and for an existing waste stream if it is modified significantly.

4.3.3.1 Major Discrepancies

Major discrepancies include the following:

- analytical results indicating that the generator applied an incomplete or wrong waste code to the waste stream;
- analytical results indicating that the generator submitted incomplete or wrong information on the LDR Notification Form;
- analytical results including constituents or underlying hazardous characteristics that are not explained by a description of the process; and
- other information indicating that the waste stream is not characterized properly.

In the event of a major discrepancy, the Facility will reject the paperwork and require the generator to analyze the waste in accordance with a sampling plan that is consistent with the guidance in EPA document SW-846, *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*, Chapter 9. The Facility will require the generator to resubmit the waste characterization information listed in Section 4.3.1 and one or more additional representative samples for analysis.

4.3.3.2 Minor Discrepancies

Minor discrepancies include any other waste characterization discrepancy (e.g., discrepancies that do not question hazardous waste code assignments, waste treatment, or the presence of prohibited items). In the event of a minor discrepancy, the Facility will work with the generator to resolve the discrepancy. For example, uncertainties regarding whether sorbents are present will be handled as minor discrepancies. The Facility will contact the generator if the Waste Profile Form does not indicate whether a sorbent was added to the waste, or if it indicates that a sorbent was added but does not specify the name and type of sorbent and whether it is biodegradable. If the generator cannot provide this documentation, the waste must be tested to determine whether it contains a biodegradable sorbent. If the waste is determined to contain a biodegradable sorbent, it will be rejected.

4.3.3.3 Additional Waste Acceptance Conditions

In addition to complete characterization of the waste, the Facility will also evaluate the waste to ensure that it can be managed at the Facility. Waste analysis will be conducted where necessary to ensure that:

- the waste is not prohibited (e.g., the waste is included in Part A of this application, is not listed in Section 4.1 as a prohibited waste, or does not exceed allowable PCB concentrations or include dioxins);
- the LDR treatment standards contained in 40 CFR~~,~~ 268, Subpart D, including the standards for underlying hazardous constituents, are met;
- the general requirements contained in 40 CFR 264.17 for ignitable, reactive, and/or incompatible waste are met; and
- the waste does not contain biodegradable sorbents, as required in 40 CFR 264.314(e).

All major and minor discrepancies, discrepancy resolutions, and compliance with the additional waste acceptance conditions listed above will be documented in writing and maintained in the Facility Operating Record.

4.3.4 Notification and Approval of Waste Shipment

After the Facility determines that the waste stream meets the pre-acceptance requirements, the Facility will send a written notification to the generator. This notification will include the following:

- a statement that the waste is acceptable for shipment;
- a unique identifier number for the waste stream, assigned by the Facility (see Section 4.10);
- instructions to put the unique identifier number on all shipment paperwork and all future waste characterization data that are submitted for the waste stream;
- a requirement to notify the Facility at least 24 hours before shipping, so that the Facility can ensure that there are sufficient resources and capacity to manage the shipment when it arrives;
- a statement that the Facility reserves the right to delay shipments beyond the 24-hour time frame;
- instructions to ensure safe management of the waste (e.g., packaging or labeling requirements not otherwise required by regulations);
- if the generator has treated the waste prior to shipment to meet applicable LDR treatment standards, a requirement that the generator develop and follow a written WAP that describes the procedures used; and
- a requirement that the generator retain on-site a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to characterization of the waste stream for five years from the date that the waste was last sent to the Facility.

Once the Facility has completed pre-acceptance requirements and has determined that a waste stream is acceptable for shipment, the on-site laboratory will be notified in writing. The notification will include the waste type, waste stream identifier, physical form, packaging, and how the waste is to be managed. This information will be used by the laboratory as follows:

- the waste stream identifier will be used to track the samples in relation to the waste stream;

- the waste type will be used to help determine the analytical methods that will be employed for fingerprint analysis; and
- the physical form and packaging will determine the most applicable sampling methods.

Using this information, the on-site laboratory will designate a sampling and analytical protocol specific to each waste stream as described in Section 4.6. The unique identifier number for the waste stream will be used to track all activities for the waste stream. Individual shipments from within the waste stream will receive an additional identifier to enable the Facility to tie information back to the specific shipment as well as to the waste stream.

4.4 Procedures for Incoming Waste Acceptance

The activities associated with incoming waste shipment are shown in Figure 4-2. These procedures will be used for both initial shipment of a waste stream and for waste streams that have previously been accepted by the Facility from the same generator and process. The Facility will review the waste shipment paperwork and resolve paperwork discrepancies (Section 4.4.1), and visually inspect the waste inside the containers and roll-off boxes (Section 4.4.2). Waste analyses for incoming shipments consist of fingerprint analysis and an annual analysis to update characterization of the waste stream (Section 4.4.3). Based on the Facility's evaluation of the waste stream, a determination to accept or reject the waste will be made (Section 4.4.4)..

4.4.1 Paperwork Review

Upon receipt of a waste shipment, the truck will be routed to a parking area outside the Facility gate while documents are reviewed. The Facility will:

- review all paperwork for completeness to verify that all required documentation is present and signed as necessary;
- compare the information in the manifest, the Waste Profile Form, the LDR Notification Form, and pre-acceptance waste characterization information for consistency;
- compare the number of containers, the volume or weight of the waste, and the waste labels on each container with the manifest for consistency; and
- review all paperwork to verify that the unique identifier number for the waste stream is on all the waste shipment paperwork and all accompanying waste characterization data.

If the Facility determines that the paperwork is complete and consistent, the waste shipment will be routed to the truck sampling station, a staging area inside the Facility gate.

If the Facility determines that the paperwork is incomplete or inconsistent, the waste shipment will be routed to a segregated, secure area inside the Facility gate pending resolution of the discrepancies. An attempt will be made to resolve discrepancies with the waste generator or transporter within 24 hours. In those instances where a discrepancy with the manifest cannot be resolved within 15 days of receiving the waste, a letter will be submitted to NMED describing the discrepancy and the attempts made to reconcile it. A copy of the manifest or shipping paper at issue also will be provided to NMED, as specified in 40 CFR 264.72(b). If the Facility is unable to resolve the manifest discrepancies, the waste will not be accepted.

The Facility will resolve significant manifest discrepancies in accordance with 40 CFR 264.72. Manifest discrepancies are differences between the quantity or type of hazardous waste designated on the manifest and the quantity or type of hazardous waste contained in the shipment received at the Facility.

Significant discrepancies in quantity are:

- *Bulk waste:* Variations greater than 10 percent in weight.
- *Batch waste:* Any variation in piece count, such as a discrepancy of one drum in a truckload.

Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.

All discrepancy resolutions will be documented in writing and maintained in the Facility Operating Record. If manifest discrepancies are not resolved within 90 days of identifying the discrepancy, waste will not be accepted for disposal, and the waste will either be returned to the sender or disposed at an appropriate off-site facility.

4.4.2 Visual Inspection

After all paperwork discrepancies have been resolved, the Facility will physically open and inspect the waste inside drums and roll-off boxes for color, similar physical appearance (e.g., single phase, bi-layer, multi-layer), and physical state (e.g., solid or semi-solid). This information will be compared with the waste characterization information provided by the generator and the physical appearance of the representative sample. If the color and/or viscosity of bulk wastes (solids and sludges) appear inconsistent, the Facility may elect to perform additional chemical tests (i.e., composite samples would be taken from within the different areas of coloration or viscosity).

The Facility will inspect a minimum of 10 percent of all drums of each waste stream per shipment (but not less than one drum per waste stream) and each roll-off container.

The Facility will physically open all containers of hazardous debris and inspect the contents to ensure that the waste shipment matches the waste that is expected. Prior to acceptance of hazardous debris, the Facility will require the generator to provide a certification that the waste has been treated in accordance with the requirements defined for the treatment of hazardous debris in 40 CFR 268. Hazardous debris is visually inspected because it is exempted from the representative sample waste analysis requirements discussed in Section 4.7.2. This visual inspection will ensure that the waste stream matches the description provided by the generator.

Certain loads may not be sampled, at the discretion of the Facility manager or laboratory supervisor, for environmental and safety reasons (e.g., severe weather which causes unsafe working conditions). In these cases, the generator or his agent will be required to provide a signed certification that the load conforms to the Waste Profile Form. This variance from established procedure will be documented in the Facility Operating Record.

If a discrepancy is found, the Facility will contact the waste generator for resolution (see Section 4.4.1). The results of visual inspections and all discrepancy resolutions will be documented in writing and maintained in the Facility Operation Record. If discrepancies noted during visual examination are not resolved within 90 days of identifying the discrepancy, waste will not be accepted for disposal, and the waste will either be returned to the sender or disposed of off-site at an appropriate facility.

4.4.3 Waste Analysis for Incoming Shipments

Waste analysis for incoming shipments consists of fingerprint tests (Section 4.5.4) and an annual analysis to ensure correct characterization of each waste stream (Section 4.5.3).

4.3.3.1 Fingerprint Test Procedure

Fingerprint testing is an abbreviated analysis and is used to confirm that an incoming shipment of waste received at the Facility is the actual waste expected and that it matches the expected chemical content for that waste. Fingerprint analysis will be conducted on each waste stream in each shipment prior to shipment acceptance. Fingerprint analysis will be conducted generally for parameters that will give information that can be used to help verify that a waste stream received from off-site matches the expected characteristics of the waste.

While the incoming shipment is staged at the sampling station, laboratory personnel or other trained personnel will review the sampling and laboratory requirements for the specific waste stream. After completion of this review, sampling personnel will obtain the necessary samples in the manner prescribed by the Sampling Plan and applicable laboratory requirements. Sampling will be conducted in accordance with approved site operating procedures. These procedures will detail the sampling requirements, sample labeling, chain-of-custody requirements, any necessary sample preservation requirements, and other sampling components (see Section 4.6).

Each waste stream in each shipment will be sampled in accordance with the following sampling rate, at a minimum:

- *Bulk waste:* One sample will be collected from each shipment of bulk waste (one shipment of bulk waste is considered to be one truck load or one roll-off box). If, upon visual inspection, the color and characteristics of solids or sludges appear inconsistent, the Facility may elect to obtain additional samples. These samples would be composites from within the different areas of color or characteristics.
- *Batch waste:* One sample will be collected from each 10 waste drums in each waste stream in each shipment. If there are fewer than 10 waste drums in the waste stream, one drum will be sampled. One sample will be collected from each drum if the waste appears to be inconsistent with the pre-acceptance waste characterization data.

The Facility can increase this sampling rate for any reason. For example, the Facility may decide to collect additional samples if the waste appears to be inconsistent with the pre-acceptance characterization data. In some instances, the Facility may elect to waive one or more analyses under the following conditions:

- The transported waste is a portion of a continuously shipped, well documented waste stream, such as waste produced from a consistent, non-variable process or contaminated soils from a specific remedial action.
- The waste has been approved for receipt by NMED on an emergency basis.
- Facility personnel at the point of generation sampled, or oversaw the sampling of, the waste, and the fingerprint test/supplemental analyses have been conducted. (In cases where a generator is sending very large or continual shipments, the Facility may elect to station personnel at the point of generation to obtain samples prior to or during loading of the waste).

Prior to waiving sampling and analysis requirements, however, the Facility will request a variance from NMED and will not dispose of the waste until NMED approval is received.

4.4.3.2 Annual Analysis Procedure

As part of the Facility's QA/QC procedures (see Section 4.7), the representative sample analysis for each waste stream from each generator will be repeated annually. Repeating this pre-acceptance procedure will ensure that the analysis is accurate and up-to-date and that the waste stream has remained within the operational bounds of the Facility. This annual analysis will be performed by an independent laboratory. This analysis will be repeated more frequently if the Facility believes, or has been informed by the generator, that the process generating the waste stream has changed. In the case of a change in the waste generation process the waste stream will be managed as a new waste stream in accordance with the requirements of this WAP.

4.4.4 Acceptance/Rejection Determination

4.4.4.1 Discrepancy Resolution

Upon completion of the fingerprint analysis, a determination will be made as to whether or not the wastes are consistent with the pre-acceptance waste characterization information and within acceptance limits of the Facility. If any of the analyses determine the waste is not within the operational acceptance limits for disposal, the waste will not be accepted by the Facility. If the results of the analysis conflict with the waste profile information, the Facility may take any or all of the following actions:

- Resample the waste, if necessary, and perform a second fingerprint test. The Facility manager has discretion to accept the waste if the second fingerprint results match those on the waste profile sheet. The discrepancy between results will be explained and included in the Facility Operating Record for that waste stream or shipment.
- Perform further characterization as necessary to verify the composition of the waste by sending a sample to a qualified independent analytical laboratory.
- Reject the entire waste shipment or the nonconforming portion of the shipment.

If discrepancies between fingerprint analysis and waste stream characterization information exist upon completion of discrepancy resolution, the waste will be rejected by the Facility. The Facility will return the rejected waste to the generator or ensure proper disposal of the waste at an appropriate off-site facility within 30 days of the waste rejection.

4.4.4.2 Shipment Acceptance Procedures

Once the decision has been made to accept a waste shipment, the appropriate papers will be signed for the generator, and the waste stream will be transported by truck to the landfill.

4.5 Waste Analysis

Tables 4-1 through 4-3 specify parameters which will be analyzed to ensure that all criteria for waste acceptance and management are met. The Facility will use approved SW-846 or ASTM analytical methods, or other approved method. If an alternative method not contained in SW-846 is to be used, the Facility will demonstrate that such alternative method is equivalent to the approved method contained in SW-846 or this WAP. Alternative methods will be submitted to the NMED Secretary at least 15 days prior to the sample collection event.

Section 4.5.1 identifies the rationale for selecting parameters and analytical methods which will be used to test hazardous waste managed at the Facility. Requirements for the pre-acceptance analysis of a representative sample of waste generated off-site and for the annual analysis are discussed in Sections 4.5.2 and 4.5.3, respectively. Section 4.5.4 contains requirements for fingerprint testing. Section 4.5.5 contains waste analysis requirements specific for the landfill. Section 4.5.6 contains requirements for analysis of waste generated on-site.

4.5.1 Analytical Parameters

The analytical parameter lists for pre-acceptance waste characterization, fingerprint analysis, and additional unit-specific analysis are presented in Tables 4-1, 4-2, and 4-3. The Facility will augment these lists as necessary to ensure that additional considerations pertaining to waste-stream-specific pre-acceptance characteristics, LDR standards analysis, and other Facility operational limits are met. The rationale used to determine pre-acceptance characterization is specified in Section 4.5.1.1. The rationale for selecting additional parameters to ensure compliance with the LDR standards is specified in Section 4.5.1.2. The rationale for selecting parameters to ensure compliance with other facility regulatory and operational limits is contained in Section 4.5.1.3. For each waste stream accepted and disposed of at the facility, appropriate parameters will be selected to ensure that each of the facility acceptance criteria is met.

4.5.1.1 Parameters for Waste Characterization

Table 4-1 specifies parameters to confirm that a waste stream agrees with the information provided by the generator. The rationale for the selection of these parameters is as follows:

- *Total volatile organic compounds (VOCs):* This test will determine the presence and concentration of individual VOCs.

- *Total semivolatile organic compounds (SVOCs):* This test will determine the presence and concentration of individual SVOCs.

- *Metals and inorganic constituents:* These tests will determine the presence and concentrations of individual metals and other inorganic constituents.

- *Physical appearance:* This test determines the general identity of the waste and establishes baseline characteristics that can then be subjectively compared with the waste shipment when it arrives at the facility. The waste is visually inspected and the physical appearance of the waste is recorded, including, at a minimum, the following properties: Color, physical state (solid or semi-solid), texture, viscosity, layering (single phase, bi-layer, multi-layer), and presence of free liquids.

- *pH:* This test indicates the corrosive nature of the waste. It also determines compatibility with other wastes and with liners. The tolerance range for pH is plus or minus 2.5 pH units.

- *Radioactivity screen:* This test screens each load using a gamma ray scintillation detector or other appropriate equipment. This test will be used to ensure that the level of radioactivity observed in NORM waste or equipment from oil, gas, and water production containing hazardous constituents, or other naturally occurring radioactive materials not regulated under 20.3.1.14 NMAC, is not above regulated limits as defined in 20.3.1.14 NMAC (i.e., the maximum radiation exposure reading at any accessible point does not exceed 50 microroentgens per hour [ΦR/hr] and the maximum radiation reading for sludges and scales contained in oil, gas, and water production equipment does not exceed 50 ΦR/hr, or, if the radiation readings for removable sludges and scales exceed 50 ΦR/hr, the concentration of radium 226, in a representative sample, does not exceed 30 picocuries per gram [pCi/g]). Material regulated under the Atomic Energy Act of 1954, as amended, is not permitted for waste management.

4.5.1.2 Additional Analysis to Ensure Compliance with the LDR Treatment Standards

The rationale for the selection of additional parameters to ensure compliance with the LDR standards is as follows:

- *Ignitability:* This is a qualitative test to determine the ignitable nature of the waste and indicate if the waste is prohibited. It also helps to determine whether the waste is compatible with liners, piping, structures, equipment, and other waste streams.

- *Explosive meter vapor test (TLV sniff test):* This test determines the fire-producing potential of the waste and whether it is regulated as flammable or combustible by the US Department of Transportation. If liquid waste exceeds 200 ppm, the waste will also be tested for ignitability using the flash point test. The tolerance range for the TLV sniff test is plus or minus 200 ppm.

- *Flash point test:* This test determines the flash point of the waste and determines whether the waste is ignitable**.**

- *pH:* This test indicates the corrosive nature of the waste. It also determines compatibility with other wastes and with liners. The tolerance range for pH is plus or minus 2.5 pH units.

- *Reactive sulfide:* This test determines the reactive nature of the waste and indicates if the waste is prohibited. It is also used to determine whether the waste is compatible with liners, piping, structures, equipment, and other waste streams. Wastes containing total releasable sulfide with concentrations less than 500 ppm are considered non-reactive.

- *Reactive cyanide:* This test determines if cyanide could potentially be reactive under acidic conditions, indicates if the waste is prohibited. It also determines whether the waste is compatible with liners, piping, structures, equipment, and other waste streams. Wastes containing total releaseable cyanide with concentrations less than 250 ppm are considered non-reactive.

- *Reactivity (compatibility):* This test determines the compatibility between the waste and the liner or equipment which the waste may contact.

  The Facility will ensure that potentially incompatible wastes will not be disposed of in the same location. The facility will perform a compatibility determination based on the pre-acceptance waste characterization information. Acceptable knowledge or assessment information provided on the Waste Profile Form may be used to assign compatibility codes to each waste type form based on 40 CFR 264, Appendix V.

  Chemical analysis will be accomplished in three steps, as appropriate for the waste being analyzed:

  - An analysis of the waste for reactive cyanide and sulfide. This analysis will be used to determine the waste's potential to release dangerous levels of hydrogen cyanide or hydrogen sulfide gases in acidic conditions (i.e., pH less than 2).

  - An evaluation of the reactivity characteristics of the waste through process knowledge and a series of analytical procedures that will test for the presence of reactive chemical groups. The procedures in the EPA document, *Design and Development of a Hazardous Waste Reactivity Testing Protocol,* EPA-600/2-84-057, February 1984, will be followed and the results used to assign the waste a reactivity group designation. Figure 4-3, Sequence of Procedure Sets for Determining Reactivity Group, summarizes the reactivity testing protocol.

- Use of the reactivity group designation contained in Figure 4-3 to evaluate compatibility of the waste with other wastes by comparing it to the compatibility matrix shown in Figure 4-4, Reactivity Group Designation. (Refer to EPA document, A Method for Determining the Compatibility of Hazardous Wastes, EPA-600/2-80-076, April 1980, and 40 CFR Part 264, Appendix V, for additional information on waste compatibility).

- *Total VOCs:* This test will determine the presence and concentration of individual VOCs.

- *Total SVOCs:* This test will determine the presence and concentration of individual SVOCs.

- *Metals:* These tests will determine the presence and concentrations of individual metals and other inorganic constituents.

- *Organochlorine pesticides:* This test determines the pesticide concentration of the waste.

- *Chlorinated herbicides:* This test determines the herbicide concentration of the waste.

- *PCBs:* This is a quantitative test to determine whether PCBs are contained in oil-bearing and other types of waste and to determine the concentration.

- *Leachate:* Leachate must be tested for all leachate constituents listed in the table in 40 CFR 268.40.

4.5.1.3 Additional Analysis to Ensure Compliance with Regulatory and Operational Limits

The rationale for the selection of additional parameters to ensure compliance with the Facility's regulatory and operational limits is as follows:

- *Radioactivity screen:* See Section 4.5.1.1. This test will determine if the waste is prohibited from acceptance at the Facility (see Section 4.1.2 for a list of prohibited wastes).

- *PCBs:* See Section 4.5.1.2. This test will determine if the waste contains a prohibited concentration of PCBs.

- *VOCs (Subpart BB):* These tests are conducted as required by 40 CFR 264.1063(d) to determine, for each piece of equipment subject to the requirements of 40 CFR, 264, Subpart BB, whether the equipment contains or exceeds 10 percent VOCs by weight. Applicable process knowledge may be used to make this determination.

- *Dioxins and dibenzofurans:* This test is conducted to ensure that the waste stream does not contain dioxins and/or dibenzofurans.

- *Non-biodegradable sorbent test:* This test is performed as required by 40 CFR 264.314 (prohibition of liquids in landfills). This test is required if the Facility determines that the generator did not indicate whether a sorbent was added to the waste or indicates that a sorbent was added but did not specify the name and type of sorbent and whether it is nonbiodegradable. If any of this information is not present, the generator will be contacted for clarification. If uncertainty remains, 40 CFR 264.314(e)(1)(i-iii) will be reviewed. If the sorbent's biodegradability cannot be determined from the list or if the name of the sorbent is unknown, the material will be analyzed following one of the tests referenced in 40 CFR 264.314(e)(2). The Facility will select one of the following tests:

- ASTM Method G21-70 (1984a) - Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi;
- ASTM Method G22-76 (1984b) - Standard Practice for Determining Resistance of Plastics to Bacteria;
- OECD Test 301B - CO_2 Evolution (Modified Sturm Test) ASTM Method G21-70 (1984a) - Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi; or
- Other approved test method.

- *Total organic halogens (TOX):* This test determines if concentrations of halogens in the waste are in compliance with the LDR treatment standards. It also determines if the waste contains constituents that could degrade a liner. Wastes containing TOX greater than 1,000 mg/L (based on TCLP extract) will not be placed in the landfill.

- *Free liquid content test (paint filter liquids test):* This test is a qualitative test to determine the free liquids concentration contained within the waste matrix and will be used as a control parameter for wastes that are to be landfilled.

- *Toxicity characteristic leaching procedure (TCLP):* This test must be used to obtain an extract of the waste where treatment standards are based on concentrations in the waste extract:
    - major ions and metals in non-leachate (sulfides and sulfates, radionuclides, VOCs, SVOCs, pesticides, PCBs, perchlorate, and TPH).

4.5.2 Representative Sample Analysis

The Facility will select parameters for analysis to ensure that the criteria for waste acceptance identified in Section 4.2 are met. The analysis will include, at a minimum, testing for each hazardous waste contained in the waste stream, as identified by EPA hazardous waste code, and for each underlying hazardous constituent, as identified in 40 CFR 268.48, Table 4-1, Parameters and Methods for Representative Sample Analysis. Additionally, parameters on Tables 4-2, Tests and Analytical Methods for Fingerprint Analysis, and 4-3, Additional Tests and Analytical Methods, will be included, as applicable.

For foreign wastes, in addition to the conditions specified above, representative sample analysis for each waste stream shall include testing for all constituents listed in 40 CFR 268.48 using practical quantitation limits capable of measuring the standards specified in 268.48. The results of this test will be used to perform the comparison with the generator's Waste Profile Form specified in the *Representative Sample Assessment* Section (Waste Analysis Plan Condition 4.3.3). Testing for all constituents listed in 40 CFR 268.48 shall not be required for the annual analyses.

Hazardous debris, as defined in 40 CFR 268.2(g), that has already been treated to meet the LDR treatment standards as described in 40 CFR 268.45 does not have to meet the representative sample analysis requirements if the Facility determines that the generator provided waste characterization information that demonstrates that the proper EPA Hazardous Waste Numbers were applied and indicates whether or not the LDR treatment standards have been met.

4.5.3 Annual Analysis

The representative sample analysis for each waste stream from each generator will be repeated annually at an independent laboratory not used by the generator (see Section 4.4.3.2).

4.5.4 Fingerprint Analysis

Fingerprint samples will be analyzed for all parameters listed on Table 4-2, and may include tests for physical appearance, pH, and radioactivity. Additional fingerprint parameters will be selected based on the pre-acceptance waste characterization data, shipment paperwork, physical form of the waste, and the visual inspection of the contents of containers and bulk waste. The Facility will follow the additional parameter selection process described in Section 2.2 of the EPA guidance document, *Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes* (EPA, OSWER 9938.4-03, April 1994).

Because the Facility already knows the detailed chemical and physical properties of a waste, additional necessary and appropriate fingerprint or spot check parameters can be chosen easily, as the purpose of the fingerprint is only to verify that the waste fingerprint analysis will include, at a minimum, the parameters received is the waste expected. These parameters will be analyzed at the on-site laboratory. Analyses which are not within the on-site laboratory's capability will be sent to an independent laboratory for analysis.

Fingerprint analysis will also include parameters as necessary to ensure that the waste is within the Facility regulatory and operational acceptance limits (see Table 4-3). To select these additional sample parameters, the Facility will consider.

- compliance with applicable regulatory and permit requirements (This may require selection of parameters not reported by the generator);
- identification of incompatible and inappropriate wastes; and
- process and design considerations.

As noted, fingerprint analysis helps the Facility minimize the potential to receive waste that is unacceptable. Therefore, the level of additional analysis required for a waste shipment is a function of Facility knowledge about the waste generation process and the waste generator. The Facility may elect to perform additional fingerprint tests to achieve a higher level of confidence that a full waste characterization is achieved. If discrepancies are noted between the received waste and the Waste Profile Form, the waste will be further analyzed using additional fingerprint parameters. Discrepancies that can result in the Facility requiring additional analysis include non-conformance with the results of required testing or a change in color, texture, liquid content, or other characteristics that can be observed upon receipt.

The Facility will follow the additional parameter selection process described in Section 2.2 of the EPA guidance document, *Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes* (EPA, OSWER 9938.4-03, April 1994).

4.5.5 Additional Analysis Requirements for the Landfill

4.5.5.1 Overview of Waste Management Procedures in the Permitted Hazardous Waste Management Unit

Upon completion of the fingerprint analysis, and supplemental analyses if conducted, waste will be transferred to the appropriate staging area. Prior to final disposition of the waste, however, additional analyses may be required to ensure that requirements for the landfill are met.

Analysis necessary for disposal is generally conducted as part of the pre-acceptance procedure (see Section 4.7.2). Appropriate parameters will be selected from Tables 4-2 and 4-3. The Facility will use a combination of process knowledge and analytical results to obtain the information needed prior to placing waste in the landfill. The Facility may elect to use other EPA-approved analytical methods if it is felt that information other than that obtainable by these methods is needed to manage the waste safely.

The landfill has specific ignitability, reactivity, and compatibility requirements that must be met. Acceptable knowledge or waste analysis will be used to determine whether a waste stream is ignitable, reactive, or incompatible with other wastes to be placed in the landfill. In addition, acceptable knowledge or waste analysis will be used to determine whether the waste stream is compatible with the landfill. Specific ignitability, reactivity, and compatibility tests will be conducted as part of the representative sample analysis, and may be repeated in the fingerprint test, for wastes assigned to specific management units. Management of these wastes is discussed inPermit Attachment B, Section 5.5. Ignitability, reactivity, and compatibility determination is discussed in Section 4.5.1.2.

The Facility will conduct compatibility tests as part of the representative sample analysis procedure on an incoming waste stream specific to other waste streams with which it may be combined.

4.5.5.5 Waste Analysis Requirements Specific to the Landfill.

Prior to placement of waste in the landfill, it must be determined that the waste meets LDR standards as set forth in 40 CFR 268, Subpart D. 40 CFR 268.40 states that a waste identified in the table "Treatment Standards for Hazardous Wastes" may be land disposed only if it meets the requirements found in the table. For each waste, the table identifies one of three types of treatment standard requirements:

- All hazardous constituents in the waste or in the treatment residue must be at or below the values found in the table for that waste ("total waste standards"); or

- The hazardous constituents in the extract of the waste or in the extract of the treatment residue must be at or below the values found in the table ("waste extract standards"); or

- The waste must be treated using the technology specified in the table ("technology standard") which are described in detail in 40 CFR 268.42, Table 4-1.

In cases where treatment standards are based on concentrations in the waste extract, the generator will use toxicity characteristic leaching procedures (TCLP, see 40 CFR 261, Appendix II) to determine if the waste meets the standards. The sampling and analysis protocols outlined in Sections 4.5 through 4. 7 of this permit application will apply to all wastes to ensure compliance with LDR standards. Parameters for analysis will be determined by the characterization of the waste before analysis. All information obtained to document LDR compliance will be maintained in the Facility Operating Record.

In addition to other required procedures and analyses, on an annual basis the Facility will randomly sample and analyze a minimum of 10 percent of incoming waste streams that are to be directly landfilled to verify conformance with the LDR requirements. These additional samples will be analyzed for the specific regulated hazardous constituents contained in the hazardous waste stream. The data generated from these samples, in conjunction with the generator-supplied data, will be used to verify conformance with the LDR requirements.

Facility personnel, either at the Facility or at the point of generation, will collect these samples. The samples will be split into a minimum of two aliquots. One will be retained and the other analyzed for conformance with the applicable LDR requirements. If the results of the analysis indicate that the waste does not conform with the applicable LDR requirements, the retained sample will be analyzed, generator-supplied information re-evaluated, and an evaluation made of the potential for the waste's variability based on the process that generates the waste stream.

The retained sample will subsequently be analyzed, the generator-supplied information re-evaluated, and an evaluation made of the potential for the waste's variability based on the process that generated the waste stream. These factors, along with an evaluation of the QA/QC data from the laboratory (both the generator's and the Facility's), will be used to determine if the subject waste stream is eligible for continued disposal at the Facility or if additional treatment is necessary prior to disposal. Disposal of the waste stream will be discontinued until the discrepancy regarding compliance with the LDR requirements has been resolved and the generator has demonstrated that its on-going program for compliance with LDR requirements is adequate.

Procedures to meet LDR standards for specific wastes include the following:

- *Lab packs:* Prior to acceptance by the Facility for disposal, hazardous wastes contained in lab packs will be treated to meet applicable treatment standards for each waste type identified. Lab packs will also be analyzed to ensure that they do not contain hazardous wastes listed in 40 CFR 264, Appendix IV. In cases where hazardous lab pack wastes are combined with non–hazardous lab pack wastes prior to or during treatment, the entire mixture will be treated to meet the most stringent treatment standard for each hazardous constituent before being disposed of in the landfill.

- *Ignitable or reactive wastes:* Ignitable or reactive hazardous waste will be tested to ensure that it will not be placed in the landfill until the waste has been rendered non-ignitable or non-reactive by treatment.

- *Characteristic wastes.* Generator process knowledge and/or analytical data will be used to determine whether characteristic wastes meet the applicable treatment standards or to demonstrate that the waste has been treated by the appropriate specified treatment technology. In accordance with 40 CFR 268.41, where treatment standards are based on concentrations in the waste extract, generators shipping waste to the Facility will determine if their wastes meet treatment standards.

- *Reactive wastes:* Reactive wastes will not be placed in the landfill until they have been rendered nonreactive by treatment.

- *Incompatible wastes:* Incompatible wastes will be sufficiently separated when placed in the landfill to ensure that they do not combine to cause adverse reactions. These wastes will be managed to ensure that they meet the requirements specified in 40 CFR 264.313 and 274.17. This management includes placing incompatible wastes in non-adjacent landfill grids and treatment of potentially noncompatible wastes prior to shipment of the waste to the Facility..

- *Hazardous debris:* The Facility will only accept hazardous debris that has been treated and certified to meet the LDR treatment standards specified in 40 CFR 268.45(b) or (c) by the generator prior to shipment to the Facility.

- *Listed waste:* Listed waste will not be placed in the landfill until it has been shown to meet the requirements of 40 CFR 268.40.

4.5.6 Waste Analysis Requirements for Waste Generated On-Site

4.5.6.1 Overview of Waste Generated On-Site

The Facility is expected to generate some waste on-site through day-to-day facility operations, leachate, or releases of hazardous waste to the environment (see Table 4-4).

Waste generated on-site will be assumed to be RCRA-regulated until process knowledge and/or sampling and analysis can be used to determine the actual nature of the waste. Sampling and analysis will be accomplished in accordance with the requirements this WAP.

The Facility will select waste analysis parameters to confirm the identity of waste streams generated at the Facility. The selection of waste analysis parameters will typically be based on knowledge of the physical and chemical processes that produced the waste stream. If there is doubt as to the specific source, the Facility will use the waste tracking system to identify all possible sources and to develop a list of specific parameters for laboratory analysis. Acceptable knowledge and analytical testing as necessary will be used to ensure compliance with LDR requirements and provide waste compatibility and other information to determine appropriate waste management activities.

The Facility will ensure that all on-site generated waste sent to the landfill meets all LDR treatment standards.

Day-to-day operations at the Facility will produce some waste on-site from day-to-day operations (e.g., paint and paint strippers, laboratory chemicals and equipment, vehicle maintenance). This waste will be characterized using acceptable knowledge, or waste analysis if the source cannot be definitively determined. If it is hazardous waste and meets all disposal requirements, it may be disposed in the landfill. If it does not meet the requirements for disposal in the landfill or if it is not hazardous waste, it will be sent off-site for disposal.

A **release** is defined as "any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous waste (including hazardous constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous constituents)". Management protocols for releases generated on-site are discussed below:

- *Spills and leaks:* Spills and leaks may occur during ordinary Facility operations (e.g., release of fluid from a leaking drum to the cell trench and sump in the drum handling unit, a spill at any loading or unloading area).

Provisions for the detection, characterization, and management of spills and leaks are discussed in Sections 2.0, 5.4.2, 6.3.5.2, and 6.3.7 of this Permit Application. If spills and/or leaks are identified during inspections, the materials will typically be removed from the system, characterized, and managed appropriately. If necessary, the contaminated area will be sampled to ensure that all contaminated materials are removed.

- *Decontamination rinse water:* Personal protective equipment (PPE), as well as other equipment (e.g., trucks, sampling equipment, industrial absorbents used during spill or leak clean-up, emergency equipment), may become contaminated during the course of site operations such as the handling of wastes, the transfer of waste to another unit, or emergency operations. The water used to rinse this equipment will be analyzed to determine if it is a hazardous waste and if the equipment has been adequately decontaminated. Provisions for the detection, characterization, and management of decontamination rinse water are discussed in Sections 5.2.5, 5.2.10, and 9.1.2 of this Permit Application. Rinse water and residues will be chemically analyzed and handled in an appropriate manner.

- *Run-on/run-off:* Facility stormwater control is provided by a network of surface run-on and run-off diversion channels and collection and detention basins (see Drawing 25 of the Facility design drawings in Permit Attachment L1). To control the runoff from the Facility, several collection channels and culverts will be built to divert discharges from storm events to a stormwater retention basin (see Section 2.7 of the Operations and Maintenance Plan, submitted separately). Procedures for management of run-on/runoff are discussed in Sections 2.5.1.6, 2.6.1.4, and 5.4.2 of this Permit Application. Sampling will be conducted upstream of the stormwater detention basin to determine the source of any hazardous constituents that could be introduced into the stormwater. Appropriate corrective actions will be implemented to prevent further contamination during future stormwater events.

- *Investigation derived wastes (IDW):* IDW may include drill muds and cuttings from well installation associated with the investigation of spills and releases; soils and other materials from regularly scheduled sampling activities associated with waste management units and the vadose zone monitoring system; and contaminated PPE. All IDW will be assumed to be hazardous waste until site or material specific information becomes available. IDW will be stored near the point of generation in appropriately labeled containers for no greater than 90 days and will be appropriately analyzed to determine whether it is either a characteristic or listed hazardous waste. Analysis of materials associated with the IDW may be used also to characterize the IDW. An example of associated analysis for urge waters from the vadose zone monitoring system would be the final analytical results for the samples collected to satisfy regularly scheduled monitoring requirements.

- *Contaminated soil:* Soil means unconsolidated earthen material consisting of clay, silt, sand or gravel size particles as classified by the US Natural Resource Conservation Service, or a mixture of such materials with liquids, sludges or solids which is inseparable by simple mechanical removal processes and is made primarily of soil by volume based on visual inspection. Contaminated soil is soil impacted by a hazardous constituent release. Soil may become impacted by a release either at the surface or subsurface. If the contaminated soil exists at the surface, the appropriate response is described in the Contingency Plan in the Permit Application. If the contaminated soil exists subsurface, the appropriate response will be developed by NMED as permit conditions. Contaminated soils that are managed as hazardous wastes will be analyzed and managed in accordance with the alternative LDR treatment standards for contaminated soil contained in 40 CFR 268.49.

- *Air emissions:* Procedures for detection of hazardous gases and volatile organic at the landfill are discussed in Sections 2.5.1.8 and 6.2.2 of this Permit Application. Procedures to minimize wind dispersal of dust throughout the Facility are identified in Section 5.4.8. This section also discusses pollution control systems in the stabilization unit to minimize the release of particulate to the atmosphere. The Facility will apply to NMED for a new source air emissions permit before start-up of operations.

- *Leachate:* Leachate as used here refers to landfill fluids. The definition of leachate is in 40 CFR 260.10, collected from the leachate collection and removal system (LCRS), the leak detection and removal system (LCRS), or the vadose zone monitoring system (VZMS) sump.

Leak detection and removal/vadose zone monitoring for landfill leachate is discussed in Sections 2.5.1.3, 2.5.1.4, and 2.5.1.5 and in the Engineering Report in Permit Attachment L. Leachate generated from the landfill will be managed and removed by enhanced evaporation through leachate recirculation within the landfill. All leachate will be contained within the lined landfill unit.

Leachate may also be collected from the vadose zone monitoring wells, but only in the unlikely event of a leachate release from the landfill. These wells will be monitored monthly; if any fluids are present, they will be sampled and analyzed for all F039 constituents. Biennially, the wells will be analyzed for all the Ground Waste Monitoring List constituents identified in 40 CFR 264, Appendix IX, if water is present.

Leachate sampling and analysis will follow the sampling and analytical procedures and recordkeeping requirements contained in the VZMS Work Plan (Attachment I) and this section.

4.6 Sampling Plan

The Sampling Plan is based upon the guidance provided in Chapter 9 of SW-846. The overall plan takes into account the regulatory and scientific objectives identified in this WAP. Based upon these objectives, the sampling strategy ensures that the data collected will minimize the potential for accepting waste that is unsuitable for management at the Facility. Modifications to the Sampling Plan to include detailed sampling protocols specific to the site activities will likely be required to reflect the sampling to be performed during operation of the Facility.

The sampling program will take into account the different types of waste constituents and the various waste matrices that may be encountered. By taking these variables into account, the Facility will identify the protocols by which sample locations will be selected and the methods most appropriate for collecting samples from the different waste streams.

The latest revision of SW-846 methods (ASTM) or other approved methods will be used, and site procedures will be revised as necessary to incorporate new requirements.

General sampling methods and collection techniques are discussed in section 4.6.1. Section 4.6.2 contains specific sampling procedures. Section 4.6.3 and 4.6.4 provide information on sample location and sample type, respectively. Section 4.6.5 discusses sampling QA/QC procedures. Sections 4.6.6 and 4.6.7 present requirements regarding sample preservation, volume and holding times, and equipment decontamination, respectively.

4.6.1 Sampling Methods

Sampling methods will follow Appendix I of 40 CFR, Part 261 unless a more appropriate method is identified. Table F-5 lists general waste matrices and appropriate sampling methods that will be used at the Facility.

Matrices that will be sampled include containerized liquid, viscous liquids/sludges, crushed/powdered material, rock/rock-like material, soil, and fly-ash-like material. The methods and equipment used for sampling wastes will vary with the form and consistency of the material to be sampled. Also, these matrices will be sampled using a variety of sampling tools (see Table F-5), including the Coliwasa (containerized liquid/viscous liquid), dipper (containerized liquid/viscous liquid), thief (containerized liquid/viscous liquid), weighted bottle (containerized liquid), scoop (sludge, powdered material, rock/soil material, fly-ash material), shovel (powdered material, rock/soil material), auger (soil/fly-ash-like material) and tube sampler (fly-ash like material and liquids). The Facility will select the appropriate sampling method from Table F-5 based upon the sample matrices, chemical constituents within the sample, and sampling conditions. If a sampling method not presented on Table F-5 would be more appropriate for the specific matrices to be sampled given site-specific conditions or if the procedures presented below must be modified, an alternative method will be used. If an alternative method is used, the sampling method will be well documented, justified, placed in the Operating Record, and approved by NMED prior to implementation.

Sampling equipment will be compatible with waste, and are generally made of glass, steel, or Teflon. Stainless steel is more suitable for sampling solids and soils, while glass and Teflon are more suitable for liquids.

4.6.1.2 Sampling with a Dipper

Dippers are used to collect liquid samples and free-flowing slurries. The dipper consists of a glass, plastic, or stainless steel beaker or similar container typically clamped, as necessary, to the end of a pole which serves as a handle. The following process will be used to sample with the dipper:

1. Clean/decontaminate the dipper.
2. Insert dipper into the liquid to be sampled, preferably through the entire sample container, if possible.
3. Remove dipper and place sample into the appropriate sample container.

4.6.1.3 Sampling with a Thief Sampler

A thief sampler may be used to collect sludge samples or to sample small dry granules. Thief samplers typically consist of two slotted concentric tubes of stainless steel; the outer tub has a conical tip allowing the sampler to penetrate the sample material, while the inner tube is rotated to open/close the sampler. The following general process will be used to sample with a thief sampler:

1. Clean/decontaminate the sampler.
2. Insert closed thief into material to be sampled. Rotate the inner tube to open the thief; collect sample.
3. Withdraw the thief, and remove inner tube, transferring sample to sampler container.

4.6.1.5 Sampling with a Scoop/Shovel

Scoops/shovels are used to sample rock/soil-like, solid or powdered matrices. The following general process will be used to sample with scoops/shovels:

1. Clean/decontaminate the sampler.
2. Obtain a full cross section of the waste material using the scoop or shovel that is large enough to contain the waste collected in one cross sectional sweep.

4.6.1.6 Sampling with an Auger

Augers are used to sample relatively hard packed solid waste material or soils. Augers are spiral drilling blades attached to metal shafts which are “turned” downward through sample material, allowing sample to exit the sample matrix by moving upward along the auger spirals. The following general process will be used to sample with an auger:

1. Clean/decontaminate the sampler.
2. Drill downward, using the auger, into the waste material, capturing waste moving upward along the auger blades in the appropriate sample container.

4.6.1.7 Sampling with a Tube Sampler

Tube samplers are used to collect soil/solid samples, and are generally glass or steel tubing that can be inserted into relatively compact matrix. (Modified tube samplers, however, can be used for liquid sampling.) Following insertion of the tube, and tube is extracted with the sample contained in the inserted tube. The following general process will be used to sample with the tube sampler:

1. Clean/decontaminate the sampler.

2. Lower/insert the tube into the waste to the desired depth.

3. When the desired depth is reached, slowly withdraw the tube, taking care to retain as much sample with the tube as possible.

4. Extract sample into the appropriate sample container.

4.6.2. Sample Collection Procedures

This section discusses the general sampling procedures for each type of sample to be collected at the Facility, as presented in Table 4-6. It is recognized that the specific sampling that will take place at the Facility may differ from general procedures included herein, and approval by NMED is required before revisions are implemented. Additionally, selection of sample locations (Section 4.6.2.8) and sample types (Section 4.6.2.9) for on-site samples to be collected are addressed.

4.6.2.1 Fingerprint Sampling

Fingerprint sampling will be conducted for all in-coming waste, except for debris waste. Eeach container of debris waste will be visually inspected, however, as will each drum and roll-off, regardless of waste matrix. Matrices that will undergo fingerprint sampling include sludges and solids arriving in containers such as roll-offs and drums/containers. Refer to Table 4-6 and Section 4.4.3.1 for sampling frequency and waste analysis.

Trucks delivering bulk solid material (e.g. in roll-offs) will be sampled using solid sampling equipment, such as a scoop (see Section 4.6.1). A surface sample will be collected from the front one-third area of the truck, middle one-third area, and rear one-third area of the bulk; samples will then be composited (see Section 4.6.4). Vertical waste composition will be determined, as possible, by collecting an additional sample from more than approximately 2 feet below the surface of the waste at each of the three sample locations using the appropriate sample collection tool (e.g., auger); these three samples will be composited with the first three samples. All loads will be visually inspected during unloading. If the load exhibits different color, texture, or wetness, samples from these areas will also be collected and included in the composite sample.

Sample methodology for drummed waste will depend on the sample matrix, but will likely include solid sampling using a scoop or auger. A single sample, collected through as much depth of the drummed waste as possible, will be collected. The location of samples collected is discussed in Section 4.6.3.

The Facility will detail the sampling method used for fingerprint waste sample collection, including but not limited to sample collection technique, sample type, sample representativeness, sample volume, sample containers, sample preservation, chain-of-custody, etc., and will place this information in the Operating Record.

4.6.2.2 Annual Sampling

Wastes that underwent representative sampling prior to initial waste shipment will undergo annual sampling to confirm waste composition. The Facility will assess the representative sampling procedure prior to initial waste acceptance, and this same representative sampling procedure will be used for annual sampling. Annual sampling will follow the representative sampling process performed prior to initial waste shipment; if the process is modified, the Facility will assess the sampling process to ensure collection of a representative sample, and place this assessment in the Operating Record.

4.6.2.3 Spills/Releases

See Section 4.6.2.7

4.6.2.6 Landfill Input

All incoming waste to the landfill will be sampled to ensure continued compliance with LDR requirements. On an annual basis, the Facility will randomly sample and analyze a minimum of 10 percent of incoming waste streams that are to be directly landfilled to verify conformance with the LDR requirements. These additional samples will be analyzed for the specific regulated hazardous constituents contained in the hazardous waste stream. The data generated from these samples, in conjunction with the generator-supplied data, will be used to verify conformance with the LDR requirements. Sampling procedures will follow those presented in Sections 4.6.2.1 and 4.6.2.4, as applicable.

4.6.2.7 On-Site Generated Waste

Several wastes may be generated on-site that require sampling and analysis (see Table 4-4). Specifically, treated waste, day-to-day generated waste (e.g. personal protective equipment), releases of wastes, run-on/run-off, investigation-derived waste, contaminated soil, air emissions, and leachate/sludges from the landfill are considered on-site generated waste.

4.6.3 Selection of Sample Locations

The Facility will collect samples from containers and roll-off boxes using either random (i.e., probability) or biased (i.e., authoritative) sampling methods. Random sampling methods will be used to select drummed containers for fingerprint analysis. All other on-site sampling, except for annual sampling of waste directly landfilled (i.e., 10 percent of the waste) requires sampling of each load, bulk container, or waste transfer, and random selection of waste containers to be sampled is therefore not applicable. However, the Facility will collect random samples from within the waste to be sampled for non-fingerprint or annual analysis (e.g., leachate, landfill input) if the wastes are expected to be fairly homogeneous waste streams. A biased sampling method will be used to select roll-off waste sample locations. (Biased samples will be collected if the wastes are expected to be or are found to be heterogeneous.) For some waste streams, the Facility may use both sampling techniques, as determined appropriate by the facility and justified in the Operating Record.

With random sampling, every unit in a population (e.g., every drum from a given waste stream in a shipment) has a theoretically equal chance of being selected for sampling. Consequently, data generated by these samples are unbiased estimators of the range of concentrations in a population. If a sufficient number of samples are taken, they would be representative of the average concentrations within the entire population. For example, in the case of drums, those drums to be fingerprint sampled will be numbered, and numbers will be randomly drawn to determine those containers that will be sampled.

With biased sampling, a preference is given to selecting only certain units in a population. This technique requires the sampler to use discretion and to have knowledge of the waste. The sampler selects the sample locations from areas where contamination is known or suspected (e.g., the sampler could collect a biased sample from areas where there is layering or differences in color or consistency). Also, the Facility may use a field screening instrument to bias the sample location, (e.g., a photoionization detector could be used to select locations having higher volatile organic concentrations). EPA-approved ASTM method D140-70 identifies the procedure for estimating the number of containers that should be sampled. Samples collected from roll-offs, for example, may include biased sampling if areas of obvious discoloration, and other pertinent information, are noted.

The Facility will document the sampling technique that is used to locate each waste sample collected pursuant to this WAP. The Facility will maintain this information in the Facility Operating Record.

4.6.4 Sample Types

Samples of the waste will be collected as either composite or grab samples. It is possible that the Facility may modify or augment the procedures discussed below for the collection of composite and grab samples before the Facility becomes operational; if so, these revisions will be approved by NMED prior to implementation.

In composite sampling, a number of samples are initially collected from a waste and combined into a single sample which is then analyzed for the constituents of concern. Composite sampling is a valid method for homogeneous samples and tends to minimize the between-sample variation, much like the maximization of the physical size of a sample. This has the effect of reducing the number of samples that must be analyzed to verify the contents of a waste shipment. Composite samples can also be obtained from a waste that has stratified; however, a composite would only be made from samples obtained from the same strata within the waste. Composite samples will be taken with clean sampling equipment and samples will be blended before analysis. Grab sampling will be used to obtain samples of heterogeneous wastes.

4.6.5 Sampling QA/QC

QA sampling procedures will be conducted in accordance with the guidance provided in the EPA document SW-846 and EPA's waste analysis plan guidance manual, *Waste Analysis at Facilities that Generate, Treat, Store and Dispose of Hazardous Waste*. The QA requirements will be applicable to on-site sampling (e.g., leachate collection system samples) as well as to the sampling of incoming waste shipments. This program is necessary to ensure that decisions regarding the acceptance and disposition of waste are based on sound, statistically valid, and documented data. Additional QA procedures associated with sampling and analysis determined prior to initiation of on-site sampling will be included in the Operating Record.

The sampling QA program will include the following:

- training requirements for personnel responsible for sample collection;
- chain-of-custody protocols for tracking samples;
- QA review of procedures to ensure proper use of equipment;
- protocols for equipment maintenance;
- identification of required sampling techniques for specific media;
- field sampling QC procedures; and
- documentation of sampling locations.

Deviations from the approved sampling program, sampling methods, or chemical analytical methods will be documented and reviewed by personnel responsible for site QA. NMED will be notified in writing of the QA exceptions within seven days of the occurrence and measures will be taken to correct the problems as soon as practicable.

4.6.5.1 Training Requirements for Personnel Responsible for Sample Collection

All personnel and supervisory staff responsible for collecting waste samples for screening and chemical analysis will be trained in the use of all sampling methods and equipment used at the site.

4.6.5.2 Chain-of-Custody Protocols for Tracking Samples

The integrity of the sampling/analytical scheme will be maintained by following chain-of-custody procedures from the point of sample collection through analytical data reporting to sample disposal. The possession and handling of samples will be traceable from the time of collection through analysis and final disposition.

A sample is considered to be in a person's custody if it is:

- in a person's physical possession;
- in view of the person after taking possession; or
- secured in a container sealed by the responsible person so that it cannot be tampered with during transport to the designated destination or during storage after being secured by that person in an area of restricted access.

The sampler will place a sample label on each sample container. The label will include the following information:

- sample number, a unique identifier that is traceable to the waste stream and shipment;
- name of collector (sampler);
- date and time of collection; and
- place of collection.

Labels will be affixed to sample containers prior to or at the time of sampling and will be filled out at the time of collection.

Sample chain-of-custody seals will be required if the sample is designated to leave the possession of Facility personnel for transport to an analytical laboratory. The seal will include the same information as the sample label. The seal will be attached in such a way that it is necessary to break it in order to open the sample container. In addition, chain-of-custody seals will be affixed to sample storage containers in a similar manner in order to prevent tampering prior to shipment from the Facility to off-site analytical laboratories. Samples and storage containers which require seals must be sealed prior to leaving the possession of Facility personnel.

To establish the documentation necessary to trace sample possession from the time of collection, a chain of custody record will be filled out and will accompany every sample. A sample chain of custody record is provided in Permit Attachment F3.

If the sample is to be shipped off-site for analysis, it will be accompanied by a sample analysis request sheet. The sample analysis request sheet will include the information necessary to identify the sample and the analyses requested by the Facility. Samples shipped off-site for analysis will be packaged and shipped in accordance with DOT transportation requirements.

Laboratory samples will be maintained in a secure area and retained until holding times expire, as listed in SW-846, or three months, whichever comes earlier. After the holding time or three month holding period has expired, samples will be disposed at the Facility with compatible waste batches. Records of the date the samples are removed from storage and the date and method of disposal will be maintained at the Facility until completion of post-closure care. In cases where samples are not analyzed within their holding times, the Facility will resample.

4.6.5.3 QA Review of Procedures to Ensure Proper Use of Equipment

Standard operating procedures will be developed for the use, decontamination, and storage of sampling equipment used to characterize waste shipped to the Facility. The standard operating procedures will include the sampling equipment to be used, instructions for use, and the applications for use of the equipment for collection of samples from specific media and types of shipping containers. The procedures and QA standards for waste sample collection will be included in the standard operating procedures.

4.6.5.4 Protocols for Equipment Maintenance

The protocols for equipment maintenance will be included in the standard operating procedures. Protocols will be developed, as described in the preceding paragraph, for use, decontamination, and storage of equipment. Protocols for equipment maintenance will be included in the standard operating procedures (See Section 4.6.7 for general decontamination requirements).

4.6.5.5 Identification of Required Sampling Techniques For Specific Media

The sampling methods and equipment used for collecting samples from specific media will be selected in accordance with the guidelines included in 40 CFR, Part 261, Appendix I, and in the EPA guidance manual, *Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Waste*, Chapter 2. Alternative sampling methods may be used with prior approval of NMED.

4.6.5.6 Field Sampling QC Procedures

Blank and duplicate samples will be obtained during waste characterization sampling to confirm that sample collection and handling procedures meet the QA/QC standards outlined in the standard operating procedures and data quality objectives included in the Facility sampling manual. Duplicate samples will be collected at a minimum frequency of 10 percent (1 for every 10 samples). Field blanks and equipment blanks will be collected at a minimum frequency of 5 percent (1 for every 20 samples). Trip blanks will be included with all sample kits where samples are sent to off-site laboratories for chemical analysis. The field QA samples are described below:

- *Field blanks:* Field blanks are prepared in the field by filling a clean container with pure de-ionized water and appropriate preservative (if required for a specific activity). Contaminants found may indicate airborne contamination, contaminated equipment, or cross-contamination during sampling. A minimum of one field blank will be collected for every 20 waste samples collected.

- *Trip blanks:* Trip blanks are sample containers that are prepared with an inert material such as de-ionized water and carried into and out of the field, but not opened at any time during the sampling event. Contaminants detected in the trip blank may indicate that the source where the sample was prepared or the container that transported the trip blank was contaminated. A trip blank will accompany all sample shipping containers sent from and to off-site laboratories.

- *Equipment blanks:* Equipment blanks are prepared in the field prior to sampling by running de-ionized water over sampling equipment and placing it into a clean sample container. Contamination in this type of sample will indicate that the sampling equipment is contaminated. A minimum of one equipment blank will be collected for every 20 waste samples collected.

- *Field duplicates:* Field duplicates are independent samples that are taken from the same location at the same time and are used to measure the effectiveness of obtaining representative samples. A minimum of one field duplicate will be collected for every 10 waste samples collected.

4.6.5.7 Documentation of Sampling Activities

Sampling activities, including observations and field procedures, will be recorded on appropriate forms and kept on file at the Facility. Copies of the completed forms will be maintained in a bound and sequentially numbered file. The record of waste stream sampling activities will include:

- the date;
- the time of arrival and departure;
- weather conditions (including estimated temperature and wind direction);
- the name of the sample collector;
- daily activities and times sampling was conducted;
- observations;
- a record of samples collected, with sample designations and locations specified;
- field monitoring data, including health and safety monitoring;
- a list of equipment used and calibration records, if appropriate;
- a list of additional data sheets completed; and
- the signature of personnel completing the field record.

Each sample collected during waste stream sampling activities will be identified by a unique sample designation. The sample designation will be included on the sample label. QA samples will be designated with a "Q" (QA/QC samples) at the end of the sample designation, followed by one of the following to indicate the type of QA sample:

- "D" will be used for a duplicate sample;
- "E" will be used for equipment rinsate blanks;
- "F" will be used for field blank samples; or
- "TB" will be used for field trip blanks.

This coding will be used to assure that duplicates and blanks are submitted "blind" to the laboratory, but can still be easily tracked by the Facility for QA purposes.

4.6.6 Sample Preservation, Volumes, and Holding

Table 4-7 presents general preservation, container, and holding time information for samples collected. SW-846 guidelines have been used to determine these general requirements, although these may be modified or augmented to account for waste-specific requirements, waste-container compatibility considerations, or additional waste parameters for analysis. Specific sample volumes and containers appropriate for the sampling event will be determined by the Facility. Prior to any sampling event, sample container labels will be prepared and affixed to sample containers, and all sample containers will be certified clean by the supplying laboratory. Sample labels will identify, at a minimum, sample number, date, sampler, matrix, analyses to be performed, and sample preservation. Once collected, samples will be placed immediately into the shipping container (i.e., cooler), and chain-of-custody documentation will be filled out (see Section 4.6.5.2).

4.6.7 Equipment Decontamination

Sampling equipment will be decontaminated prior to use. Decontamination of sampling equipment typically includes initial scrubbing with a biodegradeable commercial detergent, followed by a de-ionized water rinse.

The decontamination process will include wiping down of sampling equipment to remove surface residue, followed by detergent wash, rinse, a second detergent wash, and second rinse. Modifications to this process may be required to account for site/contaminant conditions, and may take place so long as the decontamination procedure is well documented and appropriate supporting information is placed in the Operating Record.

4.7 Analytical Methods

Analytical methods which the Facility will use for specific tests are identified in the waste analysis tables (Tables 4-1 through 4-3). All analytical methods used in conjunction with this WAP must be EPA-approved methods or methods required by hazardous waste regulations. If there is no equivalent EPA-approved method, an ASTM method or other approved method may be used. If the Facility or a generator wishes to use alternate test methods, the Facility or generator will first demonstrate to the NMED Secretary that the proposed method is equal or superior to the corresponding methods prescribed in 40 CFR 261 or 264, in accordance with 40 CFR 260.21.

An example of a non-EPA method required by hazardous waste regulations are the ASTM tests specified in 40 CFR 264.314(e)(2) to determine the presence of non-biodegradable sorbents.

Section 4.7.1 identifies the duties of the laboratory manager. Section 4.7.2 identifies the contents of the laboratory QA/QC plan. Requirements for off-site laboratories used by the Facility are contained in Section 4.7.3.

4.7.1 Duties of the Laboratory Manager

The on-site laboratory manager will have the following responsibilities to ensure an effective quality assurance program:

- ensuring that laboratory personnel are adequately trained to perform sampling and analytical procedures and in safety procedures;
- ensuring that equipment and instrumentation under his or her control are calibrated and functioning properly;
- coordinating internal and external assurance audits;
- reviewing procedures and QA plans of outside laboratories used. QA/QC practices will be considered during the selection of independent analytical laboratories. QA/QC practices that will be reviewed include written procedures, certification, internal and external audits, personnel training, and chain-of-custody procedures; and
- development, updating, and implementation of the laboratory QA plan.

4.7.2 Facility Laboratory QA/QC Plan

Prior to beginning operations, the Facility will develop procedures which will comprise the laboratory QA/QC plan. The Facility will develop a QA manual for operation of the on-site laboratory. The manual will be submitted to NMED for review.

The results of chemical analysis of waste samples generated by the on-site laboratory will not be used as part of the waste acceptance evaluation process prior to NMED's review of the QA manual.

The overall QA objective for measurement data is to ensure that data of known and acceptable quality are provided. All measurements will be made to yield accurate and precise results representative of the media and conditions measured. QA objectives for precision, accuracy, and completeness will be established for each measurement variable, where possible, and will be included in the QA manuals of the on-site and off-site laboratories where waste samples will be submitted for chemical analysis. The laboratory procedures, practices, and qualifications will be included in the QA manual for each laboratory.

The laboratory QA/QC plan will be based on guidance provided in EPA's *Requirements for Quality Assurance Project Plans for Environmental Data Operations* (EPA QA/R-5). As such, the plan will address the following key elements in compliance with EPA QA/R-5: project organization; laboratory quality assurance organization; data quality objectives and criteria; employee training and certification requirements; laboratory analytical methods; quality control requirements; laboratory equipment and instrumentation calibration, testing, inspection, and maintenance; QA/QC of suppliers and vendors; data acquisition requirements; data management; data review, validation and verification; and, reconciliation with quality objectives and criteria. These elements and other procedures which will be included in this plan are discussed in the following sections:

- laboratory quality assurance;
- equipment calibration;
- laboratory QA/QC samples;
- laboratory QC;
- analytical procedures; and
- laboratory maintenance.

4.7.2.1 Laboratory Quality Assurance

The Facility laboratory and each off-site laboratory will maintain an internal quality assurance program, as documented in its laboratory quality assurance manual. The laboratories will use a combination of blanks, surrogates, duplicates, MS/MSD (matrix spike/matrix spike duplicate) and laboratory control samples, BS/BSD (blank spike/blank spike duplicate), to demonstrate analytical QA/QC. Control limits will be established for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The specific procedures to be completed and the laboratory control limits will be included in the QA manual for each laboratory.

4.7.2.2 Equipment Calibration

The laboratory equipment calibration procedures, calibration frequency, and calibration standards will be in accordance with EPA (or equivalent method) specified test methodology requirements and will be documented in the laboratory's QA manual. All instruments and equipment used by the laboratory will be operated, calibrated, and maintained according to manufacturers' guidelines and recommendations. Operation, calibration, and maintenance will be performed by personnel who have been properly trained in these procedures. A routine schedule and record of instrument calibration and maintenance will be kept on file at the laboratory.

4.7.2.3 Laboratory QA/QC samples

Analytical procedures will be evaluated by analyzing reagent or method blanks, surrogates, MS/MSDs, BS/BSDs, and/or laboratory duplicates, as required or appropriate for each method. The laboratory QA/QC samples and frequency of analysis to be completed will be in accordance with EPA or equivalent method protocols and will be included in the QA manual for each laboratory.

The laboratory QA manuals and procedures will incorporate data quality objectives (DQOs) to verify that waste characterization data obtained by the methods established in this WAP meet regulatory requirements with regard to regulatory compliance and Facility waste management requirements. The following DQOs are established for the sampling and analysis of waste managed by the Facility:

- Identify and quantify the hazardous constituents in the waste to ensure compliance with 40 CFR 264 and the requirements of the Facility permit, and
- Compare the contaminant concentrations in the waste with the specified characteristics of 40 CFR 261 in order that the waste may be managed in accordance with Facility requirements.

To ensure that the laboratory data quality objectives are met, the following analyses will be completed in the laboratory to monitor the analytical process:

- *Laboratory duplicate samples:* Laboratory duplicate samples will be analyzed to monitor for intralaboratory precision of data generated. These samples will be analyzed at a rate of no less than 5 percent (1 for every 20 samples) of the total samples with at least one replicate if fewer than 20 samples are analyzed for any particular parameter.

- *Spiked samples (MS/BS):* Spiked samples will be analyzed to monitor analytical precision. Spiked samples will be tested on no less than a five percent (1 for every 20 samples) basis for any particular parameter. At least one spiked sample will be run if fewer than 20 samples are analyzed.

- *Control charts:* Control charts will be utilized to establish laboratory control limits to monitor and review the accuracy of the data generated as a result of spike analyses. Control limits reflect long-term data accuracy trends and will be modified as new data are acquired.

- *Method/reagent blanks:* Method/reagent blanks will be prepared using samples of purified water or reagents which will then subjected to the entire sample analytical procedure to monitor potential contamination of samples due to contamination in the laboratory or laboratory equipment. Method or reagent blanks will be included with each set of samples.

- *Laboratory equipment blanks:* Laboratory equipment blanks will be analyzed to monitor potential contamination of samples due to improper or ineffective cleaning of equipment. These samples will be analyzed at a rate of no less than 5 percent (1 for every 20 samples) of the total samples.

- *Quality control samples:* QC samples will be analyzed to monitor for accuracy of data generated. EPA QC samples or samples purchased from a reputable independent source will be submitted to off-site laboratories as blind samples for chemical analysis of a set of selected analytes approved by NMED at the beginning of the Facility operation and also at regular intervals during the Facility operating life.

- *Surrogates:* Surrogates will be analyzed in accordance with EPA guidelines for organics analysis. Surrogate recovery is a measure of the effectiveness of the analytical process. Surrogates will be tested on no less than a 5 percent (1 for every 20 samples) basis for any analysis of organic compounds.

- *Calibration standards and devices:* Calibration standards and devices will be used in accordance with the manufacturers' recommended guidelines to calibrate laboratory instrumentation.

- *Internal standards:* Internal standards prepared in the laboratory will be referenced against external standards to measure accuracy.

Laboratory QC procedures will be included in the laboratory QA manuals prepared by each laboratory.

4.7.2.4 Laboratory Quality Control

QC objectives for the analytical data are a means of checking and controlling the sources of error in analytical data results. The criteria for data evaluation include assessing the data accuracy, precision, completeness, representativeness, and comparability. The criteria are described below:

- *Accuracy:* Accuracy is a measure of the error between chemical analytical results and the true sample concentrations. Accuracy is a measure of the bias in a system and will be expressed as the percent recovery of spiked samples. Accuracy will be presented as percent recovery and will be calculated as follows:

  $$\%R - (S\text{-}U) \text{ X } 100\%C_{sa}$$

  where %R = percent recovery
  S = spike sample analytical result
  U = sample analytical result
  C_{sa} = known spike concentration

  The data quality objectives (DQOs) for accuracy for each analytical method will be presented in the laboratory QA manual.

- *Precision:* Precision is a measure of data variability. Variability can be attributed to sampling activities and/or chemical analysis. Relative percent difference (RPD) will be used to assess the precision of the sampling and analytical method and will be calculated as follows:

  $$RPD = [*C_1 - C_2*/(C_1 + C_2)/2)] \text{ x } 100$$

  where RPD = relative percent difference
  C1 = larger of the two concentrations
  C_2 = smaller of the two concentrations

  The DQOs for precision for each analytical method will be presented in the laboratory QA manual.

- *Completeness:* Completeness will be evaluated to assess whether a sufficient amount of valid data is obtained. Completeness is described as the ratio of acceptable measurements. Completeness will be calculated as follows:

  C = (Number of samples having acceptable data)/(total number of samples analyzed) x 100%

  where C = completeness

  The DQOs for completeness will be presented in the laboratory QA manual.

- *Representativeness:* Representativeness is a qualitative parameter related to the degree to which the sample data represent the specific characteristics of concern. Procedures in sample collection will be implemented to assure representative samples, such as repeated measurements of the same parameter from the same waste stream in the same shipping container over several distinct sampling events.

Any procedures or variations that may affect the collection or analysis of representative samples will be noted and the data qualified as appropriate.

- *Comparability:* Comparability is a qualitative parameter related to whether similar sample data can be prepared. To assure comparability, analytical results will be reported in appropriate units for comparison with other data (such as past studies or clean-up standards), and the standard collection and analytical procedures included in this WAP will be implemented. Any procedures or variations that may affect comparability will be noted, and the data will be qualified as appropriate.

4.7.2.5 Analytical Procedures

Specific QA/QC procedures to be used for sampling, chain-of-custody, calibration, analytical methods, reporting, internal QC, audits, and preventative maintenance will be included in the laboratory QA manual.

Laboratory procedures and methods to be used will contain all of the information presented in the EPA document, SW-846, for each method. The format for each method will be similar to that used in SW-846. If there is no appropriate SW-846 method ASTM or other approved methods will be employed. The laboratory procedures and methods also will include the following:

- *Scope:* A description of the scope of applicability of the procedure.

- *Principal:* A brief description of the steps to be taken and/or the theory involved in the laboratory analysis.

- *Interference:* A description of known interfering agents that would cause difficulty in the laboratory analysis.

- *Apparatus:* A listing or description of equipment required to perform the laboratory analysis.

- *Reagents:* A listing of the reagents required, a description of the steps involved in preparing the reagents, and instructions on storage requirements and retention times.

- *Procedures (instructions):* An enumeration of the sequence of activities to be followed. The topics include sample preparation or pretreatment, sample storage requirements, instrument set-up, standardization or calibration, sample analysis, calculations, and glassware-cleaning procedures. The procedure includes any precautions, explanation, or clarifications needed to properly perform the analysis. These include safety precautions, the frequency of standardization required, the acceptance criteria or procedures for determining the acceptability of standard curves, clarification or special techniques critical to the analysis, and the procedure the analyst uses to determine the reliability of sample results based on the standard curves.

- *Quality control requirements:* A listing of the QC checks to be performed and the acceptance criteria used to evaluate the QC data.

- *Reference:* A listing of the publications from which the information was derived in preparing the laboratory method. All references pertain to these documents. As a rule, laboratory methods are derived from the following publications:
    - Standard Methods for the Examination of Water and Wastewater, American Public Health Association;
    - Annual Book of Standards, American Society for Testing and Materials;
    - Methods for Chemical Analysis of Water and Waste, US Environmental Protection Agency;

- Test Methods for Evaluating Solid Waste, SW-846, US Environmental Protection Agency;
- National Functional Guidelines for Organics Data Review; and
- Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.

Editions used will be those currently specified in 40 CFR, as updated.

4.7.2.6 Laboratory Maintenance

The analytical laboratory will have in place a procedure that details the steps to be taken to calibrate and standardize instruments to ensure that analytical data produced are accurate. Records of all calibrations, preventative maintenance, and service calls will be readily available from the laboratory files. Calibration procedures will follow the method procedures outlined in the EPA document, SW-846, or the *Annual Book of ASTM Standards*.

A procurement procedure that identifies methods to be used to document and control the purchase of materials, parts, and services will be implemented by the laboratory and will be presented in the laboratory QA manual. The procedure will include identifying the quality of laboratory chemicals and equipment, management approval of procedure items, inspection of shipments for compliance with requirements, and isolation of nonconforming items to be returned to vendors. The quality of all equipment will conform to the requirements specified in the most current edition of the EPA document, *Handbook of Analytical Quality Control in Water and Wastewater Laboratories*, the Federal Register, or other regulatory agency publications. This procurement procedure will serve to ensure that spare parts routinely required will be readily available.

4.7.3 Requirements for Off-Site Laboratories

The Facility will document that the following conditions are met for each off-site laboratory performing waste analyses for the Facility:

- the laboratory will not be the same laboratory that was used by the generator;
- the laboratory must be approved by the Facility;
- the laboratory must use the analytical methods identified in Section 4.5;
- if there is more than one analytical method for a specific test identified in Section 4.5, the laboratory must follow the guidance in Chapter Two of the current version of EPA document SW-846 to determine the appropriate analytical method; and
- the laboratory must follow the QA/QC requirements described in this WAP.

4.7.4 Laboratory Requirements for Foreign Generators

The Facility will ensure and document that laboratory analysis provided by foreign generators is performed by a laboratory accredited or certified for the appropriate hazardous waste field of testing (FOT) by an authority using the EPA's National Environmental Laboratory Accreditation Conference standards.

4.7.5 Laboratory Requirements for Foreign Generators

The Facility will ensure and document that laboratory analysis provided by foreign generators is performed by a laboratory accredited or certified for the appropriate hazardous waste field of testing (FOT) by an authority using the USEPA's National Environmental Laboratory Accreditation Conference standards.

4.8 Waste Tracking

To identify and track the waste managed at the Facility, a Facility-specific number will be assigned to each waste stream and to each shipment within that waste stream. Each waste shipment will be tracked using a unique alphanumeric designation. This designation will identify the generator, a sequential number specific to the shipment, substance and source and the delivery date (or, in the case of site-generated waste, the date the waste entered the system). An example is presented below:

ABC-0001-043099

where ABC identifies the generator
0001 identifies the waste stream, source, and shipment
043099 is the date the waste was delivered

The waste numbering system will assist in the tracking of waste as it moves through the Facility. The number will be recorded on:

- all incoming paperwork from the generator;
- samples received from the generator;
- samples taken on-site; and
- site-generated records.

The date will not be recorded until the waste actually arrives on-site. This numbering system will allow the Facility to track a specific waste with regard to the final disposition of the waste. In addition, assigning a unique designation to each generator and a unique number to each waste stream from that generator will make possible determining the amount of waste from a given waste stream that has been received by the Facility. Individual shipments from within the waste stream will receive an additional identifier to enable the Facility to tie information back to the specific shipment as well as to the waste stream. The system will allow the Facility to locate the current position of the waste at the Facility, including the location of the waste in the landfill.

Tracking waste in this manner will allow the Facility to determine the efficiency and accuracy of a generator's profiling efforts and the rejection rate for incoming waste. This information will be used to assist Facility operations in determining the rate of fingerprint analysis required for a given generator.

The Facility number will designate waste generated on-site. All other numbering and tracking will be the same for all waste managed at the Facility. The tracking system will be maintained in the Facility records as either hard copy or electronically (computer database).

4.9 Notification, Certification, and Recordkeeping

The facility will maintain a facility Operating Record in accordance with 40 CFR 264.73. The Operating Record will include:

- all analytical results;

- all chain-of-custody forms;

- generator notices of restricted wastes not meeting treatment standards or exceeding levels specified in RCRA Section 30049(d), including the information listed in 40 CFR 268.7(a)(1);

- generator notices of restricted wastes meeting applicable treatment standards and prohibition levels, including the information in 40 CFR 268.7(a)(2).

- all final disposition records;

- all manifest and waste discrepancy resolution documentation; and

- all other information (e.g., notifications, certifications, waste analysis reports, waste movements) which will be maintained in the Operating Record as noted in this waste analysis plan.

As required in 40 CFR 268.7, the following records will be maintained at the facility for wastes generated on-site, and/or documentation of treating restricted wastes:

- where on-site generated wastes are characterized to determine compliance with LDR standards using only process knowledge, all data used to make any such determination. This data will be maintained by site personnel;

- where a representative sample of waste is analyzed to determine compliance with LDR standards, all waste analysis information. This data will be retained on-site in facility files; and

- all notifications and/or certifications submitted by waste generators. These records will be maintained until facility closure as required in 40 CFR 264.73.

In addition, relevant inspection forms and monitoring data will be maintained on file at the facility. Files will be maintained for a minimum of three years (for inspection records and LDR notification), or until approval of facility closure (for inventory records).

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Table 4-1. Parameters and Methods for Pre-Acceptance Representative Sample Analysis

Waste Parameters	Extraction/Sample Preparation	Method [a]
Volatile organic compounds	502 [a] 5031 5032 5035	8260
Semivolatile organic compounds	3510 3520	8270
Organochlorine pesticides	3510 3520	8081/8270
PCBs	3520	8082/8080
TCLP: Organics	1311	8260/8270/8080/8150
Chlorinated herbicides	8151 [b]	8151
Reactive cyanide	—	9014
Reactive sulfide	—	9034
Ignitability	—	1010/1030
Flashpoint	—	1010/1020A
Corrosivity to metals	—	1110 pH paper pH electrometer 9040A/9041A/9045A
pH	—	9040A19041A9045A
Dioxins	—	8280
Total metals	3000 1311	6000 series 7000 series
Liner compatibility tests	—	9090A
Extractable volatiles	3500	8260
Extractable semivolatiles	3500	8270
Physical appearance		ASTM D4979
Radioactivity		Industry standard survey technique (e.g., scintillation detector)

[a] Most current revision of SW-846 will be used.
[b] Method 8151 contains the extraction, cleanup, and determinative procedures for these analytes.

Table 4-2. Tests and Analytical Methods for Fingerprint Samples

Test	Method and Description	Qualitative or Quantitative
Flammability potential screen	ASTM D4982	Qualitative
Free liquids	Paint filter test, penetrometer, or visual/9095	Qualitative
Ignitability	Match test, Pansky-Martens closed cup or Set-a-flash 1010/1020A	Qualitative
Miscibility	50/50 mixture with water	Qualitative
Chlorinated solvents	Colorimetric test or Beilsten test	Quantitative
Cyanide	Electrode or colorimetric test (ASTM D5049 Test Method B)	Quantitative
PCBs	Colorimetric test/8080	Quantitative
Specific gravity	Hydrometer/Method dependent on material composition and physical state	Quantitative
Sulfide screen	ASTM 4978	Quantitative

Table 4-3. Additional Tests and Analytical Methods

Test	Reference	Description
Paint Filter Test	EPA 9095	This test will determine the free liquids that are contained within the waste matrix and will be used as a control parameter for wastes that are to be landfilled.
Heavy Metals	6010A/7470	This test determines the concentration of heavy metals.
Free Cyanides	APHA 412G, H	This test determines if cyanides could potentially be reactive under acidic conditions.
Toxicity Characteristic Leaching Procedure [a]	Extraction Method 1311/3010A	Determines if waste, or stabilized waste, contains level of restricted constituents above BDAT treatment standards.
Total Organic Halogens	EPA 9020	Determines if the waste potentially contains LDR constituents above BDAT standards for California List wastes.
PCBs	Colorimetric test/ EPA 8080	Determines if PCBs are contained in the waste matrix and determines the concentration.
IR Scan	ASTM D2621, D4053	Determines the presence of organics and provides a rough estimate of their concentration.

[a] Analytical method chosen is dependent upon constituent being determined (i.e., Organics 8260, 8270, 8080).

Table 4-4. Potential On-Site Waste Generation Areas/Activities

Area	Method of Generation	Waste Form [a]
Landfill	Leachate collected in the leachate collection system	L, SL
Stormwater detention basin	Contaminated rain water	L, SL
Operations	Personal Protective Equipment (PPE) contaminated during routine and non-routine operations	S
Site operations	Spill residues primarily from waste handling operations. Sampling activities.	L, SL, S

[a] L = Liquid, SL = Sludge, S = Solid

Table 4-5. Sampling Methods

Waste Matrix	Sampling Method	Sampling Equipment
Sludge	ASTM D140-70	Dipper, scoop, thief
Crushed or powdered material	ASTM D346-75	Scoop, shovel, tube sampler
Soil or rock-like material	ASTM D420-69	Scoop, shovel, auger
Soil-like material	ASTM 01452-65	Scoop, shovel, tube sampler
Fly ash-like material	ASTM D2234-76	Tube sampler, trier, auger, scoop, shovel

Table 4-6. On-Site Sample Collection Activities

Sample Type	Matrix	Collection Frequency	Comments
Fingerprint sample	All incoming sludge and solid; debris waste will not be fingerprinted	One/shipment for bulk shipments 1/10 drums for drummed waste	Table 4-2 defines base fingerprint analysis required
Annual sample	All incoming sludge and solid; debris waste will not be fingerprinted	One sample annually for each waste that underwent representative sampling prior to initial shipment	Table 4-1 defines base representative analysis required. Sampling will be performed at the generator site.
Spills/releases	Spilled waste and contaminated material (sludge, liquid, soil)	Each release	For Hazardous Waste determination
Landfill input	All incoming sludge and solidified solid waste to landfill except debris	Random sampling of waste directly landfilled.	To determine LDR status.
On-site waste	1 Treated waste 2 Day-to-day operations 3 Releases 4 Run-on/runoff 5 Investigation-derived waste 6 soil 7 air 8 Leachate/sludges from landfill	1,2 When acceptable knowledge is not available 3,4, and 8 See the Contingency Plan in Attachment C and Inspection Procedures in Attachment D 5 Each container 6 Contingency Plan 7 See Attachment G Air Quality	To determine hazardous/LDR status See Table 4-5 for specific waste matrices generated by on-site activities

Table 4-7. General Container, Holding Time, and Preservative Requirements by Sample Matrix

Sample Matrix	Concen-tration	Fraction	Volume	Container Type [a]	Preservative	Holding Times
Inorganics						
Soil, sediment, and residue	Low/medium Medium	Total metals	6 Oz	F or G	Cool to 4°C	6 months
Organics						
Soil, sediment, and residue	Low/medium	VOCs	240 mL	D	Cool to 4°C	14 days
		SVOCS	3 Oz	F or G	Cool to 4°C	14 days for extraction, 40 days after extraction to analysis
		Petroleum hydrocarbons	3 Oz	F or G	Cool to 4°C	15 days for extraction, 40 days after extraction to analysis

The above table is general in nature and may be modified or augmented, so long as the requirements are congruent with SW-846 requirements.

[a] D = 120-ml glass vial with teflon lined, white poly cap
F = 8 oz wide-mouthed glass jar with teflon-lined black poly cap Water
G = 4 oz wide-mouth glass jar with teflon-lined, black poly cap Water

5. Procedures to Prevent Hazards

This section provides information on the prevention of hazards to both the public and the environment. Specific procedures for implementing those safeguards will be developed during the construction phase of the project and prior to Facility operations.

The engineered barriers for the mitigation of hazards discussed in this section are shown in design drawings contained in Permit Attachment L.

5.1 Security Procedures to Prevent Hazards

Security at the Facility will be provided by security guards, fences surrounding the Facility and warning signs. Each of these is described in the following sections.

5.1.1 Barrier and Means to Control Entrance

The Facility will be bounded by a barbed-wire fence. The active portion of the Facility (i.e. the processing area) will be bounded by an additional fence with two access gates located in the northern portion of the Facility. The northwest gate will remain locked at all times and will serve as a secondary or emergency entrance/exit. Access into the Facility will be controlled by means of the primary gate, located in the northeast corner of the Facility. The gate will be fitted with a cattle guard to prevent livestock from entering the Facility. A security guard post will be located at this entrance gate and will be attended 24 hours a day. The fence, gates, and guard will provide adequate access control and will prevent unwitting entry of persons or livestock to the active portion of the Facility.

Visitors will be required to sign a visitors log prior to movement in or around the Facility. Each visitor will be issued a security badge, which will be worn while the visitor is on-site. The badge will be worn on the visitor's outermost garment in a clearly visible location above the waist. The security guard will be responsible for ensuring that all visitors comply with these requirements. Visitors will be escorted unless other arrangements are made with Facility personnel.

5.1.2 Warning Signs

Warning signs stating "Danger - Unauthorized Personnel Keep Out" will be posted at the site entrance and every 50 feet along the perimeter fence. The signs will be posted in English and Spanish and will be legible from a distance of at least 25 feet. If ignitable wastes are stored or treated in the area, a "No Smoking" sign will also be posted.

5.2 Inspection Procedures

This section of the permit application provides written inspection guidelines and an inspection schedule for the Facility in accordance with 20.4.1 NMAC.

5.2.1 General Inspection Procedures

Facility personnel will conduct inspections of all equipment and structures as frequently as necessary to prevent, detect, or respond to environmental or human health hazards. Inspection records describing malfunctions, deteriorations, operator errors, and discharges that may cause or contribute to a release of hazardous waste constituents to the environment or that may be a threat to human health will be kept at the

Facility administration building for three years from the date of the inspection. Specific inspection procedures are outlined in Sections 5.2.2 through 5.2.10.

Personnel will receive general training about hazardous waste inspections as part of the Facility hazardous waste training program. Personnel responsible for inspecting particular equipment or areas of the Facility will receive classroom and/or on-the-job training in inspection procedures. Inspection procedures will be described in the operating manual, which will be located in the EC's office.

Facility guards will make rounds of the Facility at least once daily to detect any unauthorized entry to the Facility or any other abnormalities. The guards will not use inspection checklists, but they will notify the EC and/or emergency response personnel of any spills or other emergencies. Requirements for the EC and/or emergency response personnel, subsequent to an inspection notification, are outlined in the Contingency Plan in Section 6.

5.2.1.1 Inspection Checklist

Inspection checklists and an inspection schedule have been developed to ensure that inspections occur at appropriate frequencies. An inspection schedule matrix is provided in Table 5-1. This matrix will be expanded, as necessary, to reflect new equipment or changes to existing equipment inspection frequencies.

Inspection frequencies will vary according to the type and age of the equipment, the frequency of its use, and its importance in preventing environmental incidents. The inspection frequencies provided in Table 5-1 show that inspections will occur frequently so that problems can be identified in time to correct them before harm is done to human health or the environment.

The inspection checklists will identify the name of the inspector, date and time of the inspection, frequency of inspection, specific items to be checked, any notations or observations of abnormalities, and the nature and date of any corrective actions taken. Checklists are provided in Attachment D, Inspection Procedures. The inspection schedules will be kept in the EC's office.

When new or modified equipment is installed or used at the Facility, the inspection procedures, forms, and schedule will be revised to reflect these changes and submitted to NMED.

5.2.1.2 Remedial Action

Facility personnel or contract personnel will remedy any deterioration or malfunction of equipment or structures encountered during inspections. The remedy will be completed in sufficient time to ensure that the problem does not result in an environmental or human health hazard.

All repairs to permitted portions of the Facility will be made in accordance with the original construction specifications and CQA plan.

If a hazardous or potentially hazardous condition is identified, the EC, as specified in the Contingency Plan (Section 6), will be notified immediately to assess the situation and determine how to correct the situation and whether the Contingency Plan should be implemented.

5.2.2 Landfill Inspection Procedures

Landfill liners and the cover will be inspected during and immediately after installation in accordance with the CQA Plan, which is discussed in Section 2.5.2.3.

The landfill and associated equipment will be inspected weekly and after storms unless otherwise specified. Records of the inspections will be maintained in the operating record, which will be kept in the administration building.

If deterioration or any other abnormalities are noted during inspection of the landfill or associated components, the inspector's supervisor will be notified and will determine the appropriate course of action for correction. If the supervisor is not available, the EC will be summoned to make the determination.

The landfill will be inspected by properly-trained personnel weekly and after storms for such items as spills, leaks, odors, wind-blown particulate matter, any evidence of deterioration of the landfill itself, and any malfunction or improper operation of the run-on/runoff control systems. All inspections will be documented on the landfill inspection checklist, described in Section 5.2.1.1 and found in Attachment D1. Inspection checklists will be kept for at least 3 years, in accordance with 40 CFR 264.15(d).

During the active life and during closure of the landfill, the LCRS and LDRS will be checked daily for the presence of liquid. The amount of water in the system can be used to determine if the system is functioning properly. The system will either be inspected through the cleanout pipe, which is connected to the primary collection pipe and the sump riser pipe, or with magnehelic gages or other liquid detection devices, if they are installed. The leachate collection tank will be inspected in accordance with the procedures outlined in Section 5.2.5.

During the operational phase of the landfill, periodic checks will be made within the landfill to detect the presence of hazardous gases and volatile organics. Surveys of the active landfill surface area and the riser pipes with an OVM or comparable device will be performed quarterly to detect the presence of organic compounds.

If it is evident that particulate matter from the landfill is subject to dispersal by the wind, the active portion of the landfill will either be covered or managed to control the dispersal (see Section 2.5.1.7). Adding water to prevent wind erosion will be limited so that ponding in the landfill does not occur. If the dispersion is noted during an inspection, the landfill supervisor will notify the sprayer truck operator to rectify the situation.

The stormwater collection basin within the Phase 1A landfill and associated with the runoff/run-on control systems will be inspected following storm events to determine whether water has accumulated. Stormwater collected within the landfill that has the potential to have contacted waste will be managed by enhanced evaporation through recirculation on the landfill soil cover. The recirculation system is described in the Engineering Report in Permit Attachment L. The stormwater collection basin will be emptied as quickly as possible to ensure that the design capacity of the system is not exceeded. Details of the landfill stormwater control system are included in the Engineering Report (Permit Attachment L).

5.2.7 Security Equipment Inspection Procedures

Security inspections will be conducted daily and will include the following elements:

- visual inspection of the warning signs at all approaches to the Facility to ensure that the signs are present, legible, and securely attached to the fence;
- inspection of the Facility perimeter to ensure the integrity of the fence and gate by looking for signs of erosion of soil at the fence posts and corrosion or vandalism to the fence, fence posts, or locks;
- inspection and replacement, as necessary, of lights for the purpose of illuminating the Facility at night;

- inspection of structures for signs of erosion, tampering, or vandalism; and
- records of inspections will be maintained in the administration building.

5.2.8 Safety and Emergency Response Equipment Inspection Procedures

Safety and emergency response equipment inspections will occur monthly. This category of equipment includes first aid supplies; respiratory protection equipment (other than personally issued respirators, which will be each employee's responsibility); protective clothing, including hard hats, gloves, and suits; fire extinguishers; eye wash stations; safety showers; empty 55-gallon drums; shovels; and spill cleanup and decontamination kits.

A monthly inventory of safety-related supplies and equipment will be performed to ensure that the items are available, in good condition, and at designated locations. Inadequate or missing items will be replaced or repaired.

Fire protection equipment, including fire extinguishers and fire hoses, will be inspected monthly and after each use to ensure that the equipment is capable of functioning properly and that access to the equipment is not blocked. Each fire extinguisher will be inspected to ensure that the seal around the handle is intact, that the pressure gauge indicates that the unit is adequately charged, and that an Underwriter's Laboratory listing label is attached to each unit. Building sprinkler systems will be inspected according to manufacturer specifications. Chemical fire-suppression systems will be checked to ensure that adequate quantities of the chemical and water exist. The fire-suppression vehicles will also be tuned up at least annually and inspected monthly. Records of inspections will be maintained in the administration building for each unit.

The public address (PA) system will be tested daily to ensure proper operation. In lieu of daily testing, the Facility may opt to broadcast music 24 hours a day, which ensures proper operation of the unit at all times.

Hand-held radios will be tested prior to use each day and periodically throughout the day. The units will be recharged after each shift to ensure that they are operating properly.

5.2.9 Loading and Unloading Area Inspection Procedures

Waste loading and unloading areas will be inspected daily when in use. The inspections will focus on safety-related issues that could lead to hazards or waste spills. Signs will be located at each loading and unloading area indicating that equipment or materials should not be left unattended as they could be obstructions for the loading and unloading operation.

On-site roadways and vehicle traffic areas will be inspected on a preventive maintenance order (PMO) schedule to ensure that potential safety hazards, such as road surface deterioration, are minimized or avoided. Records of inspections will be maintained in the administration building for each unit.

5.3 Preparedness and Prevention Procedures

Preparedness and prevention encompass a wide range of procedures, from communication to equipment to arrangements with local authorities. These procedures are discussed in the following sections.

5.3.1 Internal Communications

Internal communication will be established to meet the needs for each building and area at the Facility. Three forms of internal communication systems will be implemented: (1) a PA system will be used in the main buildings to alert employees of potential or actual emergencies; (2) in noisy, temporary buildings or remote areas of the Facility, hand-held two-way radios will be used to communicate emergencies; (3) an audible fire alarm will be located in the permanent buildings. The alarm will be used to alert employees of fires but may also be used for alerting them to other emergencies in the event that the two other systems described above are malfunctioning. Equipment tests will be conducted to assure that internal communication systems are functioning properly according to manufacturers' specifications.

5.3.2 External Communications

A telephone will be available for operations that occur inside the main buildings. For outdoor processing areas without a telephone nearby, hand-held two-way radios capable of summoning emergency assistance from local police departments, fire departments, and state or local emergency response teams will be available.

A map identifying the location of telephones at the Facility will be provided to NMED prior to acceptance of waste at the Facility.

5.3.3 Emergency Equipment

Emergency response equipment at the Facility includes fire extinguishers and other fire control equipment, spill cleanup kits, and decontamination kits. Each processing area regulated storage unit will be equipped with fire control and spill response equipment. Equipment in the stabilization unit will be used for the tank storage area and roll-off storage area because of their close proximity. A detailed description of this equipment, including the content and type, is included in Attachment C1 and is discussed in the Contingency Plan contained in Section 6.

A complete list of the contents and location of the various types of kits will be maintained in the EC's office at the Facility.

5.3.4 Water for Fire Control

Permanent buildings at the Facility will be equipped with automatic sprinkler systems and fire extinguishers, as required by the National Fire Protection Association (NFPA) code. The sprinkler systems will be designed according to NFPA guidelines. Water storage to fight fires outside of buildings and the landfill will meet minimum requirements of the New Mexico State Fire Marshal's Office and be transported by water truck(s). It is expected that landfill fires, in the unlikely event that they occur, will be extinguished with a dirt cover. A ready supply of dirt will be available at the excavation stockpile and landfill and general facility equipment (dozers, loaders and scrapers) will be available to load, haul and place dirt.

5.3.6 Arrangements with Local Authorities

The Facility will make arrangements with local authorities as described in the Contingency Plan (see Section 6).

5.4 Preventive Procedures, Structures, and Equipment

To prevent accidents at the Facility, all individuals responsible for material and waste handling will receive classroom and on-the-job instruction in safety awareness, recognition of potential hazards in the work place, environmental procedures and policies, and fire prevention and control procedures.

Individuals who may come in contact with hazardous waste will receive Occupational Safety and Health Administration (OSHA) 40-hour training and annual 8-hour refresher courses. These individuals also will be trained in the operation of the equipment and vehicles they will be using to perform their duties.

Safety meetings will be conducted as necessary to discuss safety issues, fire prevention and control, good housekeeping and any problems relating to specific areas of the site.

5.4.1 Loading, Unloading, and Waste Transfer Operations

To prevent accidents during loading, unloading, and waste transfer, hazardous waste will be handled only by those individuals who have been properly trained in correct handling procedures and proper spill response procedures. The emergency brakes of transport vehicles will be engaged and the wheels chocked during all loading and unloading operations. Inspection of loading and unloading areas is discussed in Section 5.2.9.

Waste containers will always remain closed, except when it is necessary to add or remove waste (e.g. for sampling). This practice will minimize the potential for accidental releases of waste. Wastes will be transferred in approved vehicles over approved routes and the maximum capacity of the truck will not be exceeded. Ramps will be installed where necessary to enable fork lifts, dollies, or hand trucks to move into or out of secondary containment areas surrounded by berms or curbing.

If ignitable wastes are handled, special precautions will be instituted, including the use of special non-sparking bung wrenches or other tools for opening drums or otherwise handling the waste containers, grounding waste containers during waste transfer, and other special handling requirements. These precautions, coupled with the procedures for management of ignitable waste contained in Section 2, will minimize the hazards associated with ignitable wastes.

5.4.2 Runoff and Run-On

The landfill run-on control system will be capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 24-hour, 25-year storm. The run-on control system will consist of unlined ditches for diverting run-on from off-site around the landfill. Water from outside the landfill will be prevented from entering the active portion of the landfill by the waste processing corridor drainage ditch.

The runoff management system will be capable of collecting the water volume resulting from at least a 24-hour, 25-year storm. Runoff in the active portion of the landfill will be collected in the lined stormwater collection basin within the landfill and the LCRS. The run-on and runoff control system for the landfill is described in greater detail in Section 2.5.1.6.

Inspection of the runoff and run-on ditches will be made during weekly site inspections and after storms. Maintenance and repair of the ditches will be performed as necessary and in accordance with the Operations and Maintenance Manual (Permit Attachment N) and the Design Drawings (Permit Attachment L1).

5.4.3 Wind Dispersal Control System

The active portion of the landfill will either be covered or managed to control the wind dispersal. In general, dust control will be accomplished by spraying water on the active portion of the landfill and any road or area subject to wind dispersal. Adding water to prevent wind erosion will be limited so that ponding in the landfill does not occur. Additional detail about wind dispersal procedures can be found in Section 2.5.1.7.

5.4.4 Water Protection

There is an existing underground water line from a spring located approximately one mile east of the Facility in the Ogallala formation, which is used for domestic water supply. This water source, and any others in the Caprock area, will not be used for facility operations and will be protected through the following measures: (1) natural means because of its location; (2) the design of the landfill; (3) the type of waste that will be accepted at the Facility; and (4) the method of response to releases to soil. Each is discussed in more detail below.

Natural geologic and hydrologic conditions in the area include the following characteristics.

- The Upper Dockum unit is unsaturated beneath the selected site.
- The Lower Dockum consists of a 600-foot thickness of homogeneous, lacustrine mudstone. This sequence of unsaturated, low permeability mudstones represents a geologic barrier to potential downward migration of contaminants from the landfill (see Section 3).
- The nearest surface water is the Pecos River, approximately 30 miles to the west of the Facility.

The landfill design includes removal of the 10-feet deep layer of alluvial material on the surface of the disposal site prior to construction of the cells, thus eliminating the possibility of hazardous constituents entering the alluvium and migrating away from the Facility.

Free liquid hazardous waste will be placed in the landfill only in accordance with 40 CFR 264.314(d). In addition, no non-hazardous liquid waste will be placed in the landfill. These limitations on the introduction of liquids into the landfill will minimize the generation of leachates and the potential for the migration of any hazardous constituents from the Facility.

Finally, any releases to the soil will be immediately cleaned up to prevent the spread of contamination. The Contingency Plan in Section 6 describes the equipment and personnel available to ensure prompt cleanup of any spill.

5.4.5 Mitigation of Effects of Equipment Failure and Power Outages

The Facility will use a PMO schedule, based on manufacturer's recommendations for various pieces of equipment, to ensure proper operation of the equipment. In addition to the items replaced or changed as part of the PMO schedule, any item(s) found to be deficient during the PMO inspection will be replaced or repaired as soon as possible.

Spare parts critical to ensuring continuation of equipment and safety systems may be stored on-site to facilitate immediate repairs. Other items that require long ordering periods also may be stored on-site.

In the event of a power failure, at least one backup generator will be used for emergency backup power. The generator will be started within 30 minutes of a power failure.

On-the-job training will provide personnel with appropriate instruction in emergency response procedures so that proper actions will be taken in the event of equipment or power failure.

The emergency power system is described in Section 6.3.5.4 of the Contingency Plan.

5.4.6 Prevention of Undue Exposure of Personnel to Hazardous Waste

All employees will be trained in the safe operating practices to be used in handling hazardous wastes. All employees will wear steel-toed shoes and safety glasses while in processing or active areas of the landfill. In some cases, additional PPE will be required, such as hearing protection, respiratory protection, and protective clothing. Employees will be trained in, and responsible for, proper inspection and use of their respirator and proper use and care of PPE. If a defect is noted in any of the equipment, the employee will be responsible for replacing or repairing it prior to use, in accordance with the applicable training. As previously stated, PPE, other than respiratory protection, will be located at or near each permitted unit, along with spill response equipment.

Routine tasks will require some PPE, as outlined in the site Health and Safety (HAS) Plan. In many cases, these requirements will include safety glasses, steel-toed shoes, and hardhats. The site HAS plan will be prepared prior to commencement of hazardous waste operations. This plan will be kept at the Facility, but is not considered part of this permit application.

Out-of-the-ordinary hazardous waste activities will be evaluated by the site HAS officer or a member of an emergency response team prior to responding to the incident. After the type of contaminants present has been determined, the HAS officer or the EC will specify the respiratory protection and/or PPE requirements necessary to safely handle the incident. All respiratory protection devices will be maintained in compliance with OSHA requirements and will be issued only to qualified personnel who have received medical approval and training for the proper use of respiratory protection devices.

For emergencies that are beyond the scope of the Facility personnel training program, areas of the Facility or the entire Facility may be evacuated, at the direction of the EC. In such cases, professional emergency response personnel will be notified to respond to the emergency (see Section 6).

5.4.7 Special Requirements for Bulk and Containerized Liquids

As previously stated, bulk or non-containerized liquids will not be disposed of in the landfill. Containers holding free liquids will be placed in the landfill only if (1) all free-standing liquid has been removed by decanting or other methods, mixed with non-biodegradable sorbent, solidified so that free-standing liquid is no longer observed, or otherwise eliminated; (2) the container is very small; (3) the container is designed to hold free liquids for use other than storage (e.g., a battery); or (4) the container is a lab pack disposed of in accordance with 40 CFR 264.316.

In the case of number (1) above, prior to placement in the landfill, the absence of free liquids will be verified using a paint filter test. I n addition, this waste will be analyzed for other parameters based upon the characterization of the waste before solidification. These requirements are a part of the Waste Analysis Plan presented in Section 4.

5.4.8 Special Requirements to Limit Releases to the Atmosphere

Operations at the Facility will be conducted to minimize the potential for releases to the atmosphere as required by 40 CFR 270.14(b)(8)(vi). This objective will be achieved by using a wind dispersal control system to limit or eliminate the dispersal of particulate matter from the landfill, roadways, and other areas of the Facility and by providing control equipment for operations that may produce air emission, if necessary. The dispersal of particulate matter from soil surfaces will be reduced by restricting traffic and applying small amounts of water spray to moisten the soil surface. Procedures will be developed to ensure that the landfill and associated activities are managed to prevent particulate releases. The Contingency Plan will specify the methods to prevent and control spills and emissions related to spills.

5.5 Precautions to Prevent Ignition or Reaction of Ignitable, Reactive, or Incompatible Wastes

Hazardous wastes will be handled only by properly trained Facility personnel. The Facility training program is outlined in Section 7. Individuals will be instructed in identifying incompatible wastes, properly labeling them, and properly handling them. Proper handling includes segregation, avoidance of mixing the wastes, and carefully checking compatibility codes prior to the disposal of any wastes. Personnel also will be specifically trained in the proper handling of ignitable and reactive wastes.

This approach will ensure the proper handling of ignitable and reactive waste and will prevent mixing of incompatible waste. In addition, personnel training and Facility operational procedures will be developed to (1) ensure that wastes are properly identified; (2) ensure that general Facility requirements for the management of ignitable, reactive, and incompatible wastes are adequate; and (3) ensure that requirements for the management of these wastes are compatible with operations. The procedures for identifying these wastes are provided in Section 4.5 of the Waste Analysis Plan.

The local fire department or a qualified organization will inspect all of the permitted units on an annual basis to assure continued compliance with all applicable NFPA codes.

Ignitable and reactive waste handling are generally described in Section 5.5.1. More specific requirements for the landfill are described in Section 5.5.2. Handling of incompatible waste is described in Section 5.5.3.

5.5.1 General Requirements

Precautions will be taken to avoid (1) accidental ignition or reaction of ignitable or reactive wastes; (2) reactions that generate extreme heat or pressure, fire or explosions, or violent reactions; (3) reactions that produce uncontrolled toxic or flammable fumes, dusts or gases, in quantities large enough to threaten human health and the environment; and (4) any other reactions that threaten human health or the environment.

Ignitable or reactive wastes accepted at the Facility will be separated and protected from any sources of ignition or reaction, including open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks, spontaneous ignition, and radiant heat. All smoking will be confined to specifically designated areas when ignitable or reactive wastes are being handled. "No Smoking" signs will be conspicuously posted wherever there is a hazard from ignitable or reactive waste. Ignitable or reactive wastes will be located in the active portion of the Facility, which is more than 50 feet from the Facility property line.

5.5.2 Requirements for the Landfill

Ignitable or reactive wastes will not be placed in the landfill unless the waste has been treated and no longer meets the definition of ignitable or reactive waste under 40 CFR 261.21 or 261.23, or unless the general requirements outlined above for ignitable, reactive, or incompatible wastes are complied with. Additional information for the management of these wastes in the landfill is contained in Section 2.5.3.6.

5.5.3 Incompatible Waste Handling

Generator waste profile forms (see Permit Attachment F2) will provide Facility waste handlers with the necessary information to avoid mixing containers of incompatible wastes. Facility employees will be trained to recognize incompatible wastes and to prevent the mixing of such wastes. Incompatible wastes will not be placed in the same area of the landfill, but separated adequately to avoid all possibility of commingling in the landfill.

By the time any leachate generated from the landfill reaches the LCRS it will be sufficiently diluted, therefore, problems associated with incompatibles in the LCRS sump are not anticipated. Wastes will be solidified and stabilized prior to their placement into the landfill. These processes are performed to bind liquids and prevent leaching of any of the wastes' constituents. Therefore, any leachate generated within the landfill is not expected to contain significant levels of hazardous constituents. Due to the anticipated low concentrations of hazardous constituents in the leachate and the geographic separation of incompatible waste types, incompatibility problems within the landfill will be negligible.

Table 5-1. Triassic Park Waste Disposal Facility Inspection Schedule

Inspection Item - Problem or Problem Area	Inspection Time
General Facility	
Security equipment - signs, perimeter fences, lights	Daily
Stormwater detention basin - liner	Weekly and after storms
Surface water diversion ditches to stormwater detention basin	Weekly and after storms
Landfill	
Liner and cover systems - uniformity, damage and imperfections	During construction and installation
Liners and cover deterioration and malfunction	During and immediately after construction
Spills, leaks, odors, windblown particulate	Weekly and after storms
Run-on/runoff control system - uniformity, damage and imperfections	Weekly and after storms
LCRS/LDRS presence of liquid and volume of liquid pumped	Daily and after storms
Leachate collection tank (while holding waste) for condition and proper function	Daily
Hazardous and organic gases	Quarterly
Ancillary equipment	Manufacturer recommended
Sump pumping and instrumentation	Annually

6. Contingency Plan

The purpose of the Contingency Plan is to minimize potential hazards to human health and/or the environment in the event of a fire, explosion, or unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or water. Should any of these unplanned events occur, the procedures in this Contingency Plan will be immediately implemented. When these procedures are followed, the possibility of additional occurrences, recurrences, or spread of the initial emergency in such a way as to require additional emergency response measures will be minimized.

This Contingency Plan was specifically developed for the Facility. A final Contingency Plan will be provided to NMED and other response agencies 60 days prior to initiation of operations. The plan will be kept at the Facility, and controlled copies will be submitted to and updated at all police and fire departments, hospitals, and state and local emergency response organizations that may be called upon to provide emergency services. A list of these organizations is provided in Attachment C3, Coordinating Agreements. Initial site tours with all local emergency response organizations will be conducted to familiarize them with the facility prior to the start of operations.

The plan specifies Facility personnel who will be responsible for implementation of the plan. The plan also specifies the actions these individuals will take in the event of an emergency at the Facility. The plan includes (1) a description of the Facility layout; (2) the location of possible hazards; (3) the location of emergency and decontamination equipment; (4) evacuation plans and routes; (5) agreements with local emergency personnel; and (6) an up-to-date list of names, addresses, and telephone numbers of Facility personnel qualified to act as EC.

6.1 General Responsibilities of the Emergency Coordinator

The Facility will train a minimum of five employees to serve as the EC for the Facility. Only one individual at a time will be designated as the primary (on-duty or on-call) EC. Others will be specified as alternate ECs. An updated list of personnel qualified as ECs (see Permit Attachment C2, Emergency Coordinators) will be provided to NMED prior to waste receipt. Individuals will be listed by name, address, and telephone number. The list will also indicate the order in which each will assume responsibility as ECs. In accordance with 40 CFR 264.52(d), which states, "For new facilities, this information must be supplied to the Regional Administrator at the time of certification, rather than at the time of permit application", the list will be provided to the director of the NMED or designee (NMED Director) prior to receipt of waste and will be kept current both at the Facility and with emergency response organizations.

An acting EC will be either physically at the Facility or on call 24 hours a day, 365 days a year. Each EC will have authority to commit resources needed to carry out the provisions of the Contingency Plan.

The EC will be responsible for implementing the Contingency Plan, coordinating all emergency response efforts, determining the extent of the emergency, assessing hazards to human health and the environment, and completing necessary reports associated with the incident. Each EC will be thoroughly familiar with (1) the Facility layout and operations; (2) all aspects of the Facility's Contingency Plan; (3) the location and characteristics of hazardous materials, hazardous waste, and waste handling activities at the Facility; (4) the location and operation of emergency response equipment; (5) evacuation plans and routes; and (6) the location of all Facility records.

After an emergency has been brought under control, the EC will assume responsibility for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that is generated as a result of the release, fire, or explosion at the Facility.

If the EC becomes injured or is otherwise unable to serve as EC during an emergency, a designated operations manager will assume the role of EC until an alternate EC is notified and arrives on the scene.

6.2 Circumstances Dictating Implementation of the Plan

The Contingency Plan must be immediately implemented under any of the following circumstances:

- a fire or explosion occurs resulting in the release of a hazardous waste or involving an active hazardous waste management unit;
- a spill, leak, or other release of hazardous waste or hazardous waste constituents to the air, soil, or surface water occurs that could threaten human health or the environment;
- an indoor spill, leak, or other release of hazardous waste occurs to a secondary containment area that is not removed within 24 hours; and/or
- a hazardous waste incident occurs resulting in an injury requiring more than basic first aid.

The plan will be implemented any time the EC believes that an event occurring at the Facility has the potential to adversely affect human health or the environment. The plan may also be implemented for other reasons at the discretion of the EC.

During the initial discovery and assessment phase of an incident, the EC will obtain information, including the type and quantity of released material and/or injuries that have occurred. At this time, the EC may consult with environmental specialists and other appropriate personnel to determine whether the incident warrants implementation of the Contingency Plan.

6.3 Implementation Procedures

Response procedures for emergencies often vary significantly, depending on the specific details of the incident. However, several response procedures are common to all incidents and include the following elements, which are further detailed in this section:

- discovery of incident and request for assistance from emergency response personnel;
- identification and characterization of released or suspected released material;
- assessment of hazard;
- off-site notification and evacuation criteria;
- response and control procedures;
- measures to prevent recurrence or spread; and
- storage and treatment of released hazardous waste.

6.3.1 Discovery of Incident and Request for Assistance from Emergency Response Personnel

The individual who first discovers an incident or emergency will quickly determine whether the situation is immediately life threatening or non-life threatening. The steps taken in each of these scenarios are briefly described below, although they are likely to vary based on occurrence.

6.3.1.a Life-Threatening Situations

All Facility employees will be instructed and trained on response to a life-threatening situation or life-threatening release of materials. Employees will first relocate to a safe area, if necessary, then immediately notify the EC and/or emergency response personnel as the situation warrants, using the methods described below.

Verbal—In some cases, verbal communication within a building or between buildings will be the fastest way to disseminate emergency information and/or evacuate the area of an emergency.

Telephone—Employees will be instructed to immediately relocate to a safe area, if necessary; appropriate emergency response personnel can be notified by dialing 911 (without first notifying the EC if a particular situation appears to be immediately life-threatening or serious). The EC must be immediately notified of the actions taken.

Fire-Pull Station—The fire-pull station may also be used to alert the fire department and Facility personnel of an emergency. Although this type of alarm does not allow verbal communication with the fire department, it does activate a local fire alarm bell at the Facility and a remote alarm signal at the fire department.

Facility personnel will be trained for initial response to on-site fires. When the alarm is activated, on-site personnel may use fire extinguishers or the application of soil and/or water to suppress fires, when appropriate. The Roswell Fire Department will respond to fires beyond the control of site personnel. Response time for the Roswell Fire Department is approximately 30-45 minutes.

Fire-pull stations will be located at the administration building and the entrance to the landfill. Other possible locations of fire-pull stations may be established.

Automatic Fire Detection/Sprinkler System—All permanent Facility buildings will be equipped with automatic fire detection/sprinkler systems, which, when activated, will transmit an alarm directly to the security gate guard shack and the Roswell Fire Department. The fire department will immediately respond to any alarms.

Public Address (PA) or Paging System—Each of the main buildings will be equipped with a PA or paging system, which will be used to inform employees of adverse conditions at the site and emergency response instructions.

Hand-Held Radios—Hand-held radios will be used to communicate with personnel who are out of range of voice communications, PA, or are working in areas with noise levels such that render the PA system inaudible in emergency situations.

During non-operational hours, the EC will be notified by pager, radio, cellular telephone, or regular telephone. The EC will be at the scene as soon as possible to direct and coordinate emergency response activities.

If the EC determines that additional assistance from an off-site agency or emergency response organization is needed or if immediate action is required to protect a local community population or to protect any visitors using the Mescalero Sands recreation complex and travelers at the rest stop on Highway 380 north of the Facility, the EC will contact the appropriate agencies or organizations. A list of these organizations is provided in Permit Attachment C3. During response activities, two-way radios will be used for communication between responding groups and the EC.

6.3.1.b Non-Life Threatening Situations

Upon discovery of a non-life-threatening release of materials or other non-life-threatening but potentially serious emergency situation, all Facility employees will be instructed and trained to immediately notify the EC or their supervisor. The EC will evaluate the situation, notify appropriate personnel, and if necessary implement the Contingency Plan.

6.3.2 Identification and Characterization of Released or Suspected Released Material

After the emergency situation has been discovered and appropriate response personnel have been contacted for assistance, the EC will immediately obtain the following information by process knowledge (his own or that of another employee): (1) observation; (2) review of Facility records, including material safety data sheets (MSDSs) and manifests; and/or (3) chemical analysis of the material, if this becomes necessary. This information will determine the following:

- the character and amount of released waste;
- the exact source and extent of any released material;
- whether the release could move off-site; if it is determined that the release could move off-site, the EC must determine if any containment procedures have been implemented or whether such procedures should be implemented; and
- any injuries or potential injuries resulting from the incident.

All containers of waste and material at the Facility will be labeled. Therefore, the identification and characterization work generally will be accomplished through visual inspection and process knowledge. Manifests and lists of the waste and locations of waste being stored at the Facility prior to disposal or treatment will be maintained at the Facility. This information will be used in lieu of the visual inspection noted above in cases where the danger of entering the incident area is high or the container labels have been obscured as a result of the incident.

Copies of the MSDSs for raw materials used at the site will be located in the administration building, in the EC's office, and at appropriate operations locations throughout the site. The information in these documents will be used to prepare a course of action.

6.3.3 Assessment of Hazard

Concurrent with the waste identification and characterization phase of the emergency response, the EC will assess possible hazards to human health or the environment that may result from the emergency situation. Indirect and direct effects of the release, fire, or explosion will be considered during this assessment. Examples of direct and indirect effects include the impacts of any toxic, irritating, or asphyxiating gases that are generated or the effects of any hazardous surface water runoff from water or chemical agents used to control a fire.

During this phase of the emergency response, the EC will consider the following information to determine potential risk to human health or the environment:

- the location from which the material or waste is emanating;
- the weather patterns and wind direction at the time of the release; and

- the characteristics of the released material, including physical, reactive, and human or animal toxicity.

The EC may choose to obtain emergency response guidance by contacting one or more of the emergency response organizations listed in Permit Attachment C3 or by utilizing various spill control reference textbooks and MSDSs located in the EC's office.

6.3.4 Off-Site Notification and Evacuation Criteria

If the EC determines that a release, fire, or explosion has occurred at the Facility that poses an immediate threat to on-site or off-site human health and/or the environment, the findings will be reported to appropriate response personnel as follows:

- Local authorities will be immediately notified if an emergency incident at the Facility could affect local areas and if evacuation of these areas is necessary. The EC will be available to assist appropriate officials in deciding whether local areas should be evacuated (evacuation procedures and a site-wide emergency evacuation plan are provided in Permit Attachment C4, *Evacuation Plans*).

- Local authorities will be notified with the following information:
    - the name and telephone number of the reporter;
    - the name and address of the Facility;
    - the time and type of incident that occurred;
    - the name and quantity of material(s) involved, to the extent that this is known;
    - the extent of injuries, if any; and
    - the possible hazards to human health or the environment.

Coordinating agreements will be signed with federal, state, and local emergency response organizations. The agencies with which the Facility will enter these agreements are listed in Permit Attachment C3. The agreements outline the conditions under which the agencies will be contacted and the roles they will assume during various emergency scenarios at the Facility. The agreements establish the EC as the lead coordinator of all emergency response activities at the Facility. The details of these agreements will be located in the EC's office and with each of the participating organizations. The agreements will be considered controlled documents and will be kept current by updating all copies each time a change is made. This ensures a coordinated response to all emergency situations.

The EC may contact one or more of the agencies, such as police, fire departments, or hospitals, as listed in Attachment C3, if additional assistance is needed at the site to protect community populations.

6.3.5 Response and Control Procedures

Following proper notification of agencies and/or evacuation of the Facility, the EC will initiate response and control procedures. This effort will involve the use of emergency equipment, which is listed in Permit Attachment C1, Emergency Equipment. This list also includes equipment descriptions and locations.

Potential incidents for which response and control procedures are necessary will be grouped into three broad categories: (1) fires and/or explosions; (2) spills, leaks, or other releases; and (3) power failures. A brief discussion of emergency training requirements and the general procedures for handling each of these situations are described in the following sections.

Facility personnel and supervisors will receive safety training to enable them to respond to and handle various emergency situations that are not of a serious nature. In addition to this training, employees will participate in emergency response drills on a periodic basis. These drills will involve both internal responses and those response actions taken in conjunction with external emergency response personnel. Key personnel will be familiar with the use of emergency equipment and fire control structures available to prevent the spread of fires in their areas. To prevent recurrence of an incident, any faulty or defective monitoring equipment, valves, pumps, alarms, or other equipment will be repaired. If repair is not possible, the equipment will be replaced. The unit will not receive hazardous waste until the minimum required equipment for safe operation is fully functional.

Procedures for ensuring that incompatible wastes are not treated, stored, or located in areas where a spill has occurred are addressed in Section 6.3.7.

6.3.5.a Fire and/or Explosion Control Procedure

If a fire or explosion occurs at the Facility that may impact an active hazardous waste management unit or hazardous material storage area, the Contingency Plan will be immediately implemented, as outlined in Section 6.3. The EC will assess the situation and direct the emergency response effort. The EC will also be responsible for advising emergency response personnel of the hazards associated with released materials and other areas that should be protected from the effects of the incident.

In the event that a fire cannot be brought immediately under control and hazardous waste or material are located in the path of the fire or in an otherwise dangerous place, the waste or materials will be relocated to a safer area, if possible. If this is not possible, the material may be sprayed with an appropriate fire suppressant, at the direction of the EC or under the advisement of fire department personnel.

If an explosion is likely to occur, for example because a fire threatens to envelop ignitable waste, the EC may choose to evacuate the area, as described in the Evacuation Plan in Attachment C4. A site-wide evacuation plan is presented in Drawing L-1 in the Evacuation Plan.

Facility employees will be trained and advised to stay in their work areas during emergency situations, unless they are in immediate danger, until they receive further direction via the PA system or other method of communication. If evacuation is necessary, the EC will communicate this via the PA system and by other means, as necessary, and all employees will assemble at the administration building. If anyone is unaccounted for, emergency response personnel will conduct searches.

After the affected areas have been evacuated, re-entry will be authorized by the EC only after the fire has been extinguished and when the emergency has been resolved.

Any equipment used during the incident will be checked for contamination and cleaned and/or replaced prior to resumption of plant operations in the affected area. Any solutions or materials used to decontaminate the equipment will be managed as RCRA-regulated waste.

6.3.5.b Spills, Leaks, or Other Releases Control Procedure

This section describes the procedures for responding to spills, leaks, or other releases to containment areas or to the environment.

If Facility employees observe a spill, leak, or other release, whether during a formal inspection or during routine work, they will be instructed to contact the EC immediately and describe the situation in as much detail as possible, giving the following information, at a minimum:

- the location;
- material composition;
- approximate quantity; and
- estimated extent of the release.

Based on this information (and additional investigation by the EC as necessary), the EC will determine whether to evacuate the area and/or implement the Contingency Plan.

As previously stated, if the EC is not available and if the situation is serious or life threatening, employees will be instructed to dial 911 for emergency assistance. In a life threatening situation personnel may call 911 without first notifying the EC. The EC will then be notified of the employee's actions. Upon notification, the EC will conduct a visual inspection of the release and will then implement immediate containment measures.

6.3.5.b.i Releases to the Environment

The EC will implement, in addition to the applicable permit conditions of Permit Parts 9 and 10, the following procedures for responding to leaks or spills from units that are likely to reach the environment:

- As previously stated, if uncontrolled releases of ignitable, corrosive, reactive, or toxic materials are involved in the incident, the affected area will be evacuated.

- Response personnel will be directed to the incident location to aid in preventing further migration of the leak or spill to soils or surface water, provided that this can be accomplished safely. This effort will involve the use of industrial absorbents, sorbent dams, or other similar materials. If the release is determined to be beyond the capabilities of Facility personnel, the EC will contact one of the emergency response organizations listed in Permit Attachment C3 for assistance.

- The EC will monitor the status of the incident and direct emergency response personnel until the emergency condition no longer exists.

- When the incident has been brought under control, the EC will coordinate and instruct response personnel to begin cleanup and decontamination operations. These will involve containing and collecting any released material, including liquid releases, contaminated sorbent materials, visibly contaminated soils, and any other waste materials generated during cleanup or decontamination. These items will be removed and properly disposed of, generally by placing the wastes into DOT-approved containers (such as 55-gallon drums), sampling the waste or otherwise determining its constituents, and handling the waste accordingly. All liquids, including the originally released material and any liquids generated during cleanup (unless other circumstances or knowledge preclude this effort) will be pumped into drums and samples taken and analyzed to determine an appropriate course of action.

- If soils or surface water are visibly affected, they will be removed until the contaminant concentration in the remaining soil or water is at or below appropriate levels for the contaminants of concern.

- The EC will then use whatever means are necessary to determine if the released material is a hazardous substance as defined in 40 CFR 302. The EC will then determine whether the amount of released material is a reportable quantity. If the amount is a reportable quantity, the following steps will be taken:

- the EC will report the release to NMED within 24 hours of detection;
- the National Response Center will be advised of the situation within 24 hours of the incident;
- an internal report describing the situation and corrective measures necessary to prevent a recurrence will be prepared; and
- a written report will be filed with NMED within 30 days of detection, as described in Section 6.4.2.

- If the quantity of the spill or leak is less than or equal to 1 pound and is immediately contained and cleaned up or is less than a reportable quantity of material, a Facility employee will be assigned to report on the situation and determine what, if any, follow-up actions are necessary after cleanup.

6.3.5.d Power or Equipment Failure Control Procedure

The Facility will be equipped with at least one backup generator for emergency power generation to critical equipment only, which may include the laboratory, stabilization unit and administrative equipment. The generators may also be used to power safety equipment, such as smoke detectors and tank emergency cut-off or bypass mechanisms. The details of this system will be made available as the Facility design is completed. This emergency system will be started within 30 minutes of a power failure.

Equipment that fails but does not result in an emergency incident, such as a fire or explosion, will be promptly repaired or replaced. If emergencies arise as a result of the equipment failure, they will be handled as described in previous sections.

6.3.6 Measures to Prevent Recurrence or Spread

During an emergency, the EC will take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste areas at the Facility. These measures will include the following, where applicable:

- stopping processes and operations in specific areas of the plant or the entire plant itself; shut-down procedures for processing operations will be maintained in the administration building as well as at specific operating locations;
- collecting and containing released waste as described in Section 6.3.5.2; and
- removing or isolating containers from the emergency at hand, as described in Section 6.3.5.1; if a material cannot be moved because of danger associated with a fire, the material may be sprayed with an appropriate fire suppressant, as directed by the EC or authorized fire official.

If the Facility ceases operations because of an emergency, the EC or a designated individual will monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

A preventive maintenance order schedule will be prepared to ensure that monitoring equipment, valves, pumps, alarms, and other equipment will be maintained in good working order. If any of the equipment is found to be faulty or defective, it will be repaired or replaced.

6.3.7 Storage and Treatment of Released Hazardous Waste

Concurrently or immediately after the emergency has been addressed and cleanup procedures have been completed, the EC will make arrangements for the containerization and storage, treatment, or disposal of any waste generated during the incident. The waste will be assumed to be RCRA-regulated until process knowledge or sampling and analysis can be used to determine the actual nature of the waste. Sampling and analysis will be accomplished in accordance with the Waste Analysis Plan in Section 4.0. The material will be placed in DOT-approved containers and stored as RCRA-regulated waste until a determination is made. If the waste is determined to be RCRA-regulated, it will be labeled and stored accordingly until it is disposed of in accordance with applicable RCRA regulations and permit conditions.

If the waste generated during the cleanup is determined to be incompatible with other wastes stored or treated at the Facility, the incompatible waste will be labeled as such and physically separated from other incompatible waste. In addition, existing waste at the Facility that may be incompatible with the waste generated during cleanup will not be disposed of until cleanup activities are completed and the cleanup waste is safely containerized and segregated from the existing waste.

6.3.8 Equipment and Personnel Decontamination

A personnel decontamination zone (PDZ) will be set up a safe distance away from the material release area by a team designated the EC. The PDZ's location relative to the release area will be determined by the EC. The PDZ will be comprised of a support zone, contamination reduction zone, and exclusion zone.

The PDZ will be set up to sequentially decontaminate equipment and personnel. The first level of decontamination will involve equipment or personnel containing the highest level of contamination. Final equipment and personnel decontamination will be verified by visual inspection. The decontamination procedure within the PDZ will generally comprise progressing through the contamination reduction zone and corridor followed by redress of personnel. The Contamination Reduction Corridor will be designed to control access into and out of the exclusion zone and will confine responding personnel to a limited area.

Also included in the Contamination Reduction Corridor will be the decontamination of monitoring devices and waste samples. Non-reusable items such as latex gloves, Tyvek suits and duct tape, and respirators will be properly collected and disposed of at an approved facility. Decontamination of equipment, monitoring devices, and waste samples is presented below in Section 6.3.8.2, Equipment Decontamination. Decontamination efforts regarding personnel will be recorded including personnel identification, emergency response function, and date and time of day entering and leaving the PDZ. The PDZ will be decommissioned when the emergency has been addressed and cleanup measures have been completed.

Sampling equipment including waste sample collection hardware, personal protective equipment, and monitoring devices will be decontaminated in the Contamination Reduction Corridor prior to returning these items to their respective storage locations at the facility. Decontamination will involve scrubbing each item with a biodegradable detergent solution followed by thorough rinsing with deionized water. This process will be repeated at least one time. Additional scrubbing/rinsing will be performed depending on the extent of contamination. The PDZ supervisor will conduct all recordkeeping with regard to decontamination efforts. He will note equipment, waste sample containers, and monitoring devices that were decontaminated. He will also note the number of detergent scrubbing/rinsing steps that were conducted. The PDZ supervisor will verify that all equipment, sample containers, and monitoring devices have been properly decontaminated prior to these items being returned to their respective storage areas for reuse. This verification will be based on a visual inspection of each item prior to its leaving the PDZ. All wastewater that was generated and collected during operation of the PDZ will be properly treated and/or disposed of as directed by the EC.

6.4 Post-Implementation Procedures

Following implementation of the Contingency Plan and resolution of the incident, all emergency equipment used during the effort will be made ready for future use. Necessary reports will be prepared and filed at the

Facility and with regulatory agencies. These post-implementation procedures are detailed in the following sections.

6.4.1 Post-Emergency Equipment Maintenance

All emergency equipment listed in Permit Attachment C1 will be cleaned, repaired, or replaced so that it is fit to use before plant operations in the affected area are resumed. If the equipment cannot be adequately cleaned, it will be disposed of as hazardous waste. If it cannot be repaired and is not contaminated, it will be disposed of as non-hazardous waste.

Documentation of post-emergency equipment maintenance will be provided to NMED prior to resumption of operations in the affected area of the plant.

6.4.2 Required Reports and Notification

During and after certain emergency situations, as described in previous sections of this plan, specific types of reports or notification will be required. The EC will determine when or if off-site notification and reporting are required for certain scenarios. The various reporting and notification requirements are mentioned in the appropriate sections of the Contingency Plan but are detailed here for purposes of clarity.

After the plan has been implemented, if the EC determines that the Facility has had a release, fire, or explosion that could threaten human health or the environment outside the Facility, the EC must immediately notify either the government official designated as the on-scene coordinator for the geographical area or the National Response Center. The report must include the following information: (1) the name and telephone number of the reporter; (2) the time and type of incident; (3) the name and quantity of material(s) involved, to the extent that this information is known; (4) the extent of injuries, if any; and (5) the possible hazards to human health, or the environment outside the Facility.

If the EC determines that evacuation of local areas may be advisable, appropriate local authorities will be immediately notified. The EC must be available to help appropriate officials decide whether local areas should be evacuated.

Any release to the environment which threatens human health or the environment must be reported to the NMED Director within 24 hours of detection. If the release is reported pursuant to 40 CFR Part 302, that report will satisfy this requirement. Any release involving a reportable quantity of a hazardous waste as defined in 40 CFR 302.4 will be reported to the National Response Center within 24 hours.

Within 24 hours of implementing the Contingency Plan, the EC must notify NMED. The owner or operator must note in the operating record the time, date, and details of any incident that requires implementation of the Contingency Plan.

As required by 40 CFR 264.56(j), within 15 days of the incident, the EC must submit to the NMED Director a written report on the incident. The report must include the following information: (1) the name, address, and telephone number of the owner or operator; (2) the name, address, and telephone number of the Facility; (3) the date, time, and type of incident; (4) the source and cause of any release to the environment; (5) the name and quantity of material(s) involved; (6) actions taken to mitigate damage due to the release; (7) the extent of injuries, if any; (8) an assessment of actual or potential hazards to human health or the environment, where this is applicable; and (9) the estimated quantity and disposition of recovered material that resulted from the incident.

Within 30 days of detection of a release to the environment, a report containing the following information will be submitted to the NMED Director: (1) the likely route of migration of the release; (2) the characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate); (3) the results of any monitoring or sampling conducted in connection with the release, if available (if sampling or monitoring data relating to the release are not available within 30 days, these data must be submitted to the NMED Director as soon as they become available); (4) the proximity of the incident to downgradient drinking water, surface water, and populated areas; and (5) a description of response actions that were taken or are planned.

The NMED Secretary and state and local authorities will be notified when the Facility is in compliance with 40 CFR 264.56(h), which states that no waste that is incompatible with the released material can be treated, stored, or disposed of until cleanup procedures are completed, and all equipment must be fit for its intended use prior to resuming operations.

6.5 Documents to be Maintained On-Site as Part of the Permit

Following the resolution of emergencies, various documents must be prepared and maintained on-site as part of the operating record. These documents are discussed in previous sections of this plan and are summarized below.

Copies of the Facility- and building-specific evacuation plans will be maintained in the administration building and at each location for which evacuation plans will be prepared. These documents will be submitted to the NMED within 30 days of the effective date of this permit.

An up-to-date list of all satellite and 90-day accumulation areas, if any are utilized at the Facility, will be maintained at the Facility and provided to the NMED inspectors upon request. Prior to accepting waste at a satellite or 90-day accumulation area for the first time, NMED will be provided with a description and location map.

A list of authorized ECs and their home telephone numbers will be maintained in the administration building, in all other buildings and emergency stations at the site, and in all controlled copies of the Contingency Plan.

A list of coordinating agreements that outline the situations and criteria under which outside help is needed will be maintained in the administration building and in all controlled copies of the Contingency Plan. This list will include the role of each emergency response authority in an emergency.

Coordinating Agreements will be put in place with local, state, and federal agencies for responding to emergency incidents that may occur at the Facility. The Facility will formalize Coordinating Agreements with those organizations listed in Permit Attachment C3 no later than 60 days prior to receipt of first waste.

A current evacuation plan will be maintained in the EC's office. Permit Attachment C4 provides a general Evacuation Plan for the Facility. The Facility will finalize this Evacuation Plan with details of building-specific evacuations after the Facility design has received final approval from NMED. It is proposed that the Facility will submit the criteria for determining when site evacuations are necessary within 30 days of the effective date of the permit and that final evacuation plans and procedures be submitted following final NMED approval of the Facility design.

A current version of the emergency and spill response equipment list presented in Permit Attachment C1 will be maintained in the EC's office and in each of the controlled copies of the Contingency Plan.

The operating record for the facility will be updated with the time, date, and details of any incidents that require implementation of the Contingency Plan.

6.6 Amendment of Contingency Plan

If the Contingency Plan is implemented, the circumstances under which it was implemented will be thoroughly reviewed to investigate the following:

- why the incident occurred and the cause for the occurrence;
- what measures were taken to prevent a recurrence; and
- what measures will be taken to reduce the risk of having a similar occurrence in the future.

The Contingency Plan itself will be reviewed by the EC and/or the Facility owner and immediately amended, if necessary, whenever any of the following events occur:

- the Facility permit is revised;
- the plan fails in an emergency;
- changes occur to the Facility design, construction, operation, maintenance, or other circumstance that materially increase the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or that change the response necessary in an emergency;
- the list of ECs changes; or
- the list of emergency equipment changes.

Because the Contingency Plan is a controlled document, any changes will be made in the following manner: (1) inaccurate or out-of-date pages will be directly replaced with new pages containing the modified or additional information; (2) the corrected pages will be issued to all agencies and organizations that have controlled copies of the plan; and (3) old pages will be removed from copies of the plan and discarded. These steps will ensure that each organization has a current version of the plan.

7. Personnel Training

The personnel training program for the Facility will be developed in accordance with 40 CFR 264.16 as adopted by the State of New Mexico in the New Mexico Hazardous Waste Management Regulations, Part V. This plan documents training procedures to be used by the Facility for all new employees and refresher training for experienced workers to ensure that all employees perform their work in full compliance with 40 CFR 264.16.

As illustrated in Figure 7-1, personnel will be divided into three categories for the purposes of the RCRA training: Facility personnel, visitors, and off-site emergency response personnel. Facility personnel will be further categorized based on whether or not they will handle hazardous waste. Personnel will receive training appropriate to their specific job responsibilities. All Facility personnel will be required to complete classroom training within six months of employment and annually according to the requirements of the CFR 264.16. Employees who will handle hazardous waste and supervisors of employees who will handle hazardous waste will be required to complete on-the-job training (OJT) and OSHA 40-hour training and annual refreshers. Employees assigned to the Facility will not be allowed to work without direct supervision until completing the training program relevant to the positions in which they are employed. New personnel will be required to complete their training program as soon as practicable, but no later than six months, following their effective date of employment at the Facility.

Section 7.1 describes job titles, qualifications, and duties; Section 7.2 describes training content and frequency; and Section 7.3 describes record keeping procedures.

7.1 Job Titles and Duties

To facilitate safe and effective Facility operation, the training program is designed to provide training commensurate with job responsibilities. A list of qualifications, duties, and special training required for appropriate personnel will be developed and maintained on-site prior to commencement of operations. This section includes a description of the qualifications and responsibilities of the RCRA training officer, the EC, waste handlers, the site security officer, laboratory specialists, and maintenance personnel. Although other categories of personnel may work at the site, these six categories include key personnel with respect to ensuring safety and compliance and therefore are included in this section. It is important to note that one person may fulfill the responsibilities of more than one of the job categories outlined below.

7.1.1 RCRA Training Officer

The RCRA training officer will be responsible for developing and implementing a RCRA training program that is in compliance with 40 CFR 264.16, Personnel Training.

The RCRA training officer will possess the following qualifications:

- a four-year science or engineering degree or sufficient experience in hazardous waste management to oversee the training program;
- working knowledge of the New Mexico Hazardous Waste Act and the New Mexico Hazardous Waste Management Regulations;
- knowledge of site-specific hazardous waste management procedures;
- a thorough understanding of the purpose of the Contingency Plan and emergency procedures and the ability to implement them; and

- 40-hour OSHA and annual refresher training.

The RCRA training officer will have the following responsibilities:

- developing and implementing the RCRA training program, including classroom training development and revision;
- establishing course curricula;
- conducting training;
- maintaining and updating, as needed, a list of all employees requiring training; this list will provide a personalized training history for each employee, which includes job title, training schedule, course attendance, and test results;
- reviewing any new job classifications to determine if OJT is required (supervisors may also request that employees receive OJT);
- scheduling training;
- ensuring that all personnel with RCRA responsibilities are trained as soon as practicable following the effective date in a position and are annually updated; and
- conducting an annual review to determine which personnel require OJT.

7.1.2 Emergency Coordinator

The EC will coordinate all emergency response activities and will have the authority to commit the resources necessary to implement the Contingency Plan contained in Section 6.0. The Facility will appoint a primary EC as well as secondary ECs to ensure that someone is always available to serve as the EC. The secondary ECs must meet the same qualifications and responsibilities, outlined below, as the primary coordinator.

The EC will possess the following qualifications:

- a four-year science or engineering degree or sufficient experience in hazardous waste management and emergency response to coordinate all aspects of emergency response;
- working knowledge of the New Mexico Hazardous Waste Act and the New Mexico Hazardous Waste Regulations;
- familiarity with all aspects of the Contingency Plan and emergency procedures, all operations and activities at the Facility, the location and characteristics of waste handled, the location of records within the Facility, and the Facility layout prior to acting as EC; and
- 40-hour OSHA training, annual refreshers, and OSHA supervisor training.

The EC will have the following responsibilities:

- either being on the Facility premises or being available to respond to an emergency by reaching the Facility within a short period of time;
- notifying all appropriate Facility personnel upon awareness of an emergency situation;
- notifying all appropriate state or local agencies with designated response roles;
- identifying the character, exact source, amount, and extent of any released materials;

- assessing possible hazards to human health and the environment that may result from a release, fire, or explosion;
- notifying local authorities if a release, fire, or explosion has occurred that could threaten human health or the environment;
- notifying the National Response Center if a release, fire, or explosion occurs that could threaten human health or the environment;
- taking all reasonable measures during an emergency to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the Facility;
- if appropriate, when the Facility ceases operations in response to a release, fire, or explosion, monitoring for leaks, pressure build-up, gas generation, or ruptures in equipment;
- providing for the treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the Facility;
- ensuring that no waste that may be incompatible with the released material is treated, stored, or disposed until cleanup procedures are completed and that emergency equipment is cleaned and fit for its intended use prior to resumption of operations;
- notifying NMED and appropriate local authorities before operations are resumed;
- noting in the operating record the time, date, and details of any incident that requires implementing the Contingency Plan; and
- submitting a written report to the NMED within 15 days of implementing the Contingency Plan.

7.1.3 Waste Handlers

Waste handlers will perform sampling, screening, unloading, transfer, and loading of material.

The waste handlers will possess the following qualifications:

- high school diploma or equivalent; and
- two years of experience in hazardous waste operations.

The waste handlers will have the following responsibilities:

- verifying waste received;
- testing emergency equipment;
- inspecting Facility and emergency equipment;
- managing containers in such a way as to prevent leaks, spills, and ruptures;
- inspecting the landfill;
- inspecting roll-off containers and drums for cracks or holes;
- repair of defects on roll-off containers and drums;
- inspection of non-regulated but potential SWMU units;
- maintaining runoff management system, control wind dispersal, and ensuring compliance with other operational requirements specific to the RCRA permit;
- assisting in maintaining the operating record; and

- preparing biennial reports, unmanifested waste reports, and other reports as necessary.

7.1.4 Site Security Officers

The site security officers will control access to the Facility, ensure site security, and possess high school diplomas or equivalent.

The site security officers will have the following responsibilities:

- controlling entry, at all times, through gates or other entrances to the active portion of the Facility;
- ensuring site security;
- inspecting the perimeter fence to prevent unknowing entry and prevent the unauthorized entry of persons or livestock onto the active portion of the Facility; and
- initially locating and then maintaining warning signs that indicate "Danger - Unauthorized Personnel Keep Out" in both English and Spanish, which will be posted on the perimeter fence and will be legible from a distance of 25 feet.

7.1.5 Laboratory Specialist

The laboratory specialist will help to assure that wastes received at the Facility are consistent with waste profiles supplied by generators.

The laboratory specialist will possess the following qualifications:

- a four-year science degree or sufficient experience to adequately perform acceptance testing;
- working knowledge of the New Mexico Hazardous Waste Act and the New Mexico Hazardous Waste Regulations; and
- familiarity with the Waste Analysis Plan and waste analysis practices and procedures.

The laboratory specialist will have the following responsibilities:

- developing sampling, characterization, and testing procedures for waste received and generated at the Facility;
- directing or performing sampling, characterization, and testing for the Facility;
- determining if waste is acceptable for disposal according to waste profile information submitted by the generator;
- determining if the initial and annual full chemical analysis and fingerprint analysis confirm generator information provided on the waste profile and manifest; and
- implementing the laboratory QA/QC program.

7.1.6 Maintenance Personnel

Maintenance personnel will maintain all equipment, buildings, roads and ditches.

Maintenance personnel will possess the following qualifications:

- high school diploma or equivalent; and
- two years experience in an industrial setting.

Maintenance personnel will have the following responsibilities:

- developing maintenance procedures; and
- performing maintenance-type activities, including repairs, preventive maintenance, and corrective actions associated with RCRA inspections.

7.2 Training Content and Frequency

Section 7.2.1 describes the training program for Facility personnel, Section 7.2.2 describes training for visitors, and Section 7.2.3 describes training for off-site emergency response organizations.

7.2.1 Training Program for Facility Personnel

All new employees will be required to successfully complete the training program related to their position. Training programs will include RCRA classroom training, job-specific training, OSHA 40-hour training, and annual refresher training for all three programs. OJT and OSHA 40-hour training sessions will be required only for those personnel who will handle hazardous waste and the supervisors of personnel who will handle hazardous waste. Employees will not be permitted to assume unsupervised job duties until successful completion of all the required elements of their training program. As soon as practicable following a new employee's hire date, successful completion of the training program specific to his or her position must be accomplished, and certification of the completion will be recorded and kept on file by the RCRA training officer.

7.2.1.1 Classroom Training

The initial classroom training will consist of at least one 8-hour session. Annual refresher training will consist of at least one 4-hour session. The outline of the annual refresher is the same as the outline for the initial classroom training; however, the refresher training will be an abbreviated version of the initial training at an accelerated pace. The RCRA classroom training will include the following goals:

- developing a basic understanding of the regulatory requirements for a treatment, storage, and disposal facility;
- promoting understanding of policies and procedures necessary to protect human health and the environment;
- ensuring proper management of hazardous waste; and
- educating employees regarding response to emergencies.

The outline for the RCRA training class will consist of the following elements:

- an introduction to RCRA, including a general description of RCRA and Hazardous and Solid Waste Amendments (HSWA); the definition of hazardous waste; waste generator requirements; disposal requirements; and labeling, inspection, record keeping, and reporting requirements;
- requirements associated with the RCRA permit for the Facility;
- Facility-specific waste management, including general procedures for receipt and handling of waste from off-site as well as management of waste generated on-site;

- decontamination procedures;
- emergency procedures, including response to fires, explosions, and releases, and shutdown of operations;
- emergency equipment location and use;
- emergency systems, such as the communication and alarm systems and the fire suppression system;
- Contingency Plan;
- evacuation plan;
- waste minimization;
- occupational health and safety, including items such as personal protective clothing and equipment, general industrial safety, and employee right-to-know (the Hazard Communication Standard);
- transportation of hazardous waste, including marking, labeling, placarding, loading, use of shipping papers, record keeping, and other DOT requirements; and
- maintenance of documentation.

Facility tours and audio-visual aids in conjunction with lectures and procedure manuals will be utilized in the classroom training. A written test will be administered at the completion of classroom training. A grade of 80 percent or better will be required to demonstrate mastery of the course material. The course curriculum will be reviewed at least annually by the RCRA training officer to ensure that it is current and appropriate.

7.2.1.2 Job-Specific Training

The RCRA classroom training will be supplemented with job-specific training tailored to each employee's actual job responsibilities. Job-specific training may include additional classroom training and/or OJT. All employees who handle hazardous waste and supervisors of personnel who handle hazardous waste will be required to complete OJT. The purpose of OJT is not to demonstrate to personnel how to perform their duties, but rather to demonstrate how to perform their duties safely and in compliance with RCRA. OJT will be conducted in the work area by the line supervisor or foreman subsequent to classroom training. The length and complexity of the OJT will vary according to the employee's responsibilities. These minimum OJT sessions will be documented by both the employee and the supervisor by signing and dating a form. The form will also indicate the length of time spent on OJT training. The signed forms will be maintained as part of the Operating Record as discussed in Section 7.3.

A checklist developed by the work area supervisor will be used for job-specific training. Prior to initial use of the checklist, it must be reviewed and approved by the RCRA training officer. All employees performing similar duties will have consistent job-specific training. The job-specific training checklist will be reviewed at least annually to ensure that it is current and appropriate for the subject job classification.

The job-specific training checklist will include the following elements:

- information about procedures relevant to the individual's position, where these procedures are located, and which personnel have the authority to implement the procedures, key operating parameters, and waste feed cut-off systems;
- location and use of communications or alarm systems;
- response to releases;
- emergency and routine shutdown of operations;
- Facility Contingency Plan and emergency procedures;
- evacuation procedures and location of emergency exits;

- response to leaks, spills, and overflows;
- Waste Analysis Plan procedures; and
- inspection and maintenance procedures.

Based on the checklist, Gandy Marley, Inc. (GMI) will develop a training outline specifically for each job-specific training program. The training programs specific to incident response positions, laboratory positions, waste handling positions, maintenance positions, emergency coordinators and site security officers are discussed below.

Incident Response Personnel

Specific classroom training and OJT for on-site individuals involved in incident response will focus on the emergency response equipment present at the facility. The training will address the use, maintenance, operation, purpose and limitations of the following specific equipment:

- fire-specific control equipment,
- personal protective equipment (PPE),
- spill control and decontamination equipment,
- emergency equipment,
- monitoring and communications equipment,
- shutdown operations,
- safety equipment,
- lock out/tag out program, and
- continuous air monitors.

Laboratory Personnel

Specific classroom training and OJT elements for laboratory personnel involved in analysis of hazardous waste will include:

- waste tracking procedures and profile forms,
- laboratory waste acceptance procedures,
- laboratory recordkeeping,
- waste pre-acceptance,
- waste discrepancy and rejection procedures,
- operation of on-site laboratory,
- proper analytical methods,
- laboratory quality assurance and quality control,
- laboratory safety and waste handling within the laboratory,
- laboratory and environmental monitoring equipment calibration,
- basic chemical concepts, and
- toxicology overview and exposure pathways.

Waste Handlers and Maintenance Personnel

Specific classroom training and OJT elements received by waste handlers and maintenance personnel will include:

- proper field sampling and testing procedures (waste handlers only),
- heavy equipment operations,
- waste handling precautions including chemical and physical hazards associated with each waste that will be handled on-site,
- drum and roll-off container handling,
- safety equipment,
- basic chemical concepts,
- hand and power tool safety and operation (maintenance personnel only),
- lock out/tag out procedures,
- waste compatibility issues,
- waste tracking procedures and profile forms, and
- sampling recordkeeping procedure.

Emergency Coordinator

Specific classroom training and OJT elements for emergency coordinators will include:

- site emergency communications procedures,
- federal, state, and local agency emergency and all-clear notification procedures,
- qualitative and quantitative assessment of released materials,
- human health and environmental hazard recognition,
- release containment procedures,
- Facility-wide fire, explosion, and leak detection procedures during emergency responses and normal operations,
- procedures for recovering, treating, storing, and disposing of recovered waste, soil, organic liquid, and water resulting from an emergency response,
- emergency equipment decontamination and reuse procedures,
- emergency response recordkeeping plan, and
- written reporting requirements to the agencies.

Site Security Officers

Specific classroom training and OJT elements for site security officers will include:

- procedures for controlling entry to the facility,
- maintaining overall facility security including perimeter fence inspections, and
- maintenance of all warning signs.

7.2.1.3 OSHA 40-Hour Training

All personnel who handle hazardous waste and the supervisors of personnel who handle hazardous waste will complete OSHA 40-hour training as required by 29 CFR 1910.120. It is anticipated that, at least initially, the OSHA 40-hour training will be provided by an outside vendor. Personnel who have documentation of course completion for the 40-hour and refresher training will not be required to retake the 40-hour training.

All personnel who handle hazardous waste and the supervisors of personnel who handle hazardous waste will complete OSHA 40-hour training as required by 29 CFR 1910.120. It is anticipated that, at least initially, the OSHA 40-hour training will be provided by an outside vendor. Personnel who have documentation of course completion for the 40-hour and refresher training will not be required to retake the 40-hour training.

7.2.2 Training for Visitors

Visitors who are expected to be in the Facility for only a short period of time and who will not be handling hazardous waste will be provided a short briefing on basic emergency procedures such as decontamination, emergency signals and alarms, and evacuation routes. Visitors will not be allowed on-site unless they are escorted by Facility personnel or unless other arrangements have been made with Facility personnel. The briefing will include the following information:

- what hazards that may be encountered at the Facility;
- how emergencies are signaled or announced, how help is summoned , what information is to be given, and to whom the information is given;
- where to report during an emergency;
- how to safely evacuate from the Facility;
- what standard operating procedures for visitors are;
- where check-in/check out locations are; and
- what safety equipment is required.

7.2.3 Training for Off-Site Emergency Response Organizations

Training will be established for off-site emergency response organizations through agreements with local agencies and contracts with vendors. This training will include, as appropriate, the following:

- site layout and site-specific hazards;
- the Contingency Plan;
- Facility emergency procedures;
- Facility decontamination procedures; and
- appropriate response techniques.

7.3 Record Keeping

In accordance with 40 CFR 264.16, records regarding job title, job description, training, and other appropriate documentation will be kept by the RCRA training officer.

7.3.1 Job Titles, Descriptions, and Duties

Job titles will be designated for each position at the Facility related to hazardous waste management and the name of each employee filling each job. Job descriptions will detail job duties and responsibilities for that position. The description will include the skills, education, and qualifications required for each position. A written description for each position will be maintained to determine the types and amounts of both introductory and continuing training to be given to each employee at the Facility.

7.3.2 Training Documentation

Records that document RCRA classroom training and OJT given to and completed by Facility personnel will be kept by the RCRA training officer. Training records on current employees will be kept until closure of the Facility. Training records on former employees will be kept for at least three years from the date the employee last worked at the Facility.

7.3.3 Other Documentation

Other documentation to be maintained at the Facility includes the following:

- documentation of the annual review of the curriculum for RCRA classroom training;
- documentation of the annual review of the OJT checklists; and
- RCRA classroom training test results.

8. Closure and Post-Closure of Permitted Units

This closure plan describes specific activities required for closure of the landfill, in compliance with RCRA closure requirements. The closure activities are designed to minimize the need for further maintenance and any potential impacts to human health and the environment. Closure activities are described in Section 8.1. A post-closure care plan for the landfill is included in Section 8.2. Section 8.3 presents the closure performance standard; and Section 8.4 discusses the closure schedule. Closure certification and modifications are discussed in Sections 8.5 and 8.6, respectively. Closure and post-closure cost estimates are discussed in Section 8.7 and compliance with financial assurance requirements is discussed in Section 8.8.

8.1 Closure Activities

At the end of the active life of the Facility, the landfill and all structures of the Facility will be closed and dismantled in compliance with 40 CFR 264, Subpart G. Any solid hazardous waste and debris will be placed in the landfill, and non-hazardous waste will be sent off site for reuse, recycle, or disposal in compliance with 40 CFR 264, Subpart G. Liquids generated during closure (decontamination solutions and leachates) will be treated off-site. The landfill will be capped with a final cover, and post-closure care will be initiated for the landfill. These closure activities are described in detail in the following sections.

An off-site laboratory will be used for analysis of hazardous waste and soil samples at closure. The off-site laboratory will be an EPA-approved laboratory with an internal QA/QC program and specific procedures for each analytical method. All laboratory samples will be analyzed for the hazardous constituents specified in 40 CFR Part 261, Appendix VIII and all other constituents considered by NMED to be a threat to human health and the environment.

Prior to the commencement of closure activities, GMI will notify the Secretary of NMED at least 60 days prior to the date GMI expects to begin closure. The schedule for closure is described in more detail in Section 8.4.

8.1.6 Landfill

This Part B Permit Application only includes the Phase 1A portion of the landfill. Therefore, this Closure Plan only addresses Phase 1A. If future expansions are required, they will be addressed in future permit modifications and will include revised closure plans.

At closure of the landfill, a final cover will be constructed with a permeability that is less than or equal to the permeability of the bottom liner. The final cover will consist of a three-layer cap design consisting of a vegetative cover, a geocomposite drainage layer, and a geomembrane and GCL barrier layer over a prepared subgrade, as described in Section 3.1.5. The final cover will meet the following requirements:

- The vegetative cover will have a minimum thickness of 2.5 feet and final upper slopes of between 3 and 5 percent after settlement and subsidence of the waste. Native grasses will be planted.

- The drainage layer will have a transmissivity of greater than or equal to 2.2 x 10^{-4} square meters per second (m^2/s) and consist of an HDPE geonet sandwiched between two geotextile layers (generally referred to as a geocomposite) and will be designed to allow lateral flow and discharge of liquids.

- The bottom layer will consist of a 60-mil HDPE geomembrane layer and GCL with permeability of less than or equal to 5 x 10^{-9} cm/s underlain by 6 inches of prepared subgrade and 1.5 feet of protective soil.

- The cover will be designed to function with minimum maintenance, including minimal erosion. The vegetative cover will be designed with a surface drainage system capable of conducting runoff across the cap without forming rills and gullies.

In addition, remaining water in the contaminated water basin (as shown on Drawing 10, Filling Plan - Phase 1A), if the water cannot be eliminated through evaporation) will be removed, tested, and disposed of appropriately. Then, the contaminated water basin will be filled with soil and the cover will be constructed across this area. This will ensure that all lined areas of the landfill will be covered.

Prior to closure of the landfill, an assessment will be made of the landfill waste gas generating potential. This will be made from the quarterly landfill gas monitoring data that will be collected over the life of the landfill. Following closure, if it is concluded that gas generation may result in gas buildups beneath the barrier layer of the cover or releases that exceed regulatory air quality standards, then provisions will be made to collect and monitor gas generation and release during the post-closure period. If this occurs, the best available technology available will be implemented into the construction of the cover system. In this case, the NMED Secretary will be informed and shall approve a monitoring plan and any changes in the construction of the cover system.

Any leachate from the landfill will be pumped from the primary and secondary collection systems and, if detected, from the vadose zone monitoring sumps throughout the closure period and will continue throughout post-closure care. The leachate will be collected, sampled, and managed as hazardous waste, as appropriate. The leachate will be collected at a frequency appropriate to the rate at which it collects in the sump. As indicated in Permit Attachment P, Post-Closure Care, the collection sump will be inspected monthly until the sump remains dry for six months. Thereafter, the sump will be inspected semiannually. Details of the leachate sampling and analysis program will be specified in a sampling and analysis plan.

After the landfill cap is completed, soil samples will be collected from outside the perimeter of the landfill cap to determine if any soil contamination is present. The sampling locations will primarily correspond to the transportation corridor used by waste hauling trucks during the active life of the landfill. In addition, samples will be collected at the landfill stormwater retention basin and within ditches directing flow to the basin.

It is proposed that individual samples be obtained along the haul roads at 100-foot intervals and at locations where visible staining is observed. Because the stormwater detention basin (Drawing 25, Surface Water Control Features) is lined with geomembrane, individual samples will be collected from there and its associated drainage ditches at a frequency equivalent to 1 per 40,000 square feet over the entire area (i.e., one sample to be taken at the center of each 40,000-square-foot grid). However, if the liner in the stormwater runoff basin is observed to be damaged, additional sampling may be required. Sample results will be compared against the closure performance standards presented in Section 8.3. If any contaminated materials are identified they will be excavated and removed to the landfill prior to placement of the final cover.

No later than the submission of the certification of closure of the landfill in compliance with 40 CFR §264.115, the Facility will submit to the local zoning authority and to the NMED, a survey plat indicating the location and dimensions of the landfill with respect to permanently surveyed benchmarks in compliance with 40 CFR §264.116. This plat will be prepared and certified by a professional land surveyor. The survey plat will contain a prominent note that asserts the Facility's obligation to restrict disturbance of the hazardous waste disposal unit. The Facility will also record a notation on the deed to the Facility property in compliance with 40 CFR §264.119(b)(1), to notify any potential purchasers of the property that (1) the land has been used to manage hazardous wastes; (2) use of the land is restricted to activities that will not disturb integrity of the final cover system or monitoring system during the post-closure care period; and (3) the survey plat and record of waste disposal have been submitted to the local zoning authority and to NMED.

A record of the type, location, and quantity of hazardous wastes disposed of within the disposal unit will be submitted to the local zoning authority and to the NMED no later than 60 days after certification of closure of the landfill in compliance with 40 CFR §264.119(a).

The vadose zone monitoring wells will be sampled and analyzed in accordance with the procedures that are presented in Section 3 of the permit application. The frequency of sampling and parameters to be tested are outlined in Section 3.

8.1.7 Closure of Non-Waste Management Units

Other areas within the facility boundary which have the potential to become SWMUs during the operational life of the facility will be closed in accordance with the requirements of the closure sampling and analysis plan. Those non-waste management units, such as the maintenance shop and stormwater detention basin will be sampled to verify the absence of contamination prior to closure and removal. If the non-waste management units' structures or liners show contamination they will be managed in accordance with the requirements of this closure plan. If contamination is not present they will be disposed of as solid waste.

After removal of the structures, other appurtenances, and liner the areas will be contoured and revegetated as necessary.

8.2 Post-Closure Activities

Post-closure care involves long-term maintenance, monitoring, and reporting of activities that are carried out after closure is completed. Post-closure care is anticipated to be needed only for the landfill after closure. The post-closure care period for the landfill will begin after completion of closure activities and continue for an anticipated 30 years. Inspection, maintenance, and repair activities to be conducted during post-closure are described in the following sections. The schedule for performing inspections is shown in Table 8-1, Post-Closure Inspection Schedule.

8.2.1 Security Systems

As shown in Facility Drawing Number 4, the Facility perimeter fence encloses the entire 480 acres of the Facility. The fence and warning signs mounted on the fence will be inspected and maintained throughout the post-closure period. Monthly inspections will include checking the condition of fencing, locks, gates, and warning signs. Any signs of unauthorized entry will be reported to the local sheriff's office and NMED. Routine maintenance will be performed based on inspection findings to repair or replace damaged or deteriorating items.

8.2.2 Landfill Final Cover

The integrity and effectiveness of the landfill final cover will be maintained, including making necessary repairs to correct the effects of settling, erosion, water damage, animal damage, or other events. The landfill cover will be inspected quarterly. Inspections will include checking for signs of cracking, subsidence, ponding water, erosion, burrowing animals, or deep-rooted vegetation. Repairs will be scheduled in a timely manner upon noting deficiencies in order to ensure that the final cover maintains its effectiveness.

General maintenance will include the following activities:

- fertilizing the vegetation periodically;
- re-establishing damaged or sparse vegetative cover, including seeding and fertilizing;

- conducting erosion damage repair, including soil excavation, transport and placement, seeding and fertilizing;
- regrading as needed to overcome the effects of subsidence or to repair areas where ponding is occurring; and
- providing rodent control as needed, including trapping and relocating animals and repairing damage caused by burrowing.

Soil for erosion repair and regrading will be excavated from unused on-site areas and transported to the cap area for use in maintenance activities.

8.2.3 Perimeter Diversion Ditch

The perimeter diversion ditch (as shown in Permit Attachment L1 on Drawings 22 and 25) will be inspected and maintained throughout the post-closure period to ensure its designed functions to divert precipitation and run-on from the landfill area are met. Inspections will be conducted quarterly and will include checking for accumulated sediments and debris, and signs of erosion. Repairs will be scheduled in a timely manner, upon deficiencies being noted, to ensure that the diversion ditch maintains its effectiveness.

General maintenance activities will include diversion ditch cleaning to remove accumulated sediments and debris, and regrading, as needed, to repair the effects of erosion.

8.2.4 Leachate Management System

8.2.4.1 Leachate Collection System

The leachate collection system will be operated when necessary to ensure leachate depth over the liner does not exceed 30 centimeters (cm) (1 foot) until the completion of post-closure care. Leachate pumps will be operated at least quarterly. The site log will be kept on-site or at a location approved by the NMED Secretary. The volume of leachate pumped will be recorded in a site log. After records indicate that the sump has remained dry for six months, the frequency of inspection and operation of the sump pumps will be changed to semiannually. Any leachate collected will be pumped to an aboveground storage tank.

The leachate collection system will be inspected quarterly or semiannually as described in the preceding paragraph. Pumps will be inspected for proper operation. The riser pipes, grout seals, and other visible aboveground portions of the system will be inspected for integrity. The level of liquid in the sumps will be measured prior to pumping out accumulated leachate.

Routine maintenance will be conducted to ensure that the leachate collection system remains operable. Locking caps and standpipe grouting will be repaired or replaced as necessary. Accumulated sediments or sand in the standpipes will be removed as necessary to enable the system to function properly. Based on the amount of leachate collected over time, a determination will be made about the integrity of the collection system. If a system is suspected of being clogged, an assessment by a New Mexico registered professional engineer will be made. All repairs will be made according to the New Mexico registered professional engineer's assessment and upon approval by NMED.

8.2.4.2 Management of Leachate

During the post-closure care period, leachate pumped from the collection system will be temporarily stored in an aboveground tank. The leachate will be sampled and managed at an off-site facility as hazardous waste, as appropriate. Details of the leachate sampling and analysis program will be specified in a sampling and analysis plan.

8.2.4.3 Leak Detection System

During the post-closure care period, the leak detection system beneath the landfill primary liner will initially be monitored and inspected quarterly to ensure that it is operating correctly and that any leachate that has migrated through the primary liner is collected and removed. As with the primary leachate system, the volume of leachate pumped from the secondary leak detection system will be recorded in a site log. After records indicate that the sump has remained dry for six months, the frequency of inspection and operation of the leak detection system will be changed to semi-annually.

Inspections and maintenance will be equivalent to those described for the leachate collection system (see Section 8.2.4.1).

8.2.5 Vadose Zone Monitoring System

The VZMS will be maintained and monitored throughout the post-closure care period. The following sections outline the post-closure monitoring plan for this system. The VZMS is described in Permit Attachment I, Vadose Zone Monitoring System Work Plan, and consists of a vadose zone sump in the landfill and vadose zone monitoring well network.

8.2.5.1 Sampling and Analysis

Vadose zone monitoring will be conducted semiannually to test for the presence of contaminants in the unsaturated sediments hosting the landfill. Sampling procedures and analytical parameters will be defined according to the Vadose Zone Monitoring System Work Plan (Permit Attachment I) and will follow the same guidelines used during the active life of the Facility.

8.2.5.2 Inspection and Maintenance

The visible aboveground portions of the vadose zone monitoring system will be inspected semiannually for integrity. Routine maintenance will be conducted to ensure that the vadose zone monitoring system remains in operable condition. System equipment will be repaired or replaced as necessary.

8.2.6 Recordkeeping

A post-closure Facility record will be maintained. This record will include the dates and times of inspections, inspection findings, name of inspector, volumes of leachate pumped, disposition of leachate, sampling results of leachate and vadose zone samples, and dates and nature of any corrective actions taken.

8.2.7 Certification of Post-Closure

Within 60 days after completion of the established post-closure care period for the Facility, the permittee will submit to NMED a certification that the post-closure operations were performed in accordance with the approved post-closure plan in compliance with 40 CFR 264.120. The certification will be signed by the permittee and an independent New Mexico registered professional engineer.

8.2.8 Amendment of Plan

The permittee will submit a permit modification request for changes to the post-closure plan if changes in operating plans or Facility design, or events that occur during the active life of the Facility, affect the approved post-closure plan. The owner or operator may also request a modification to the post-closure plan at any time during the active life of the Facility or during the post-closure care period. Permit modification requests will be submitted at least 60 days prior to a proposed change in Facility design, or no later than 60 days after an unexpected event which affects the post-closure plan.

If clean closure cannot be certified for any non-waste management unit components, then the post-closure care permit will be amended to include those portions of the units that do not meet the closure performance standard. The post-closure care plan amendments will be submitted to NMED no later than 90 days after the owner or operator determines that the non-waste management unit must be closed as a regulated unit.

8.2.9 Facility Post-Closure Contact

During the post-closure care period, the Facility contact organization will be the following:

Gandy Marley, Inc.
P.O. Box 1658
Roswell, New Mexico 88202
(575) 347-0434

8.3 Closure Performance Standard

The RCRA closure performance standard (40 CFR 264.111) specifies that hazardous waste facilities are to be closed in such a way as to minimize the need for further maintenance at the Facility and protect human health and the environment by controlling, minimizing, or eliminating potential releases of hazardous waste to the environment. The Facility will meet a clean-closure performance standard for all non-waste management units except the landfill and will not impact any environmental media in excess of agency-approved background levels or pose a threat to human health or the environment.. The landfill will not be clean-closed; therefore, the Facility-specific, clean-closure performance standard is not applicable.

Indicator parameters will be selected and approved by NMED at closure. These parameters will be representative of the wastes disposed of during the Facility operating life. The waste information used to make these selections will be based upon the Facility operating record. For soil, analytical results that show that these concentrations of contaminants of concern are within a statistically significant range relative to clean background soil as determined by NMED will constitute demonstration of clean closure. Clean background samples will be obtained from the alluvium unit and from the Upper and Lower Dockum units from each of the vadose zone monitoring well borings, for a total of six background samples per stratigraphic unit. If the alluvium is not present at a specific vadose zone monitoring well boring location, a surface sample from the southern portion of the site shall be substituted for the sample. Each sample will be submitted to an analytical laboratory for chemical analysis of metals listed in 40 CFR 264, Appendix VIII, using EPA SW-846 analytical methods or equivalent methods approved by NMED.

8.5 Certification of Closure

Within 60 days of completion of closure, the Facility will submit to NMED a certification that the hazardous waste management unit has been closed in accordance with the approved closure plan in compliance with 40 CFR 264.115. The closure certification will be signed by the owner/operator and by an independent New Mexico registered professional engineer.

8.6 Modifications to the Closure Plan

After this closure plan is approved, it will be amended whenever it is affected by changes in operating plans or Facility design. While conducting partial or final closure activities, unexpected events may be identified that also require amendment of the approved closure plan. Requests for modification will be made within 30 days of identifying an event that justifies plan modification.

8.7 Closure Cost Estimate

The closure costs are described in the following sections.

8.7.1 Closure Costs

A landfill closure cost estimate is provided in Permit Attachment O2. The original landfill closure cost estimate included in the March 2002 Triassic Park Waste Disposal Facility permit was based on 2000 dollars. The landfill closure cost estimate presented in this permit modification has been updated to account for inflation using the change in the Consumer Price Index (CPI) between 2000 and 2011 (U.S. Department of Labor CPI, 2011). Using the CPI, the 2011 costs are 32 percent higher than those from 2000. After the Facility is constructed and operations begin, the landfill closure cost estimate will be updated annually as required in 40 CFR Part 264.142(b).

Table 8-2 summarizes the closure cost estimate. The landfill closure cost estimate is based on costs for closure when the Facility is at maximum capacity, which is the point in the Facility's active life when the extent and manner of its operation would make closure the most expensive. As required in 40 CFR Part 264.142(a)(2), landfill closure cost estimate is based on the costs of hiring a third party to close the Facility.

8.7.2 Post-Closure Costs

Table 8-3 summarizes the post-closure cost estimate for the landfill. The costs include 30 years of monitoring and maintenance activities, as described in Section 8.2 and Permit Attachment P, Post-Closure Care. The original post-closure cost estimate included in the March 2002 Triassic Park Waste Disposal Facility permit estimates are was based on 2000 dollars. The post-closure cost estimate presented in this permit renewal application has been updated to account for inflation using the change in the Consumer Price Index (CPI) between 2000 and 2011 (U.S. Department of Labor CPI, 2011). Using the CPI, the 2011 costs are 32 percent higher than those from 2000. All 2000 costs were increased by 32 percent for purposes of this analysis. After the Facility is constructed and operations begin, the post-closure cost estimate will be updated annually as required in 40 CFR Part 264.144(b).

8.8 Financial Assurance

The treatment, storage and disposal facility standards found in 40 CFR 264 require facilities to establish and maintain financial assurance for three areas prior to operation. 40 CFR 264.143 defines the standards for financial assurance for closure, 40 CFR 264.145 defines the standards for post- closure care, and 40 CFR 264.147 defines the liability requirements for coverage of accidental occurrences. The financial instruments selected to provide coverage for these three requirements must be implemented and submitted to the NMED at least 60 days prior to the initial receipt of waste.

8.8.1 Financial Assurance for Closure

40 CFR 264.143 defines the standards for financial assurance for closure. The financial instrument selected to provide coverage for this requirement must be implemented and submitted to the NMED at least 60 days prior to the initial receipt of waste.

Upon receipt of the final permit for the Facility, GMI will evaluate and select one of the financial instruments defined in 40 CFR 264.143 to provide financial assurance for the closure of the Facility. Selection of one of the following six financial instruments will consider the effectiveness and economics of the particular options. The instruments defined in the regulations are:

- Financial test and corporate guarantee for closure
- Closure trust fund
- Surety bond guaranteeing payment into a closure trust fund
- Surety bond guaranteeing performance of closure
- Closure letter of credit
- Closure insurance

The appropriate instrument will be selected, implemented, and submitted a minimum of 60 days prior to the initial receipt of waste as required by 40 CFR 264, Subpart H.

8.8.2 Financial Assurance for Post-Closure Care

Similar to the financial assurance requirements for closure activities, the Facility is required to provide assurances for the post-closure care of the Facility. Upon receipt of the final permit, and 60 days prior to the initial receipt of waste, the owner/operators will provide the appropriate financial instrument to fulfill this requirement. Selection of the instrument to be used will be based upon economic and performance considerations. The financial instruments allowed by this subpart of the regulations are listed in Section 8.8.1.

8.8.3 Liability Requirements

As stated in 40 CFR 264.147, an owner or operator of a hazardous waste treatment, storage, or disposal facility must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences which arise from the operation of the facility. This section of the regulations requires that the owner/operator of such a facility provide the administrator one of the following instruments at least 60 days prior to the initial receipt of waste:

1. Liability insurance
2. Financial test
3. Letter of credit
4. Surety bond
5. Trust fund
6. Combination of the above

GMI will submit required documentation demonstrating financial assurance to meet the liability requirements at least 60 days prior to receiving the first hazardous waste at the Facility. The financial assurance mechanism will comply with requirements in 40 CFR Part 264.147.

Table 8-1. Post-Closure Inspection Schedule

Inspection Item — Problem Or Problem Area	Inspection Time
Facility	
Fence	Monthly
Locks and gates	Monthly
Warning signs	Monthly
Landfill cover	
Cracking, subsidence, ponding water, erosion, burrowing animals, deep-rooted vegetation	Quarterly
Perimeter diversion ditch	
Sediment and debris accumulation	Quarterly
Leachate collection system	
Sump	Quarterly until the sump remains dry for 6 months, then semiannually
Pumps	Quarterly
Riser pipes, grout seals, other visible portions of the system	Quarterly
Leak detection system	Quarterly until the sump remains dry for 6 months, then semiannually
Vadose zone monitoring system	Quarterly

Table 8-2. Landfill Closure Cost Estimate

Landfill Item	Cost	
	Approved Permit ($ in 2000)	Permit Renewal ($ in 2011)
Landfill Excavation Backfill	4,120,000	5,438,400
Cover Engineering Design	30,000	39,600
Landfill Cover	3,374,432	4,454,250
Demolition of Tanks, Concrete and Liner System	2,426	3,202
Leachate Treatment Facility Construction	0	0
Leachate Treatment Facility Operations	0	0
Leachate Pumping and Disposal (volume = 133,000 Gallons [551 tons])	98,021	129,388
Sump Vadose Zone Sampling and Analysis	8,000	10,560
Well Vadose Zone Monitoring System Sampling and Analysis	48,000	63,360
Soil Sampling and Analysis	104,040	137,333
Final Plat Survey	2,400	3,168
Certification of Closure Inspection	3,000	3,960
Certification of Closure Report	15,000	19,800
Subtotal	7,805,319	10,303,021
Total from unit closures	$2,710,595	
Water Rights and Application	114,000	150,480
Total Closure Cost	10,599,914	10,453,501

Table 8-3. Landfill Post-Closure Cost Estimate

Item	Cost	
	Approved Permit ($ in 2000)	Permit Renewal ($ in 2011)
Facility Inspection	201,600	266,112
Routine Landfill Cover Maintenance and Repair	600,000	792,000
Severe Landfill Cover Erosion Damage Repair	300,000	396,000
Perimeter Diversion Ditch Maintenance and Repair	300,000	396,000
Leachate Pumping and Treatment	239,476	316,108
Leachate Collection System Maintenance	67,200	88,704
Well and Sump Vadose Zone Maintenance	67,200	88,704
Sump Vadose Zone Sampling and Analysis	240,000	316,800
Vadose Zone Monitoring Wells Sampling and Analysis	1,440,000	1,900,800
Notation of Property Deed	2,500	3,300
Certification of Post-Closure Inspection	3,000	3,960
Certification of Post-Closure Report	150,000	198,000
Total Post-Closure Costs	3,610,976	4,766,488
Total Closure Cost + Post-Closure Costs	12,899,323	15,219,989

9. Waste Management

The purpose of this section is to describe the Facility Waste Minimization (WM)/ Pollution Prevention (P2) Program, which will be an organized, comprehensive, and continuous effort to systematically reduce waste generation during the life of the Facility. As such, the program will be ever-changing and expanding to incorporate new or more effective WM/P2 opportunities as they are developed. The level of detail in this description of the WM/P2 Program is commensurate with the level of detail currently available with respect to day-to-day operation of the Facility.

The Facility is committed to the prevention of all forms of pollution and the minimization of all wastes generated at its hazardous waste landfill. Source reduction of waste is the company's highest waste minimization priority, followed by recycling and reuse.

For an industrial facility, such as the Facility, a Waste Minimization Program is an important link to providing increased protection of public health, employee health, and the environment. As part of its WM/P2 Program, the Facility will develop a detailed WM/P2 Program Plan as soon as the intricate details of Facility operation are more clearly defined.

It is anticipated that only insignificant amounts of waste will be generated from site operations. Leachate and wastewater may be generated from the wastes placed in the landfill and from precipitation events. Other wastes that may be generated include waste oils and other maintenance wastes, office wastes, soil and debris from spills, personal protective equipment, excess chemicals, and freon. Not all of these wastes are expected to be hazardous. All site-generated waste will be stored, treated, recycled, reused, and/or disposed of in accordance with applicable regulations. Waste minimization/pollution prevention efforts will be focused on all forms of waste, not just those wastes defined as hazardous in the New Mexico Hazardous Waste Management Regulations.

Waste minimization focuses on reducing the amounts and toxicity of waste materials generated from any process or other plant activity and on reusing, recycling, or reclaiming waste materials for future use and benefit. It should be noted that the terms waste minimization and pollution prevention will be used somewhat interchangeably throughout this section. However, the terms have distinctly different meanings, as defined below:

Waste Minimization

Waste minimization is the reduction, to the extent feasible, of the amounts and toxicity of waste materials after they are generated from any process or other activity. Primary waste minimization techniques include reuse, recycling, or reclamation of waste materials for future use and benefit.

Pollution Prevention

Pollution prevention is the use of any process, practice, or procedure to prevent the generation of waste. Examples of primary pollution prevention techniques include material substitutions (e.g., nonhazardous materials used in place of hazardous materials), process changes, and procedural improvements.

9.1 Brief History of WM/P2 in the United States

Current trends in environmental policy and regulation indicate a move from pollution control to pollution prevention and waste minimization in the private sector. Throughout the 1980s, the United States became increasingly aware of the environmental damage and restoration costs associated with past improper disposal of hazardous wastes. In the 1984 HSWA to RCRA, Congress declared that it is:

> . . . the national policy of the United States that; wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible. Waste that is nevertheless generated should be treated, stored, or disposed of so as to minimize present and future threat to human health and the environment. From HSWA, Congress clearly intended a hierarchy of actions for managing the nation's waste problems, with priority given to reduction or elimination of waste over treatment, storage, and deposal of waste after it has been generated.

The Pollution Prevention Act of 1990 expanded this concept to include all forms of environmental pollution. This statute calls pollution prevention a "National Objective" and establishes a hierarchy of environmental protection priorities as national policy. The order of priority is summarized as follows:

1. Reduction or elimination of waste prior to generation (source reduction) is the best option.
2. Recycling and reuse of waste that is generated is the second best option in cases when pollution cannot be prevented.
3. Treatment (reclamation or toxicity reduction) of waste that is generated is the next best option in cases where feasible prevention and recycling opportunities are not available or possible.
4. Disposal of generated waste is the least desirable option.

9.2 Purpose and Objectives of the Facility WM/P2 Program

The purpose of this section is to describe the Facility WM/P2 Program. This Program will establish the strategic framework for integrating waste minimization and pollution prevention into all Facility activities. The objectives of the Program are the following:

- raising employee awareness about the reasons for and benefits of a WM/P2 Program and instilling a desire to minimize waste at the lowest organizational levels possible;
- describing planned initiatives that support and promote WM/P2 through various training opportunities, including recycling, reuse, and recovery programs, and good housekeeping practices;
- adapting and implementing existing technologies as rapidly as possible to reduce waste generation at the source and to recycle waste products; and
- reducing all forms and categories of waste to the lowest extent practical.

9.3 Benefits of the Facility WM/P2 Program

The Facility WM/P2 Program, like all effective waste minimization programs, will yield numerous benefits and advantages, which are either tangible or intangible. Some of these benefits are listed below:

- reduced waste management costs, including labor and disposal costs;
- reduced regulatory compliance costs, including inspection costs and possible fines;
- reduced raw material costs;
- reduced potential for releases of hazardous chemicals and wastes;
- increased worker safety; and
- reduced civil and criminal liabilities under environmental laws.

9.4 Elements and Goals of the Facility WM/P2 Program

As previously mentioned, the Facility will continue to expand and refine its WM/P2 Program during the life of the Facility. The elements of the Program include those methods commonly used to form the baseline, or starting point, for effective WM/P2 Programs. The elements and goals of the Program are listed below as action-items to be completed during the initial phases of Facility operations. Such listings are standard practice in the industry since many of the elements, waste generation levels for example, cannot be determined until after the Facility begins operation. The personnel tasked with oversight of this program will also oversee the planning, development, and implementation of the WM/P2 reduction methods and activities outlined below.

- Develop and establish a written policy statement that describes why the WM/P2 Program is being implemented, how it will be implemented, and who will implement it. The policy statement will be issued from the highest level of management. The policy will be provided to each employee at the start of employment and will be reviewed during RCRA training and annual refresher training.
- Assign Facility personnel to oversee, plan, develop, and implement the elements of the WM/P2 Program.
- Establish support for the program at all levels in the company.
- Determine a waste generation baseline at the site and establish a tracking method and waste minimization goals.
- Establish a procurement control program to ensure the purchase of environmentally friendly materials and products while preventing the procurement of prohibited items from the site; the Facility will endeavor to reduce or eliminate the use of hazardous materials from its operations.
- Establish reuse, recycling, recovery, and conservation programs to minimize the volume of generated waste requiring disposal or treatment; examples of such programs include paper, aluminum cans, cardboard, scrap metals, oil, batteries, and surplus materials and chemicals.
- Establish good-housekeeping practices that promote WM/P2; an example of this type of practice is the requirement to remove packaging materials from chemicals, products, and equipment before they are introduced into the disposal area or contamination-control areas to avoid cross contamination.
- Establish a WM/P2 awareness program and train employees, as appropriate.
- Prepare a WM/P2 plan and update it annually or as appropriate.
- Perform an assessment of waste minimization/pollution prevention opportunities; an example of this type of opportunity is: installation of air conditioning refrigerant reclamation systems.
- Determine the feasibility of implementing the WM/P2 projects and proceed as appropriate with project implementation.

9.5 Proposed Elements of the Facility WM/P2 Program Plan

The Facility will establish a WM/P2 Program Plan when operational details of the Facility, such as the chemical and equipment procurement processes and the actual level of waste generation, are determined. The WM/P2 plan will include the following elements, as appropriate:

- the written policy statement for WM/P2;

- a description of the roles and responsibilities of Facility personnel with respect to WM/P2 and a brief description of how Facility groups will work together to reduce waste generation and energy consumption;
- a plan or method for publicizing and gaining support for the program and communicating the successes and failures of waste minimization efforts (i.e., employee awareness program);
- a description of how employees will be informed about WM/P2 requirements and expectations (possibly within the context of other Facility training courses);
- a description of waste-generating processes, including a clear definition of the types and quantities of materials generated from each process;
- a description of recycling, reclamation, treatment, and disposal programs used by the Facility and the types of wastes and materials that are included in these programs;
- descriptions of other WM/P2 programs and initiatives;
- reporting requirements;
- a description of WM/P2 goals for the Facility;
- a description of the Facility's chemical and material procurement process;
- a review of the costs of waste management and disposal, both on-site and at other facilities;
- criteria for prioritizing candidate WM/P2 processes, activities, and waste streams for future implementation; and
- an evaluation of the effectiveness of the WM/P2 Program and activities.

10. Corrective Action

It is unlikely that releases of hazardous waste or hazardous waste constituents have occurred on the site of the proposed Facility. This is based on an evaluation of (1) the site history; (2) reconnaissance of the site conducted as part of site characterization activities; and (3) a records review, which are described in the following paragraphs.

The current property owner is GMI, who has owned the property since 2000. The prior owner was Marley Ranches Inc., who owned the property since 1967 and used it primarily for grazing of livestock.

The primary site characterization activities included drilling programs conducted in July 1993, September 1993, and July 1994. Supplemental investigations were also carried out in July 1995 and August 1999. Reconnaissance of the site was conducted as part of the site characterization activities and no evidence found of hazardous waste releases or hazardous constituents.

New Mexico Oil Control Division records were reviewed. An intermittent land use in the area is exploratory drilling for oil and gas wells. The record review indicated that there are no abandoned wells within the proposed Facility boundary, and the nearest production well is approximately 3 miles from the proposed site. In addition, aerial photographs of the site were reviewed. The review did not provide any indication of releases or structures or activities that could be a source of releases.

The NMED conducted a RCRA Facility Assessment (RFA) in 1995. An RFA Report was prepared in September 1995. The RFA report identified several potential future SWMUs, including:

- the landfill;
- the maintenance shop;
- the chemical laboratory;
- the stormwater detention basin;
- the untarping, sampling, and weigh scales area;
- the truck staging area;
- all roads, including those leading to the Facility;
- the clay processing area; and
- the dust control/clay processing water basin.

No releases have occurred at these areas of concern because the structures do not exist and no Facility activities have occurred. The corrective action requirements, as specified in 40 CFR 264 Subpart F and the requirements specified in the corrective action module of the permit will not be implemented unless evidence of a release from a waste management unit is identified in the course of future groundwater or vadose zone monitoring, field investigation, environmental audits, or other means.

The Facility will respond to any emergency in accordance with the Contingency Plan provided in Section 6, including notification and reporting. Specifically, any release which threatens human health or the environment must be reported to NMED within 24 hours of its detection, and any time the Contingency Plan is implemented. However, in some cases, such as small amounts of materials being released from SWMUs into contained buildings or onto impervious surfaces that are immediately cleaned up, a release from a SWMU will not trigger reporting under the Contingency Plan.

All releases and response actions will be documented in the Facility operating record. Corrective action in response to any release will be implemented in accordance with the corrective action module of the permit.

11. 40 CFR 264 Subpart AA, BB & CC Regulations

This section provides a brief summary of the air requirements, as presented in 40 CFR 264 subpart AA and BB. In addition, this section provides a brief summary of other regulations which may be applicable to the Facility.

11.1 40 CFR 264 Subpart AA - Air Emissions for Progress Units

The Facility will not be subject to the 40 CFR 264 Subpart AA regulations because the Facility will not utilize distillation, fractionation, thin-film evaporation, solvent extraction, air or steam stripping operations.

11.2 40 CFR 264 Subpart BB – Air Emission Standards for Equipment Leaks

No wastes with organic concentrations greater than 10 percent by weight shall be placed in the landfill. Units in compliance with this provision will not be subject to 40 CFR 264 Subpart BB regulations. Equipment such as pumps, compressors, pressure relief devices, sampling equipment, connecting system, and valves shall not contain or contact hazardous wastes with organic concentrations of 10 percent or greater by weight.

11.4 Other Applicable Regulations

There are a number of other federal regulations which will apply to the Facility. Once the Facility has received a final permit and the configuration and operational aspects are finalized (it is possible that some minor changes to the Facility configuration and operation will occur as a result of the final permit) other regulations will be evaluated. Some of the regulations that will be evaluated are:

- National Pollution Discharge Elimination System;
- Clean Water Act;
- Clean Air Act; and
- Occupational Safety and Health Administration regulations.

The regulations listed above will be evaluated for their applicability to the Facility. In addition to these federal regulations, the Facility will evaluate numerous state, county, and local regulations. GMI will ensure that the Facility is designed, constructed, and operated in compliance with all applicable regulations.

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Permit Renewal Application
October 17, 2011

Part B Application

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List of Acronyms

ALR	action leakage rate
ANOVA	analysis of variance
ASTM	American Society for Testing and Materials
AUY	animal unit year-long
BLM	Bureau of Land Management
CFR	Code of Federal Regulations
CQA	Construction Quality Assurance
DOT	U.S. Department of Transportation
EC	emergency coordinator
EPA	U.S. Environmental Protection Agency
gpad~~GPAD~~	gallons per acre per day
HAS	health and safety
HDPE	high-density polyethylene
HELP	Hydrological Evaluation of Landfill Performance
FIRMB	Hazardous and Radioactive Materials Bureau
HSWA	Hazardous and Solid Waste Amendments
LCRS	leachate collection and removal system
LDRs	land disposal restrictions
~~LDR~~	~~Land Disposal Restrictions~~
LDRS	leak detection and removal system
MSDS	Material Safety Data Sheet
MTR	Minimum Technology Requirements
NFPA	National Fire Protection Association
NMED	New Mexico Environment Department
NOAA	National Oceanic and Atmospheric Administration
NRC	National Response Center
OCD	Oil Conservation Division
OJT	on-the-job training
ONA	Outstanding Natural Area
OSHA	Occupational Safety and Health Administration
PA	public address
PCB	polychlorinated biphenyl
PMO	preventive maintenance order
PPE	personal protective equipment
ppm~~PPM~~	parts per million
ppmw~~PPMW~~	parts per million by ~~-~~weight
PQL	practical quantitation limit
QA/QC	quality assurance/quality control

RFA	RCRA Facility Assessment
RCRA	Resource Conservation and Recovery Act
SCBA	self contained breathing apparatus
SWMU	Solid Waste Management Unit
TCE	trichloroethylene
TCLP	Toxicity Characteristic Leaching Procedure
TDS	total dissolved solids
TOC	total organic carbon
TSCA	Toxic Substances Control Act
USGS	U.S. Geological Survey
VZMS	vadose zone monitoring system

1. General Facility Standards

This section provides a general description of the Triassic Park Waste Disposal Facility (the Facility), including waste management practices, site environment and climate, location information, emergency management, and traffic patterns.

~~Part A and Part B of the permit application are included in the two volumes described below.~~

- ~~Volume I - Part A and Part B (Text and Figures)~~
- ~~Volume II - Part B Appendices A - M~~

~~Supporting documentation for Part B is provided in four additional volumes. These volumes present the engineering report and associated appendices as outlined below.~~

- ~~Volume III - Engineering Report Text and Appendix A (Design Drawings)~~
- ~~Volume IV - Appendix B (Construction Quality Assurance Plan) and Appendix C (Construction Specifications)~~
- ~~Volume V - Appendix D (Laboratory Data) and Appendix E (Engineering Calculations)~~
- ~~Volume VI - Appendix E (cont.), Appendix F (Surface Water Design), and Appendix G (Action Leakage Rate and Response Action Plan)~~

~~This is considered a complete submittal and supersedes all previous submittals.~~

1.1 General Description

The Facility will be a full-service Resource Conservation and Recovery Act (RCRA) Subtitle C waste ~~treatment, storage, and~~ disposal operation. The Facility will be located in southeastern~~Southeastern~~ New Mexico on approximately 480 acres of privately owned land in Chaves County, New Mexico (~~see~~ Figure 1-1). ~~at the end of this section).~~ By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure 1-2.

All waste placed in the Facility will meet land disposal restrictions (LDRs~~Land Disposal Restrictions (LDR~~) prior to disposal. The Facility will accept polychlorinated biphenyl (PCB) wastes that are not regulated by Toxic Substances Control Act (TSCA);~~),~~ that is~~,~~ only PCB wastes at concentrations of less than 500 ~~50~~ parts per million (ppm) ~~in liquids and 500 ppm~~ for bulk PCB remediation waste. ~~The Facility will offer the following RCRA-regulated services, which are described in this permit application.~~

~~1.1.1 Treatment~~

~~Two treatment processes will be used at the Facility, including an evaporation pond for managing wastewaters that meet LDR standards and a stabilization process for treating liquids, sludges, and solids to ensure that no free liquids are present and that LDR standards are met prior to placing wastes in the landfill. Dilution of restricted waste will not be used as a substitute for adequate treatment. All stabilized wastes will be tested, as a final step in the stabilization process, to ensure that no free liquids are present. The Paint Filter Liquids Test, U.S. Environmental Protection Agency (EPA) Method 9095, will be used to make this evaluation. Prior to treating wastes in the stabilization unit, waste characteristics will be analyzed to ensure~~

~~that proper measures can be taken to safely manage ignitable, reactive, and incompatible wastes. Procedures for properly identifying and verifying ignitable, reactive, and incompatible wastes are described in Section 4.5 of the Waste Analysis Plan. Once these wastes are identified, they will be managed in accordance with applicable regulatory requirements and permit conditions (see Section 5.5).~~

~~1.1.2 Solid Waste Storage~~

~~Two container storage areas (roll-off storage area and drum handling unit) will be used to stage waste at the Facility for treatment or disposal. These units will ensure that waste is stored in compliance with RCRA requirements for permitted storage. Neither of the units will be used for long-term storage of waste. All containers being stored will be clearly marked with hazardous waste labels which identify the contents of each container as well as the date of receipt (accumulation date). All labels will be clearly visible while containers are being stored. All containers will remain closed during storage, except when waste is removed or added. Further, container storage and handling procedures will be developed to ensure that containers are not opened, handled, or stored in a manner that may cause them to rupture or leak.~~

~~1.1.3 Liquid Waste Storage~~

~~Four aboveground storage tanks will be utilized to accumulate regulated bulk liquid hazardous wastes prior to stabilization. Handling of reactive materials, tank corrosion, tank assessments, tank inspection and tightness testing, and repair and certification of tank systems is discussed in Section 5.0. Description of contents, quantity of hazardous waste received, and the date each period of accumulation begins will be documented in the facility records and will be included on labels for each storage tank Design, dimensions, capacity, and other tank specifications are included in Volumes III and IV of this permit application.~~

1.1.4 Land Disposal

A landfill will be utilized for the disposal of waste that meets LDRs. ~~LDR standards.~~ Support units and structures include a chemical laboratory, administration building, weigh scale area, maintenance shop, ~~truck wash unit,~~ clay processing area, clay liner material stockpiles, daily cover stockpiles, and a stormwater detention~~retention~~ basin.

Because the Facility has not yet been constructed or operated, there are no solid waste management units (SWMUs) at this time. Satellite and/or 90-day accumulation areas may possibly be located at the chemical laboratory~~, the truck wash unit,~~ and the maintenance shop. Other areas at the Facility that may be designated as SWMUs include the untarping, sampling, and weigh scales area, the truck staging area, and the stormwater retention basin. Detailed information on location, unit type and dimensions, and a structural description of these units is provided in the design of the Facility contained in Permit Attachments L, L1, L2 (Engineering Report~~Volumes III through VI of this application.~~

~~The future debris encapsulation area~~ and attachments) and M (Construction Quality Assurance Plan)~~the future waste processing area identified in the Facility layout are possible future RCRA treatment units envisioned for the Facility that are not being designed at this time. Prior to construction of these units, a RCRA permit modification request will be submitted~~.

1.1.5 Facility Name

Gandy Marley, Inc. (GMI) owns the Facility. The waste disposal operations covered by this permit will operate under the name of the Triassic Park Waste Disposal Facility.

1.1.6 Facility Contact

Larry Gandy, Vice President~~.~~
Gandy Marley, Inc.
P.O. Box 1658
Roswell~~Tatum~~, New Mexico 88202
575-347-0434

~~505/398-4960~~

1.1.7 Facility Address

~~1109 East Broadway~~
P.O. Box 1658~~827~~
Roswell~~Tatum~~, New Mexico 88202~~88267~~

1.1.8 Purpose of Facility

The purpose of the Facility will be the ~~treatment and~~ permanent disposal of hazardous wastes in a manner protective of human health and the environment. Wastes that do not meet LDRs~~LDR standards~~ will not be accepted for placement into the landfill. ~~or evaporation pond until appropriate treatment is performed.~~ Infectious wastes and radioactive wastes will be prohibited at this Facility. The Waste Analysis Plan (Permit Attachment F) contains more details regarding wastes that can be accepted at the Facility and wastes that are prohibited.

1.1.9 Facility Location

The Facility will be located in southeastern~~Southeastern~~ New Mexico on approximately 480 acres of privately owned land in Chaves County, New Mexico, Sections 17 and 18 of R31E, T11S (~~see~~ Figure 1-1). By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure 1-2. The only major road in the vicinity is U.S. Highway 380, which runs east and west approximately 4 miles north of the proposed site. State Highway 172, which runs north and south, is approximately 4 miles east of the proposed site. State Highway 172 is not a major thoroughfare and does not provide access to the proposed site.

1.1.10 Hazardous Waste Generation

Some hazardous waste will be generated as a result of normal Facility operations. Various ~~treatment and handling processes and~~ support operations will likely generate such wastes. Examples of typical hazardous waste forms likely to be generated during normal Facility operations include solvents, oils, acids and bases, laboratory chemicals and equipment, paint and paint strippers, sludges, solvent contaminated solids, and personal protective equipment (PPE). Non-recyclable hazardous wastes, excluding liquids, will be disposed of on-site in accordance with the requirements outlined in Section 4.5.6 of the Waste Analysis Plan (Permit Attachment F). Any waste not meeting LDRs will be managed through off-site disposal at a facility permitted to accept the material..

1.1.11 Sanitary Waste Generation

Sanitary liquid wastes will be generated in most Facility buildings. This waste form consists primarily of shower water, janitorial wastes, rest room wastes, and liquid wastes generated from cleaning operations. Non-hazardous liquid wastes will be managed as sewage and disposed of off-site.

1.1.12 Non-Hazardous ~~hazardous~~ Refuse Generation

Non-hazardous municipal solid waste (MSW) and construction and demolition (C&D) waste will be generated during building and normal operations at the Facility. These wastes will include such things as cardboard packing containers, garbage, paper refuse, and construction debris. Collection, transportation, and disposal of non-recyclable waste will be contracted to a MSW and C&D waste disposal company. Recyclable wastes, such as office paper, will be sent off-site for usable materials recovery. The disposal of non-routine waste materials will be administratively controlled on a case-by-case basis in accordance with applicable regulatory requirements.

1.2 Site Environment and Climate

The selected site for the Facility is on the western edge of a geological bench known locally as the Caprock. The Caprock is characterized by rocky terrain which runs north and south. Detailed information about the geologic characteristics of the site is contained in Section 3.~~0.~~

The site is approximately 4,150 feet above sea level. Climatic conditions of the area are typical of semi-arid regions and are characterized by dry, warm winters with minimal snow cover and hot, somewhat moister~~more moist~~ summers. The frost-free season averages from 190 to 215 days per year. The mean annual soil temperature ranges from 59 to 65 degrees Fahrenheit (°F). The average annual precipitation rate for Roswell for a 118-year record of data~~ranges~~ from 1894~~10~~ to 2011 is 11.6~~13~~ inches per year. Winter precipitation usually consists of occasional snowfall from November through April. Snowfall typically melts within a short period of time. Most precipitation (approximately 80 percent of the annual total) occurs between June and September.

Normally, two-thirds of the summer days reach temperatures in excess of 90°F, with maximum temperatures commonly 100°F or higher. Night temperatures during the winter months commonly fall below freezing, occasionally reaching below 0°F. Moderate temperatures are typical at the Facility throughout the year, with annual ~~The~~ average high and low temperatures of 75°F and 45°F, respectively.~~annual temperature is 62°F.~~

The prevailing wind is from the south. Winds of up to 40 miles per hour are common during the spring and in association with summer thunderstorms.

Area vegetation consists primarily of Tobosa, Buffalo Grass, Vine-Mesquite, Mesquite, Cactus, Sand Dropseed, Little Bluestem, Sand Bluestem, Sandbur, Three-Awn, Shinnery Oak, Yucca, and Sand Sagebrush. According to the New Mexico Forestry and Resources Conservation Division of the State Department of Energy, Minerals, and Natural Resources, there are no rare or endangered plant species located in either Section 17 or 18.

According to the Bureau of Land Management (BLM) - Roswell Resource Area, there are 54 bird species, 33 species of mammals, and 36 species of reptiles and amphibians in what is designated as the Caprock Wildlife Habitat Area. The Facility location is within that wildlife habitat designation.

Pursuant to the United States Endangered Species Act, there are 35 listed and sensitive~~One bird~~ species in Chaves County and 17 species of concern, which are identified for planning purposes only. As of February

28, 1996, the ferruginous hawk (*Buteo regalis*)~~),~~ is no longer listed~~classified~~ as a ~~"Category 2"~~ candidate species but does remain a species of management concern.

~~for listing as threatened or endangered by the United States Fish and Wildlife Service of the U.S. Department of Interior. Currently, it is not listed. No other documented species in the area of the proposed Facility site are federally protected or candidates for federal protection.~~

The sand dune lizard (formerly the sand dune sagebrush lizard) (*Sceloporus graciosus arenicolous*) and the lesser prairie chicken are ~~is~~ currently listed as candidate species. In 2008, the U.S. BLM adopted a Special Status Resource Management Plan for both~~a threatened species by the State of New Mexico. Population and habitat studies are ongoing for use by the state in determining whether to give~~ the sand dune lizard and the lesser prairie chicken~~species protected status. The sand dune sagebrush lizard is not classified for federal protection~~.

GMI will continue to monitor the existence of threatened or endangered species in the area. Should any threatened or endangered species be identified within the Facility area, GMI~~GMT~~ will take measures to ensure that these species are protected. GMI will implement protective measures for the wildlife population in the area, including~~. These measures include~~ the use of restrictive fencing around the operational portions of the Facility ~~and the use of protective netting over the evaporation pond~~.

1.3 Location Information

A topographic map of the site has been developed from a 1997 aerial photograph and U.S. Geological Survey (USGS) 7.5 minute series map (Mescalero Point, New Mexico, 1973) and is presented in ~~Volume III,~~ Drawing 3 (Permit Attachment L1). ~~.~~ This drawing illustrates Facility boundaries, access roads, access control locations, internal roads, and site fences. The Facility layout is presented as Drawing 4 (Permit Attachment L1) of this Permit Application~~in Volume III of this application~~.

The site is located in eastern Chaves County, in an area that has historically been utilized primarily as range land for livestock grazing and for limited oil and gas activities. The residence nearest the site is owned by Marley Ranches, Ltd. and is located approximately 2.9 miles to the east-southeast. Land ownership for a 4~~-~~-mile radius around the site is shown in Figure 1-1. ~~2 at the end of this section.~~ All of the residences within a 10-~~ten-~~mile radius of the site are listed in Figure 1-3.

The site will encompass 480 acres and will be enclosed by a 3-strand barbwire fence. Gates to the same height as the perimeter fence will be constructed. The area will be secured and monitored so that only authorized personnel or personnel being accompanied and supervised by authorized personnel are allowed on-site.~~-~~ Employees responsible for site security will be present at all times to prevent unauthorized entry and to report unusual events and/or emergencies. Site security personnel will be responsible for conducting regular inspections and routine maintenance of the perimeter area (see Section 5~~.0~~).

Land use plans and/or zoning maps have not been developed for Chaves County. All areas within the county, except those within municipal boundaries, are designated as Zone A (agricultural). The eastern half of the county is further designated as Area 1 and the western half as Area 2. Area 1 and Area 2 are zoning Land Use Areas, whose boundaries have been determined by a joint-powers agreement between the Board of Chaves County Commissioners and the Roswell City Council. Existing uses in Area 1 are livestock grazing, mineral exploration and production, wildlife habitat, and extensive recreation. Single-family dwellings require permits in Area 1. Area 2 covers an important part of the recharge area of the Roswell Artesian Basin. Existing uses in Area 2 are livestock grazing, mineral exploration and production, extensive recreation, wildlife habitat, and flood control structures and floodways. Any new parcels created in the area must be 5 ~~five~~ acres or larger.

Approximately 2 miles northwest of the Facility location, the Mescalero Sands recreational "complex" has been established for use by off-road vehicles. The South Dunes area of Mescalero Sands has been designated as an "Outstanding Natural Area" (ONA) and is utilized by the public primarily for wildlife observation activities.

The land in the area of the Facility is used predominantly for grazing cattle and to a much lesser extent for oil and gas exploration activities. The nearest production well is 3 miles from the site. Additional information about the drilling activities in the area is contained in Section 3~~.0~~ of this document.

All abandoned wells in the area have been plugged in accordance with New Mexico Oil Conservation Division (OCD) regulations. These regulations require the use of mud-laden fluids, cement, and plugs in the well "in a way to confine crude petroleum oil, natural gas, or water in the strata in which it is found and to prevent it from escaping into other strata." Surface reclamation of abandoned wells prevents surface water from entering and contaminating subsurface strata.

1.3.1 Flood Plain Information

Sections 17 and 18, T11S, R31E are included on Federal Insurance Rate Map 35005C1775D. ~~#350125.~~ This map has not been printed because ~~the National Flood Insurance Program has determined that~~ this is a non-participating community, a status that generally indicates that the area is an area of minimal flood hazard. ~~s.~~ This information was originally provided to GMI by the Director of Planning and Environmental Services, Chaves County, New Mexico, and was confirmed with the National Flood Insurance Program at their website, www.msc.fema.gov on October 11, 2011.

To confirm that the Facility is an area of minimal flood hazard, stormwater run~~Additionally, rainfall run-~~off calculations were performed to determine whether the site falls within the flood plain of a 100-year, 24-hour storm event. Based on information in the Precipitation Frequency Atlas published by the National Oceanic and Atmospheric Association, a rainfall amount of 5.75 ~~3~~ inches was used in the calculations. The nearest drainage to the site was determined from the USGS 7 5-minute series topographic map of the Mescalero Point Quadrangle (see Section 3.0). This drainage flows westerly from Mescalero Point, which is approximately 0.75 ~~three-quarters of a~~ mile south of the site.

Stormwater run-off flows were calculated for the area using the Rational Method (see the Surface Water Control Plan in Attachment CC ~~Appendix F-3 in Volume VI of this application).~~ A run-off coefficient of 0.3 was used in the calculations. It was determined that the maximum flow could be accommodated in a triangular channel with~~section occupying~~ a width of 78 ~~76~~ feet at a water depth of 1.2 feet. ~~.~~ It may be concluded from this calculation~~comparison~~ that a flood plain does not exist for the drainage and that there are no flood plains within 1 mile of the site. It may be further concluded that flood plain regulations are not applicable to this Facility.

1.3.2 Fire Control and Emergency Response

Fire control and emergency response will be the responsibility of the Emergency Coordinator (EC) who is on call or duty at the time of an incident. Each EC will be trained to handle emergencies and to notify appropriate authorities (see Section 7.0). Each EC will have the authority to commit resources necessary to implement the site Contingency Plan described in Section 6~~.0.~~

In addition to on-site emergency response capabilities, cooperative agreements will be established with local emergency response organizations in surrounding communities to respond to and assist in any emergencies that arise at the Facility (see Section 6~~.0~~).

1.4 Traffic Patterns

The flow of traffic within the Facility boundary will not be significant except during shift changes. The number of employee vehicles will not be substantial enough to require elaborate signage or other traffic control systems. All personnel will be given written instructions that will caution them to be alert to other vehicles and pedestrians. Each vehicle must enter and exit through the security gate at the northeast comer of the perimeter of the Facility boundary. ~~The arrival and departure of trucks transporting waste will not be scheduled during peak traffic times.~~ Drawing 26, Sheet 2 in Permit Attachment L1~~Volume III~~ illustrates traffic flow patterns for the operations and waste processing area, traffic control signage and truck staging areas.

1.4.1 Traffic Control

Access to the Facility will be gained through the security gate at the northeast comer of the perimeter fence (see Drawing 26, Sheet 2 in Permit Attachment L1). ~~Volume III).~~ Authorization to enter the Facility will be verified for each vehicle. Visitors will be required to sign in at the guard shack and will be escorted while on-site unless other arrangements are made with the Facility. Only authorized persons will be allowed past the security gate guard shack.

1.4.2 On-Site Transportation of Wastes

All trucks transporting wastes will be stopped at the security gate prior to entering the Facility. Security personnel will record the license number, transportation company, arrival time, and other pertinent information with regard to the vehicle and driver.

After being granted access to the Facility through the security gate entrance, waste transport vehicles will be directed to the untarping/sampling area. Here, a sample of the waste will be collected for fingerprint testing, along with the shipment manifest and other pertinent documentation. While the sample is being analyzed at the chemical laboratory, the truck will be directed to the weigh scales and finally to the truck staging area. The truck will remain at the staging area until laboratory analysis verifies that the waste meets acceptance criteria and the waste characteristics are consistent with profile information from the shipment manifest.

Following determination that waste acceptance criteria have been met, the truck will be directed ~~either~~ to the landfill, ~~in cases~~ where the waste will be placed in the landfill ~~wastes can be directly landfilled (~~for permanent disposal~~instance, when all LDR treatment standards are met), or to another station for staging/storage or further processing~~.

1.4.3 Routes

Transporters must use U.S. Highway 380 to reach the Facility. U.S. Highway 380 runs east and west between Roswell and Tatum, New Mexico as shown in Figure 1-2.

1.5 Remainder of Permit Renewal Application

The remainder of the Permit Renewal Application discusses ~~Treatment, storage, and~~ disposal; groundwater protection; Facility design; waste analysis; procedures to prevent hazards; contingency plan; personnel training; closure; waste minimization; corrective action; and organic air emissions. ~~are discussed in the remainder of the permit application.~~ A list of references used for the preparation of this application is also provided.

2. ~~Treatment, Storage, and~~ Disposal Process

This section provides a general description of the ~~storage, treatment, and~~ disposal process~~processes and units~~ for the Facility. Detailed~~For each of the operational units described in this section, detailed~~ design drawings and associated engineering reports are contained in Permit Attachments L, Engineering Report, and L1, Engineering Drawings. ~~Volume III of this application.~~ The drawings and specifications present final designs for the RCRA permitted landfill. ~~facilities.~~ Details on the non-RCRA components of the Facility~~facilities~~ will be supplemented during the bidding and construction phase. GMI~~Gandy Marley~~ will supply the additional details on the non-RCRA components of the design to the New Mexico Environment Department (NMED) for review and approval prior to the start of construction.

2.1 Facility Overview

An overview of the Facility layout is provided in Permit Attachment L1~~Volume III~~, Drawing 4, and identifies areas to be ~~of this application. This drawing shows the units~~ used for waste acceptance, waste receiving, and~~the five general categories of~~ waste disposal activities at the Facility. ~~These five waste disposal operations are: (1) waste acceptance, (2) waste receiving, (3) waste staging/storage (4) waste treatment, and (5) waste disposal.~~ Each activity is described below.

2.1.1 Facility Waste Acceptance

Prior to initiation of a shipment of waste to the Facility, the generator of the waste must provide a full characterization of its waste and receive approval from the Facility to ship the waste. This process is more completely described in the Waste Analysis Plan presented in Section 4. ~~0.~~ The Facility will use the waste characterization data to perform the following activities:

- ensure that the waste can be accepted in accordance with the RCRA permit;
- verify that the Facility has the capability to properly ~~treat and/or~~ dispose of the waste;
- identify any safety precautions that must be taken to properly manage the waste;
- use the physical characteristics and chemical composition of the waste to determine whether ~~the most effective treatment and disposal methods for~~ the waste may be accepted for disposal~~;~~
- ~~select parameters to be tested to determine the formula for stabilization of appropriate wastes~~;
- select parameters to be tested upon arrival at the Facility to verify that the waste accepted is the waste characterized; and~~;~~
- develop a cost estimate for ~~treatment and~~ disposal.

2.1.2 Waste Receiving

Once approved for acceptance at the Facility, the waste can be shipped. The Facility can be accessed only from New Mexico State Highway 380, as shown in Figure 1-2. When a shipment arrives at the Facility, a Facility representative will verify that the shipment was scheduled. If unscheduled shipments arrive at the Facility, the Facility manager will be consulted to determine if the appropriate paperwork has been received and the shipment can be accepted.

The shipment and shipping papers will be inspected to ensure that the correct inventory has been received, that the hazardous waste manifest is properly completed, and that an LDR certification is attached. Any discrepancies will be resolved prior to acceptance of the shipment. If discrepancies cannot be resolved, the shipment will be rejected. Representative samples of the waste will be taken and fingerprint testing will be conducted. Fingerprint testing is described in Section 4.5 of the Waste Analysis Plan. If the fingerprint test results are inconsistent with the generator's information, several actions can be taken (see Section 4.5). Waste will be received~~processed~~ only if fingerprint tests are consistent with information provided by the waste generator. Containers and drums will be inspected for visible cracks, holes or gaps.

~~2.1.3 Waste Staging/Storage~~

~~Containerized wastes will be moved to the drum handling unit or the roll-off storage area. The objectives of these container storage areas are to provide safe storage of waste prior to its introduction into the treatment or disposal system; to ensure that adequate accumulation space is available during intervals when the treatment or disposal system is temporarily unavailable; and to facilitate repackaging as necessary.~~

~~Solid waste will be transferred directly to the landfill for disposal if all applicable LDR requirements are met and, in the case of containerized material, if the container is at least 90 percent full.~~

~~Restricted waste at the Facility will be stored solely for the purpose of accumulating sufficient quantities to facilitate proper treatment, or disposal. Procedures will be in place at the Facility so that only that waste will be accepted that either (1) meets LDR treatment standards; or (2) is amenable to treatment using existing and available treatment capabilities at the Facility, such that restricted wastes will not be stored for longer than one year.~~

~~2.1.4 Waste Treatment~~

~~There are two treatment processes: stabilization and evaporation. Low concentration wastewater from off site generators and leachate from the landfill that meet LDR standards will be placed in the evaporation pond. Pond sludge, contaminated leachate from the landfill that does not meet LDR standards, and various wastes from generators will be treated in the stabilization process. Stabilized waste that meets LDR treatment standards and other operational criteria will be placed in the landfill.~~

~~Wastes that carry more than one characteristic or listed waste code must be treated to the most stringent treatment requirements for each hazardous waste constituent of concern. When wastes with different treatment standards are combined solely for treatment, the most stringent treatments standard specified will be met.~~

2.1.5 Waste Disposal

Wastes ~~In general, wastes~~ arriving at the Facility that meet LDRs~~LDR requirements~~ and contain no free liquids will be directly landfilled. When wastes are unable to be directly landfilled, such as during landfill equipment maintenance periods or extreme weather conditions, the waste will not be unloaded and will be temporarily stored in the truck staging area~~waste storage area~~.

~~Wastes stabilized at the Facility that meet LDR requirements will be transferred to the landfill from the treatment or storage areas as necessary.~~

An access ramp will be constructed from the top of the landfill to the bottom of the active portion of the landfill (see Drawings 8 and 14 in Permit Attachment L1). ~~Volume III).~~ Bulk hazardous wastes will be placed and compacted on the bottom of the landfill in 5-~~foot~~ to 10-foot layers or lifts. Containers (drums) will be placed upright in the cell using a forklift or barrel snatcher. Sufficient space will be left around the containers for the placement and compaction of compatible bulk hazardous wastes or soil. Materials in roll-off containers will be dumped with the bedliners at preselected locations. Containers or bulk waste can be placed adjacent to the roll-off material. A layer of cover soil sufficient to prevent wind dispersal of waste will be placed over the bulk hazardous wastes and containers following emplacement or before the end of each working day (see Section 2.5.1.7). The soil cover will be deposited on top of the waste placement face and then spread and compacted with a landfill compactor or tracked bulldozer. The minimum cover thickness will be 0.5 foot~~feet~~.

The landfill will be laid out in an engineered grid system consisting of blocks that are 50 feet wide, 50 feet in length, and 10 feet in depth. Grid stakes will be established by survey. A two-dimensional grid system along with lift elevation designation will provide a three-dimensional record of the location of all wastes placed in the landfill. Records of the location, date of placement, waste source, manifest, and profile numbers will be maintained at the Facility.

~~2.2 Container Storage Areas~~

~~The site will employ two container storage areas: a drum handling unit and roll-off storage area. Descriptions and conditions specific to these areas are presented in Section 2.2.1 and Section 2.2.2 for the drum handling unit and roll-off storage area, respectively. Sections 2.2.3 through 2.2.14 describe conditions common to both units. Wastes which are either suspected or known to contain free liquids will be managed accordingly. A description of how these wastes will be managed is included in the following sections. More detailed information on the management of wastes containing free liquids can also be found in the Waste Analysis Plan presented in Section 4.0. Both the drum handling unit and the roll-off storage area will be constructed to meet the minimum requirements identified in the detailed design and associated engineering report (Volume III).~~

~~2.2.1 Drum Handling Unit~~

~~Drawings 37, 38, and 39 presented in Volume III of this application show the detailed design for the drum handling unit. The open sided unit will be roofed to prevent run-on from precipitation. The roof of the building is designed to extend over the unloading dock area to ensure that precipitation does not enter the building or impact unloading operations.~~

~~The building will be equipped with fire extinguishers, a sprinkler system, telephones, fire alarm system, public address system, eye washes, safety showers, spill control equipment, and first aid equipment. An office for storing record-keeping information and for administrative functions within the drum handling unit will be located in the building.~~

~~The base of the drum handling unit will consist of a compacted subgrade of non-swelling soils placed at a moisture content and density capable of supporting projected loads comprised of the building's structural components, stored waste, and mobile equipment traffic inside the building. A 60-mil geomembrane liner, cushion geotextile, and 1 foot of foundation sand will overlie the subgrade. The steel reinforced concrete floor will be constructed on the prepared subgrade. Design details and the associated specifications are presented in Volumes III and IV of this application.~~

~~2.2.1.1 Containment and Detection of Releases~~

~~Wastes stored in the drum handling unit will be placed in individual storage cells segregated by waste type and compatibility. Individual storage cells are defined as groupings of drums as shown on Drawing 37. The specific areas to be used for storage will depend on the volume and type of waste being processed at the site. Labels will be added to each section of the drum storage unit to identify the type of waste to be stored. The labels may change depending on the volume and type of waste being received. A chemically resistant epoxy coating (or an equivalent) will be applied to the concrete floor. Chemical resistant water stops and caulking~~

~~will be installed in all joints. The floor is designed and will be maintained to be free of cracks and gaps and will be inspected regularly to determine if any cracks or gaps have developed or if the epoxy coating has been damaged. Should cracks or gaps develop in the concrete, repairs will be scheduled immediately. The nature of the repair will depend on the extent of the cracking and could range from the application of chemically resistant epoxy fillers or coatings to the replacement of portions of the concrete floor.~~

~~Each storage cell will have a concrete floor that slopes toward a trench covered by steel grating. Each trench will lead to a separate secondary containment sump for that cell where any spilled liquids will be accumulated. The trench and sump system design incorporates a double high-density polyethylene (HDPE) geomembrane liner in the leak detection and removal system (LDRS) and leachate collection removal system (LCRS). Both the LDRS and LCRS sumps incorporate drainage material surrounding a perforated pipe. The LCRS sump has been sized to contain at least 10 percent of the volume of the containers stored in the cell. The LCRS and LDRS sumps in the drum handling unit will be checked regularly for the presence of liquid. If liquids are present, samples will be obtained and chemically analyzed to determine the nature and concentration of any waste constituents. An appropriate treatment or disposal method will be selected in accordance with the Waste Analysis Plan presented in Section 4.0. Pumpable quantities of liquids will be removed with a vacuum truck. Leaks and spills will be removed from the sump in as timely a manner as possible. Because the building is covered, precipitation and the consequent accumulation of liquid are not considered in the design or operation of the drum handling unit.~~

~~The cells that will contain PCB-contaminated waste will be surrounded by a 6-inch concrete berm, in addition to the floor trench and sump.~~

~~2.2.1.2 Dimensions~~

~~The drum handling unit is 418 feet long by 118 feet wide (see Drawing 37 in Volume III). The building floor and loading dock will be 5 feet above ground level to facilitate the loading and unloading of trucks and prevent run-on from precipitation. An adjustable hydraulic loading platform will align the truck beds with the building floor to allow for the smooth transition of forklifts in and out of the trucks from the floor. An overhang on the front of the building will prevent precipitation from getting on the drums and into the front area.~~

~~2.2.1.3 Storage Limits~~

~~The drum handling unit will contain seven separate containment areas, each 52 by 63 feet as shown on Drawings 37 and 38 in Volume III. Each of the seven areas will have its own floor drain and containment sump, allowing incompatible wastes to be placed in separate cells. Two of the cells will be designed to accommodate only PCB wastes. Aprons on the ends of the cells that store PCB- contaminated waste will be tapered to allow for forklift access over the concrete berms. The total capacity of the drum handling unit will be 1,120 drums (160 drums per containment cell). The drain and sump for each drum cell is dimensioned such that the storage capacity will be a minimum of 118 cubic feet, 10% of the capacity of the drums in each cell. A typical drum layout is shown in Drawing 37 of Volume III.~~

~~2.2.2 Roll-Off Storage Area~~

~~Roll-off containers will be stored on an open pad, as shown in Drawings 41 through 43 presented in Volume III. This unit will not be covered or enclosed by walls. The pad will be divided into two sections. One section will hold tarped, U.S. Department of Transportation (DOT) approved, lined, roll-off containers with non-stabilized waste awaiting treatment at the stabilization unit. The other section of the pad is intended as a staging area for roll-off containers containing stabilized waste awaiting Toxicity Characteristic Leaching Procedure (TCLP) test results and landfill-disposal approval.~~

~~Waste will be characterized and screened as part of the waste acceptance procedures. This procedure will prevent incompatible waste from being stored in the same roll-off containers that are delivered to the site. After the materials have been stabilized, material from a single stabilization batch will not be mixed with material from a different batch, therefore eliminating the potential for incompatible waste to be stored in the same roll-off bin. The individual steel roll-off bins will be stored in the HDPElined roll-off storage unit and physically separated from each other by 4 feet side to side and 2.5 feet end to end. In addition, containers will not be placed within the limits of the roll-off storage area inundated by the rainfall that accumulates for the 25 year, 24 hour storm (see Appendix E-38 in Volume VI) or within 4 feet of the edge of the berm.~~

~~This area is restricted to wastes that do not contain free liquids. Prior to exiting the stabilization unit, stabilized waste loads will be tested for free liquids using the paint filter test. Stabilized waste loads that do not pass the paint filter test will be reprocessed using a modified treatment mixture and retested before being allowed to exit the stabilization unit. Roll-off containers which hold stabilized wastes that pass the paint filter test will be covered before exiting the stabilization unit and will remain covered while they are staged in the roll-off storage area.~~

~~Roll-off containers will be inspected for free liquids prior to acceptance at the unit. Containers which are received for disposal, but are found to contain free liquids upon inspection will be managed in accordance with stabilization procedures described in Section 2.4. If the waste generator will not allow the Facility to prioritize handling of the load to eliminate free liquid, the load will not be admitted to the Facility. Otherwise, free liquids will be removed with a vacuum truck, characterized, and managed in accordance with stabilization procedures described in Section 2.4. The volume of free liquids in the roll-off containers is expected to be minimal. Following the removal of free liquids, the waste (in the roll-off container) will either be managed through the stabilization process or landfilled, whichever is appropriate. Section 2.2.12 describes the methods that will be used to separate incompatible wastes. The area will be equipped with fire extinguishers, a telephone, alarm systems, spill control, and first aid kits.~~

~~Waste in the roll-off containers that meet the requirements for free liquids (or lack thereof) will be placed in the landfill. Other wastes in roll-off containers that do not pass the appropriate acceptance testing (i.e. paint filler test) will be transferred to the stabilization area for treatment. Upon completion of the stabilization process, the waste will once again be tested to ensure that it meets the landfill criteria.~~

~~2.2.2.1 Containment and Detection of Releases~~

~~The roll-off storage area is designed to store non-stabilized and stabilized waste. Secondary containment of the roll-off storage area is shown in Drawing 41 through 43 in Volume III.~~

~~The floor and slopes of the lined cell will consist of, from bottom to top, a prepared subgrade; a geomembrane liner that will be composed of a component material compatible with the anticipated waste; a geocomposite drainage layer; a structural-fill; and a roadbase surface. A sump will be incorporated into the drainage layer. To accommodate this installation, the floor will be sloped to a sump located in the corner of the storage area. Any liquids would collect in the containment sump, which is designed to have the pumping capacity to remove liquids resulting from the 25-year, 24-hour storm event.~~

~~The roll-off containment area is surrounded by a berm with a minimum height of 2.0 feet (Drawing 41). This berm will divert run-on surface water around the perimeter of the truck roll-off area. Culverts will be placed under each of the access ramps to allow surface water flow to the west towards the run-off detention basin.~~

~~The containment sump is designed to collect precipitation falling inside the bermed area of the truck roll-off storage area. During heavy rain events, a portion of the water will drain along the roadbase surface to the sump area located in the corner of the cell. The remaining volume will percolate through the roadbase and structural fill and will be collected in the geocomposite drainage layer. Water collecting on the surface of the sump or in the sump drainage gravel will be removed by vacuum truck. Samples of sump liquids will be~~

~~chemically analyzed to determine the presence and concentration of any waste constituent. After this determination, an appropriate method of treatment or disposal will be selected in accordance with the criteria prescribed in the Waste Acceptance Plan (see Section 4.0). Leaks, spills, and precipitation will be removed from the sump as soon as possible. The entire roll-off storage area will be surrounded by a berm which ranges in height from 4 feet to 8 feet.~~

~~The purpose of the drainage system below the storage area surface is to allow rainfall to be collected and removed from the contained area. This will reduce ponding and mud formation on the storage area surface and will allow the surface to support truck traffic almost immediately following a rainstorm. The presence of free liquids inside the roll-off container/bed liner system can occur if liquids are inadvertently loaded in the container, rainfall enters a hole in the roll-off container cover during transportation, or liquids separate from solids during transport. These free liquids will be identified when the roll-off container is visually inspected at the untarping station.~~

~~It is possible, but unlikely, that free liquids could be generated after inspection in the staged roll-off containers. For example, if a faulty roll-off container cover allows rainfall to enter the container and both the plastic and containment fail, a leak can occur on the surface of the roll-off storage area. A leak will appear as a drop or a stain on the storage area surface. In the case of a leak, the liquids in the roll-off container will be handled as described in Section 2.4 and the stained soil will be excavated and handled as a potential hazardous waste.~~

~~2.2.2.2 Dimensions~~

~~The entire roll-off storage area (including both halves) will measure approximately 410 feet by 330 feet from the outer edge of the berms. The berm height surrounding the area will range from 4 feet to 8 feet. The storage areas will be accessed by 35-foot-wide compacted soil ramps at the center of each storage area. The halves will measure approximately 180 feet by 310 feet inside the berms~~

~~2.2.2.3 Storage Limits~~

~~The permitted capacity of the incoming waste cell will be 66 roll-off containers. The stabilized waste cell also will have a capacity of 66 roll-off containers, for a total storage capacity of 132 containers.~~

~~The actual number of roll-off containers placed in the roll-off storage area may vary slightly depending on placement arrangements as determined by operations.~~

~~2.2.3 Warning Signs~~

~~Signs containing the legend "Danger - Unauthorized Personnel Keep Out" will be conspicuously posted on the outside and at entrances to the storage areas. In the areas where ignitable or reactive wastes will be stored, "No Smoking" signs will be posted. All signs will be in both English and Spanish.~~

~~2.2.4 Proper Waste Storage~~

~~Compatibility codes established during the initial receipt of waste will be assigned to ensure the proper storage of containers within the Facility (see Section 4.0). Containers which are discovered upon receipt to have free liquids will not be accepted or will be handled at the stabilization unit as a priority load.~~

~~2.2.5 Ignitable/Reactive Wastes~~

~~Ignitable or reactive wastes will be protected from any sources of ignition or reaction. All containers storing ignitable or reactive waste will be stored at least 50 feet inside the fence around the Facility shown in~~

~~Volume III, Drawing 4. "No Smoking" rules will be enforced and open flames prohibited where ignitable or reactive waste is being handled.~~

~~2.2.6 Precautions to Prevent Reactions~~

~~Precautions to prevent reactions are described in Section 5.0, Procedures to Prevent Hazards.~~

~~2.2.7 Inspection Methods~~

~~As required in 40 CFR 164.174, all container storage areas will be visually inspected at least once a week for leaking containers and deterioration of the containers and containment area. Inspectors will enter the area and visually inspect the area and the containers. All inspection information will be recorded, and any problems noted during the inspection will be resolved in a timely manner (see Section 5.0). Workers will be instructed and trained on the procedures for identifying and reporting any signs of leaks or deterioration that appear between the weekly inspections. Any identified leaks will be resolved as described in Section 2.2.10. Containers with more than 500 ppmw volatile organic compounds will be inspected at least once a month for cracks, holes or gaps in the container, cover or closure devices. Defects detected will be repaired according to CFR 264.1086 (d)(4)(iii).~~

~~2.2.8 Types of Containers~~

~~Hazardous wastes will be stored in 10-gallon, 35-gallon, or 55-gallon drums, in 40 cubic yard or similar roll-off containers, or in other DOT approved containers. Overpack drums will be used as necessary.~~

~~2.2.9 Labels~~

~~All containers of hazardous waste in storage will be labeled with a hazardous waste label identifying the contents of the container. The label will also be clearly marked to indicate the date of accumulation or the date of receipt. The label will not be obstructed from view during storage.~~

~~2.2.10 Condition of Containers~~

~~All containers of hazardous waste will be managed by the following conditions:~~

- ~~containers will be maintained in good condition. If a container is not in good condition (e.g. severe rust, apparent structural defects, or leaks), the hazardous waste will either be transferred to a container that is in good condition or be managed in some other way, such as direct placement in the landfill or stabilization unit;~~
- ~~containers of hazardous waste stored at the drum handling unit will be closed during storage, except when it is necessary to add or remove waste;~~
- ~~the container storage area will be inspected prior to placement of containers to ensure that no conditions exist which could damage the waste containers; and,~~
- ~~all containers will be handled in a manner, and with equipment compatible to their design and construction, to minimize the potential for damage to the container.~~

~~The roll-off units to be placed in the roll-off area will be covered with a tarp. The covers will not be removed until the material is placed in the stabilization unit. Roll-off units used to store stabilized material will also be~~

~~placed on the roll-off unit with covers. It is not expected that the tarps will be removed during storage except for re-sampling of the material, if required.~~

~~2.2.11 Compatibility with the Container~~

~~All hazardous waste will be compatible with the container or liner as defined by the following conditions:~~

- ~~all containers used to store hazardous waste will be made of or lined with, material that will not react with, or otherwise be incompatible with, the waste being stored so that the ability of the container to hold waste is not impaired; and,~~

- ~~hazardous waste will not be placed in an unwashed container that has previously held incompatible waste or material.~~

~~2.2.12 Compatibility with Other Waste~~

~~Incompatible liquid hazardous wastes stored within the units will be separated by a berm, catch pan, or other physical barrier which adequately prevents commingling of incompatible wastes. Incompatible solid hazardous wastes stored within the container storage areas will be separated by a distance of at least 10 feet unless separated by a berm, catch pan, or other physical barrier. Incompatible wastes will not be placed in the same container.~~

~~2.2.13 Aisle Space~~

~~Aisle spacing will be maintained to assure inspectability and accessibility for operational and emergency equipment to containers. The spacing will allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in the event of an emergency, as required by 40 CFR 264.35.~~

~~A minimum 2.5 foot aisle space will be maintained in the drum handling unit between rows of containers side by side. Containers will be stored in single rows only if they are against a wall or other barrier that prohibits inspection from all sides. Roll-off containers will be spaced 4 feet apart side to side and 4 feet from the edge of the berm.~~

~~2.2.14 Record Keeping~~

~~The results of all container storage waste analyses, trial tests, waste compatibility analyses, and ignitable and reactive waste handling documentation pertaining to compliance will be maintained in the Facility operating record. Inspection records will be maintained in the inspection log for each unit.~~

~~2.3 Storage In Tanks~~

~~The liquid waste receiving and storage unit is shown in Volume III, Drawing 40. It will house four aboveground tanks for the storage of regulated bulk liquid hazardous wastes prior to stabilization. The unit will not be covered by a roof or enclosed by walls.~~

~~Each tank will have a capacity of approximately 9,000 gallons. The tanks will be double-walled and constructed of high-density polyethylene materials that are compatible with the wastes to be placed in the tanks. Compatibility of the tanks with different types of waste has been provided by the manufacturer and is presented in Volume VI, Appendix E-34. Facility procedures for waste acceptance and the associated criteria~~

~~in the waste acceptance plan will ensure that wastes incompatible with the tank material are not placed in the storage tanks. The tanks will be placed on an imperviously coated reinforced concrete pad. All piping systems within the facility will comply with API Publication 1615 (November 1979) or ANSI Standard B31.2 and ANSI Standard B31.4. Waste will be transferred from the tanks to the stabilization unit by pumping into transfer tankers.~~

~~Each of the storage tanks will be clearly marked with a description of the contents and records will be kept documenting the quantity of waste received, and the date each period of accumulation begins. This information will be documented in the Facility operating record.~~

~~2.3.1 Containment and Detection of Releases~~

~~The outer tank of the double walled poly tank system will provide secondary containment of sufficient strength and thickness to prevent failure due to pressure gradients, physical contact with waste, climatic conditions, or the stress of daily operations. The tank system will be placed on a concrete base capable of supporting the system, providing resistance to pressure gradients below the system, and preventing failure due to settlement, compression, or uplift. The secondary tank is designed to contain 100 percent of the tank contents.~~

~~Each tank will be surrounded by a concrete area which will be sloped to provide drainage to a sump. The floor and berm of the concrete area will be maintained in good condition and free of cracks and gaps, as described in Section 2.2.1.1, in order to protect the effectiveness of the containment.~~

~~All ancillary equipment will be provided with secondary containment except aboveground piping (exclusive of flanges, joints, valves, and other connections), welded flanges, welded joints, and welded connections that are visually inspected for leaks each operating day. Secondary containment will be provided by the concrete pad.~~

~~Daily visual inspection will be used to detect releases to the secondary containment. Response to releases from tank systems will be initiated immediately upon discovery, and regulations specified in 20 NMAC 4.1 Subpart V, 40 CFR 264.196(d) or 40 CFR 264.56 will be followed as appropriate (see Section 5.0), including notification of the Hazardous and Radioactive Materials Bureau (HRMB) of the New Mexico Environment Department (NMED) and National Response Center (NRC). The secondary containment tank will be emptied by pumping fluids from the drainage port located near the base of the tank or by the use of a vacuum truck.~~

~~2.3.2 Management of Incompatible Wastes~~

~~Only the waste types approved for a tank system will be placed in the tank. No new waste types will be placed into an existing tank system unless (1) the compatibility of the new waste type with the prior contents of the tank is determined by testing or documentation; or (2) the existing tank system is cleaned or flushed to the extent necessary to ensure compatibility with the new waste type.~~

~~2.3.3 Spill and Overfill Prevention~~

~~Appropriate controls and practices will be used to prevent spills from and overfills of the tank or containment systems.~~

~~Spill prevention is primarily maintained by hard-plumbed piping. When transfer lines are not hard plumbed or when open-ended lines are used, one or more of the following spill prevention controls or an equivalent device will be used:~~

- ~~Dry Disconnect Couplings - a pipe connection designed to cap the flow of liquids as soon as the fitting is disconnected;~~
- ~~Direct Monitoring - the transfer is monitored continuously to prevent spills; and/or,~~
- ~~Overfill Prevention - one or more of the following spill prevention controls or an equivalent device will be used:~~
  - ~~Automatic Feed Cutoff - a device used to stop flow into a tank when it is filled to operating capacity or another predetermined level;~~
  - ~~High-Level Alarm - a device used to detect the level in a tank, sounding an audible alarm or displaying a visual alarm when the operating capacity level or another predetermined level is reached;~~
  - ~~Level Indicator - a device used to visually display the level of material in a tank, if a level indicator is used for overfill prevention, the indicator must be monitored during liquid transfers or checked prior to transfers to ensure that sufficient capacity exists in the receiving tank. Level indicators may include sight gauges, level meters, or graduations placed directly on opaque poly tanks; and/or,~~
  - ~~Bypass - a device or plumbing arrangement used to divert flow from the tank being filled to a second tank of sufficient capacity after the operating or predetermined level has been reached.~~

~~2.3.4 Feed Mechanism, Pressure Controls, and Temperature Controls~~

~~The tanks will be operated at ambient pressure and temperature when storing liquids. One of the following feed mechanisms for tank systems or an equivalent transfer mechanism will be used:~~

- ~~Pump Transfer - liquids will be pumped into or out of the tank through permanent or temporary transfer lines; or,~~
- ~~Gravity Drain - liquids will be allowed to drain by gravity through permanent or temporary transfer lines.~~

~~2.3.5 Management of Ignitable or Reactive Wastes~~

~~Ignitable or reactive wastes will not be placed into any tank system unless the tank system is protected from sources of ignition by measures including, but not limited to, the following. signs prohibiting smoking, open flames or welding; an inert atmosphere blanket; enclosed vents isolated from sources of ignition.~~

~~2.3.6 Inspections~~

~~A visual inspection of tank systems will be conducted each operating day. Each tank system will be visually inspected, including, but not limited to, the tanks and ancillary equipment, monitoring and leak detection systems, and the construction materials and area immediately surrounding the tank system. The results of each inspection will be documented in the daily operating record. Inspections are further described in Section 5.0, Procedures to Prevent Hazards.~~

~~2.3.7 Corrosion Protection~~

~~All liquid hazardous waste materials will be stored in double walled poly tanks. Corrosion protection is not required for double walled poly tanks that do not come into contact with soil or water.~~

~~2.3.8 Tank Assessments~~

~~The tank system proposed has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment has been prepared by the engineer of record and is based on the tank design drawings (see Volume II, Appendix I). After construction of the tank, it's integrity will be assessed by an independent New Mexico registered professional engineer in accordance with 20 NMAC 4.1.500 (incorporating 40 CFR 264.192(a)). The engineering report presented with the tank design drawings in Volume III includes a list of wastes to be excluded from storage in poly tanks due to their excessive corrosive effects.~~

~~2.3.9 Ancillary Equipment~~

~~All ancillary equipment will be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction, according to API Publication 1615 (November 1979) or ANSI Standard B31.2 and ANSI Standard B31.4.~~

~~Hazardous waste will be transferred from the tanks to the tankers through a limited piping system, as shown in Drawing 40 and discussed in Volume III, Section 8.2.2. This piping system will be considered part of the tanks and will be drained and dismantled as part of the tank closure.~~

~~2.3.10 Installation and Tightness Testing~~

~~Proper handling procedures will be developed and followed to prevent damage to the system during installation. A qualified installation inspector will inspect the installed system to ensure adequate construction/installation. Any discrepancies will be resolved before the system is placed in service.~~

~~The tanks and ancillary equipment will be tested for water tightness, and any necessary repairs will be performed prior to the system being placed in service.~~

~~Written statements by those who certify the design and supervise installation will be maintained in the operating record.~~

~~2.3.11 Repair and Certification of Tank Systems~~

~~If a release occurs from the primary tank system, the tank will be removed from service immediately. Wastes in the tank will be removed within 24 hours to the extent necessary to prevent further release and allow inspection and repair of the tank system. All released materials will be removed from the secondary containment as soon as possible and within 24 hours of detection.~~

~~The tank system will be repaired or replaced prior to returning it to service. An independent New Mexico registered professional engineer will certify major repairs. The certification will be submitted to the NMED within seven days after the tank system is returned to service. Major repairs include repair of a ruptured primary containment vessel and replacement of secondary containment.~~

~~2.3.12 Transfer of Liquids from Liquid Waste Storage to the Stabilization Unit and to the Evaporation Pond~~

~~Transfer of liquids from the liquid waste storage tanks to the stabilization unit will be accomplished by tanker trucks approved for liquid waste transfer. Approved tanker trucks, such as vacuum trucks or DOT approved tankers, will be used to transfer liquids from the storage tanks to the evaporation pond. Tanker trucks will be cleaned following a transfer operation to ensure that subsequent transfers do not result in mixing of incompatible or reactive wastes.~~

~~Personnel performing liquid waste transfer operations will comply with all personal protective equipment (PPE) requirements and transfer operation procedures, including spill cleanup. Impervious concrete coatings will be applied to the liquid waste storage tank containment area and the evaporation pond discharge station. Hose and pipe connections will be inside the concrete containment area boundaries.~~

~~2.4 Stabilization~~

~~Drawings 33 through 36 presented in Volume III of this application show the stabilization building floor plan, a typical bin, and vault sections. The stabilization process will use four in-ground double lined stabilization bins, two dry reagent silos, two liquid reagent tanks, and a water tank. Trucks and other vehicles will access the unit via the gravel aprons. Additionally, there will be a control room from which operations will be directed and coordinated.~~

~~Bulk liquids, semi-solids, sludges, and solids that do not meet LDR treatment standards, as well as solids that may contain free liquids, will be treated in the stabilization unit. Dilution of restricted wastes will never be used as a substitute for adequate treatment. If toxic characteristic wastes and listed wastes are amenable to the same type of treatment and aggregation is a part of treatment, the aggregation step does not constitute impermissible dilution.~~

~~As discussed in the Waste Analysis Plan in Section 4.0, wastes will be tested prior to stabilization to determine the appropriate reagent formula. Both dry and liquid reagents may be used in the stabilization process. Waste may be offloaded directly from trucks into the stabilization bins or transferred from the drum handling unit or roll-off storage area. The bins will be covered while dry reagents are being added to control particulate air emissions. The cover will be removed and a backhoe positioned adjacent to the bin will mix the waste and reagents.~~

~~Wastes that are treated on site in the solidification unit will be tested after treatment and before disposal to verify that LDR standards have been met. The stabilized waste will be either transferred to the roll-off area for testing or taken directly to the landfill if testing has been completed. The stabilized waste will be stored temporarily at the roll-off unit while tests are conducted to determine how and if the material can be disposed of in the landfill.~~

~~The backhoe bucket and stabilization bin will be thoroughly cleaned before a load of waste which is not compatible with the waste previously stabilized in that bin is mixed. After the last bin load of a specific stabilization mixture has been loaded out, Facility personnel will use a high-pressure water hose located near the bins to rinse the backhoe bucket and the bin walls. This rinsing will cause residual clods of stabilized waste to fall to the bottom of the bin along with the rinse water. Reagents will then be added to the bin at the same mixture proportions and the remaining waste and rinse water will be stabilized, tested for free liquids, and loaded out before a different waste stabilization mixture is processed in that bin.~~

~~The nominal dimensions of the bins are 25 feet long by 10 feet wide by 10 feet deep, resulting in an approximate volume of 2,500 cubic feet. The volume of waste to be treated in each batch will be variable but~~

~~less than 2,500 cubic feet, depending on the addition of stabilization materials. The overall process volume is based on four bins. However, the actual process design will be dependent on the characteristics of the incoming waste (time to mix each batch) and the volume of stabilization materials required. Assuming that 15 batches per bin are processed per day with 4 bins, a total of 150,000 cubic feet of waste are treated per day. The ends of the bins have been shaped to conform to the reach profile of the backhoe selected for mixing in the stabilization unit. The bins will be contained in a concrete vault, which will also provide support. All mixing bins will be equipped with ventilation and air pollution control systems to remove any air pollutants generated during the mixing process. Potential contaminants may include particulates, low concentration volatile organic compounds, or acid fumes.~~

~~2.4.1 Contaminant and Detection of Releases~~

~~The bins will be of steel construction. Waste which is incompatible with the steel used in construction will not be stabilized in the bins. An assessment of the compatibilities of the bin materials and waste, along with the influence of the process (materials, time, temperature, etc.), is contained in the design specifications and the associated engineering report (Volumes III and IV). The design requirements and limitations will be incorporated into Facility procedures. The waste acceptance plan and associated criteria will ensure that waste which is incompatible with the bin construction material will not be introduced into the bins.~~

~~The bins will be double-walled steel tanks with the space between the walls serving as the LDRS. Shock absorbing coiled wire rope isolators will maintain separation between the bins.~~

~~The tank secondary containment (the outer shell) will be of sufficient volume to contain the contents of the inner tank, because the inner tank will be completely enclosed within the outer shell. The vault will not be used as secondary containment; therefore, it does not have to be lined or meet other requirements for secondary containment. Its purpose will be to isolate the tank system from the surrounding soil, provide a monitoring and collection point if leakage were to occur from both the primary and secondary systems, and means to inspect and repair the secondary containment.~~

~~Releases into the LDRS will be detected within 24 hours by liquid sensing instruments (e.g. a magnehelic gauge) or inspection. Accumulated liquids will be removed within 24 hours of detection. The secondary containment will be emptied by pumping accumulated liquids into a temporary storage tank or into another stabilization bin. Releases to the LDRS could occur if a breach occurred in the primary steel liner. In such a case, the bin will be removed from service and repaired.~~

~~All ancillary equipment will be provided with secondary containment unless it is aboveground piping (exclusive of flanges, joints, valves, and other connections), welded flanges, welded joints, and welded connections that can be visually inspected for leaks each operating day. Secondary containment will be provided by a concrete pad.~~

~~2.4.2 Management of Incompatible Wastes~~

~~New waste will not be placed in the bins unless (1) the compatibility of the new waste type with the prior contents of the bin is determined by testing or process knowledge documented in the operating record or (2) the existing tank system is cleaned or flushed to the extent necessary to ensure compatibility with the new waste type using procedures specified in Section 2.4.~~

~~2.4.3 Spill and Overfill Prevention~~

~~Spill and overfill prevention will be accomplished by continuous direct monitoring of transfer operations. Additionally, the delivery system will be computerized and will be designed to ensure that the mixture used for stabilization prevents overfilling.~~

~~2.4.4 Feed Mechanism, Pressure Controls, and Temperature Controls~~

~~The stabilization bins will be operated at ambient temperature and pressure. Reagents will either be pumped from reagent tanks or manually fed. Liquid hazardous wastes will be pumped from the liquid waste receiving and storage unit or from vacuum trucks or tanker trucks. Other wastes may be manually transferred directly from the incoming waste hauler truck or from the container storage areas.~~

~~2.4.5 Management of Ignitable or Reactive Waste~~

~~The stabilization bins will be protected from sources of ignition through the use of signs and procedures prohibiting smoking, open flames, or welding. If ignitable or reactive wastes are placed in the bins, they will be immediately mixed with sufficient quantities of fly ash and/or cement to render them non-ignitable or non-reactive.~~

~~2.4.6 Inspections~~

~~Each stabilization bin will be visually inspected once each operating day as described in Section 5.0, Procedures to Prevent Hazards. At least once per month, the daily visual inspection will be conducted on empty bins to ensure the integrity of the bin and welds. An annual sonic test will be conducted to ensure that the thickness of the inner tank and outer shell is maintained.~~

~~2.4.7 Corrosion Protection~~

~~Corrosion is not anticipated to be a significant problem for the stabilization bins because of low humidity and the fact that the units are located indoors. No corrosion protection will be provided other than cathodic grounding. The thickness of the inner tank and outer shell compensates for the abrasion and impact forces of the backhoe bucket during waste stabilization mixing. The structural steel design of the bins is presented in the engineering report (Volume III).~~

~~Inspection of the bins is discussed in Sections 2.4.6 and 5.2.6. Visual inspection of the empty bins will be accomplished monthly, and sonic testing will be conducted annually. The system has been designed so that the inner tank and outer shell can be easily removed and replaced, if necessary.~~

~~2.4.8 Tank Assessments~~

~~The stabilization bins proposed have sufficient structural integrity and are acceptable for the storing and treating of hazardous waste. The assessment has been prepared by the engineer of record and is based on the design drawings (see Volume II, Appendix 1). After construction of the tank, its integrity will be assessed by an independent New Mexico registered professional engineer in accordance with 20 NMAC 4.1.500 (incorporating 40 CFR 264.192(a)). The engineering report presented with the tank design drawings in Volume III includes a discussion of wastes to be excluded from treatment in the bins due to their excessive corrosive effects. The engineering report presented with the tank design drawings in Volume III includes a discussion of wastes to be excluded from storage or treatment in steel tanks due to their excessive corrosive effects.~~

~~2.4.9 Ancillary Equipment~~

~~All ancillary equipment will be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction; according to API Publication 1615 (November 1979) or ANSI Standard B31.2 and ANSI Standard B31.4.~~

~~2.4.10 Installation Inspection and Tightness Testing~~

~~Proper handling procedures will be developed and followed to prevent damage to the system during installation. A qualified installation inspector will inspect the installed system to ensure adequate construction/installation. Any discrepancies will be resolved before the system is placed in service. The bins and ancillary equipment will be tested for water tightness, and any necessary repairs will be performed prior to the system being placed in service. Written statements by those who certify the design and supervise installation will be maintained in the operating record.~~

~~2.4.11 Repair and Certification of Tank Systems~~

~~If a release occurs from a primary tank system, the tank will be removed from service and all materials will be removed from the tank or secondary containment within 24 hours or as soon as reasonably possible. The tank system will be repaired prior to return to service. Major repairs will be certified by an independent New Mexico registered professional engineer. The certification will be submitted to the NMED within seven days after the tank system is returned to service.~~

2.5 Landfill

This section describes the design, construction, and operation of the landfill. The ~~As with the Facility units discussed previously in this section, the~~ detailed design for the landfill is contained in Permit Attachments L, Engineering Report, and L1, Engineering Drawings. ~~Volume III of this application.~~ The overall landfill will be constructed in phases, as shown on Drawing 4. The first phase to be considered will be Phase 1A. This permit application refers only to Phase 1A. However, potential expansions of the landfill in future phases have been included in the general layout drawing for completeness. Detailed design drawings (Permit Attachment L1) are only submitted for Phase 1A. The landfill design is presented on Drawings 6 through 27 ~~in Volume III~~, and a list of these drawings is provided on Drawing 1, Sheet 2 ~~(Volume III)~~.

2.5.1 Design of Landfill

The landfill design specifies a double-lined landfill with a leachate collection and removal system (LCRS) above the primary liner and a leak detection and removal system (LDRS) between the primary and secondary liners. The detailed design ~~presented in Volume III~~ specifically describes the relationship between the existing site topography and the landfill subgrade.

2.5.1.1 Nature and Quantity of Waste

As specified in the Waste Analysis Plan in Section 4~~.0~~, the Facility will accept RCRA hazardous waste and PCB waste, excluding selected waste. The excluded waste is listed in the Waste Analysis Plan (Section 4~~.0~~).

The wastes that~~which~~ will be accepted for placement in the landfill include all wastes listed in the Part A Permit Application. ~~of this application (presented in Volume I).~~ All waste to be placed in the landfill must meet LDR treatment standards. Additional details on wastes to be accepted at the Facility can be found in Section 4.1.1, Waste Analysis Plan.

The total landfill will have an area of approximately 100 acres and a capacity of approximately 10 million cubic yards of waste. The Phase 1A~~IA~~ area will include approximately 35 acres (estimated final cover area) and have a capacity of approximately 553,200 cubic yards.

2.5.1.2 Liner Systems

The liner system will be installed to cover all surrounding earth that may come in contact with waste or leachate (see Drawings 9 and 11 in Permit Attachment L1). ~~Volume III).~~ The primary liner system will consist of, from top to bottom, a 2~~-~~-foot layer of protective soil, a geocomposite drainage layer, and a HDPE geomembrane liner. The secondary liner system will consist of a geocomposite drainage layer, HDPE geomembrane liner, geosynthetic clay layer (GCL), and 6 inches of prepared subgrade. Both the primary and secondary liner systems will extend over the floor and slope areas of the landfill

The primary and secondary geomembrane liners will be constructed of HDPE as defined in the construction specifications. ~~presented in Volume IV.~~ This material will have sufficient strength and thickness to prevent failure as a result of pressure gradients, physical contact with waste or leachate, climatic conditions, stress of installation, and stress of daily operations. The liner systems and geosynthetic drainage layers will rest upon a prepared subgrade capable of providing support to the geosynthetics and preventing failure due to settlement, compression, or uplifting.

Initially, the Phase 1A liner system will be installed. As authorized in future permits, the ~~The~~ liner system will be installed in stages as the landfill expands both in the vertical direction up slope and in the horizontal direction by phase. The three horizontal phases of landfill expansion are shown in Drawings 4, 6 and 7 in Permit Attachment L1. ~~Volume III.~~ The benching technique considered for expansion of the landfill vertically up slope is shown in Drawings 8 through 11 (Permit Attachment L1~~Volume III~~) for Phase 1A. ~~Phase IA.~~ Geosynthetic liner component tie-ins for the vertical expansion will be made on the access ramps leading into the landfill.

Stresses to the liner system can result from consolidation settlement of the subgrade during waste filling and localized equipment loading during protective soil placement. The subgrade consists of the 6 inch thickness of prepared soil subgrade and the existing ground formations below the landfill (see Drawing 7, Permit Attachment L1). ~~Volume III).~~ Because the existing ground formations have been prestressed by overburden forces prior to landfill excavation, additional consolidation settlement during waste filling will be minimal.

Consolidation settlement of the 6 inch prepared soil subgrade layer will also be minimal because it is limited by the thickness of this layer and because this material will be compacted during installation. Localized equipment loading to the liner during protective soil placement will be controlled by specifying maximum equipment ground pressures in the construction specifications and by monitoring the placement of this material. Monitoring can be performed by individuals operating the placement equipment or by grade checkers who will observe the material placement to assure that appropriate thicknesses have been installed.

2.5.1.3 Leachate Collection and Removal System (LCRS)

The LCRS will be located above the primary liner system. Drawing 12 in Permit Attachment L1~~Volume III~~ provides the design details of the LCRS. A filtered LCRS layer consisting of a geocomposite drainage material will be constructed. Within the floor area of the LCRS layer will be the primary leachate collection piping, which is used to remove leachate from the landfill during the active life and post-closure care period. The piping as shown in Drawing 12 ~~(Volume III)~~ is nominally 8 inches in diameter.

As demonstrated in the engineering report (Permit Attachment L~~Volume III~~), the LCRS will be (1) constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated; (2) of sufficient strength and thickness to prevent collapse under pressure exerted by overlying wastes, waste cover material, and equipment used in the landfill; and (3) designed and operated to minimize clogging during the active life and post-closure care period through selection of an appropriate geotextile for the filtration application~~ (see Volume III, Section 3.1.3)~~.

The LCRS is sloped so that any leachate above the primary liner will drain to the sump. Phase 1A includes one sump as shown in Drawings 8, 15, 16, and 17 (Permit Attachment L1). ~~of three sumps.~~ The sump~~sumps~~ and liquid removal methods will be of sufficient size to collect and remove liquids from the sump~~sumps~~ and prevent liquids from backing up into the drainage layer.

The sump will be lined with the same liner system components as elsewhere in the landfill except that the drainage layer will expand to include gravel and a compacted clay liner material beneath the primary and secondary geomembranes in~~which will fill~~ the sump area. Leachate that collects in the sump~~sumps~~ will be pumped through a pipe to the surface of the landfill where it will be collected in temporary storage tanks.

The leachate storage tanks will be chemically resistant, double lined poly tanks anchored to a concrete crest pad as shown in Sheets 1 and 2 of Drawing 19 (Permit Attachment L1). ~~Volume III).~~ To prevent overfilling of the tanks, an individual tank will be installed for each landfill phase, and each tank will be equipped with high-level control switches, which will automatically shut down the leachate collection or leak detection sump pumps. In addition, an alarm will be activated that will notify personnel that the system requires maintenance. Pumps will be hard piped to the leachate storage tanks, and flow meters will be installed to monitor leachate pumping from the landfill should a catastrophic tank or pipe failure occur. All piping will be located within the concrete tank pad. The pump control panel will be located inside the tank pad with electrical wiring enclosed in waterproof conduits.

~~Because leachate is generated by the landfill, the leachate collection tanks will be used as 90-day storage units and managed accordingly. They are not required to be permitted.~~

The sump system will provide a method for measuring and recording the volume of liquid removed. Drainage materials will meet the minimum drainage requirements per the specifications. Sump design, filter fabric selection, floor pipe design, pump design, disposal system design, and action leakage rate (ALR) calculations involving removal of leachate flow from a 1-mm^2 hole/acre are discussed in the engineering report (Permit Attachment L). Volume III). All pumpable liquid in the sump will be removed in a timely manner to prevent the head on the primary liner from exceeding 12 inches.

Leachate will be managed by recirculating the liquid and applying it to the landfill soil cover for enhanced evaporation. A moveable piping and sprinkler system will be used to distribute the water onto the soil cover. Vacuum trucks with spray bars may also be used to apply leachate to the soil cover. Management of leachate has been evaluated through calculations that are provided with the Engineering Report in Permit Attachment L. Calculations show that the leachate generation rate is much less than the potential evaporation rate within the Phase 1A landfill. Management of leachate by recirculation for enhanced evaporation keeps all leachate and potential contaminants within the lined landfill cell.

2.5.1.4 Leak Detection and Removal System (LDRS)

The design of the LDRS is similar to the design of the LCRS. The LDRS will be capable of detecting, collecting, and removing leaks of hazardous constituents through areas of the primary liner during the active life and post-closure care period. A filtered LDRS layer consisting of a geocomposite will be constructed below the primary geomembrane. Within the LDRS layer will be the LDRS piping, which will be used to detect and remove liquid from between the primary and secondary liners. The piping arrangement is shown on Drawing 18 in Permit Attachment L1~~Volume III~~.

As demonstrated in the engineering report (Permit Attachment L~~Volume III~~), the LDRS will be (1) constructed with a bottom slope of one percent or more; (2) constructed of a geocomposite with a hydraulic conductivity that exceeds ~~1~~ 1 x 10^{-2} cm/s~~ec~~; (3) constructed of materials that are chemically resistant to the waste managed in the landfill and the leachate expected to be generated; (4) of sufficient strength and thickness to prevent collapse under pressure exerted by overlying wastes, waste cover material, and equipment used at the landfill; and (5) designed and operated to minimize clogging during the active life and post-closure care period.

In addition, the sump and liquid removal methods are designed to be of sufficient size to collect and remove liquid from the sump and prevent liquid from backing up into the drainage layer (see ALR calculations in Permit Attachment J). ~~Volume VI).~~ A method will be provided for measuring and recording the volume of liquid present in the sump and liquid removed. All pumpable liquid in the sump will be removed in a timely manner to maintain the head on the secondary liner at less than 12 inches. The pump for the LDRS sump is located at the sump's low point so that pumpable liquids can be removed to the maximum extent possible.

2.5.1.5 Vadose Zone Monitoring System

The vadose zone monitoring system (VZMS) sump serves as a detection system for potential leakage from ~~leaking in~~ the secondary LDRS system. Located directly beneath the LDRS sump, leakage through the secondary liner system will flow into the VZMS ~~vadose~~ sump, allowing it to be detected and removed. The vadose pipe and gravel arrangement is similar to the LCRS and LDRS arrangements. Drawings 16 through 18 (Permit Attachment L1)~~in Volume III~~ show the VZMS ~~vadose zone in the~~ sump.

2.5.1.6 Run-On/Runoff~~-Off~~ Control

The run-on/run-off system is designed to be constructed, operated and maintained to control at least the water volume resulting from a 24-hour, 25-year storm. The run-on/run-off control system design is provided in Permit Attachment L. ~~Volumes III and IV.~~ The purpose of the run-on/run-off control system is to prevent any contamination present on-site from migrating off-site by minimizing the volume of liquid entering the landfill and therefore, limiting the potential to transport contaminants placed in the landfill.

Run-on/run-off will be collected in one of three different collection basins, depending on the source of the water. The collection basins are listed and discussed in detail below:

- The Facility Stormwater Detention Basin
- The Phase 1A~~IA~~ Landfill Stormwater Collection Basin
- The Phase 1A~~IA~~ Landfill Contaminated Water Basin

The Facility Stormwater Detention Basin is located northwest of the landfill area, as shown on Drawings 6 and 25 (Permit Attachment L1). ~~in Volume III.~~ Run-on originating from around the landfill will be directed away from the proposed landfill area using unlined landfill perimeter ditches (see Drawing 25). ~~, Volume III).~~ These ditches will prevent water from outside the landfill from entering the active portion of the landfill Based on the topography of the site, the run-on is expected to move from the east/southeast to the west/northwest and be diverted to the Stormwater Detention Basin. The Stormwater Detention Basin is also intended to collect run-off from the rest of the Facility (not including the landfill) and will be lined with a single 60-mil HDPE liner as a precaution to prevent infiltration~~. The detention basin will be pumped after rainfall events that result in the accumulation~~ of ponded stormwater.

~~water in the basin.~~

The Phase 1A~~IA~~ Landfill Stormwater Collection Basin is located at the toe of the inter-phase cut slope in the landfill, as shown on Drawings 10 and 13 (Permit Attachment L1). ~~in Volume III.~~ This basin will collect run-off from the inactive portion of the Phase 1A~~IA~~ landfill. During the initial stages of the landfill operation, run-off from the landfill side slopes above the liner system will be channeled away from the waste by the slope drainage interceptor ditch. The water in the Stormwater Collection Basin will be handled as clean water because it will not come in contact with the landfill waste. The basin is lined with a single 60-~~-~~mil HDPE liner.

The Phase 1A~~IA~~ Landfill Contaminated Water Basin is located at the bottom of the Phase 1A~~IA~~ landfill, as shown on Drawing 10. ~~in Volume III.~~ This basin overlies the ~~entire~~ landfill liner system. The contaminated water basin will be maintained to ensure that the adequate amount of protective cover soil (2 feet) is present over the liner system.

Run-off from the active portion of the landfill, which does not infiltrate into the LCRS, will be collected in the landfill contaminated water~~this~~ basin. Runoff water collected within the contaminated water basin ~~and~~ will be managed by pumping the water to remove the standing water in ~~pumped out of the landfill within 24 hours of a storm event. The water pumped out of~~ the basin and applying it to the landfill soil cover for enhanced evaporation. A moveable piping and sprinkler system will be used to distribute the water onto the soil cover. Vacuum~~collected using vacuum~~ trucks ~~and sampled and analyzed for hazardous constituents. Contaminated water will be treated either in the stabilization process or the evaporation pond, and treatment residuals will be disposed of in compliance~~ with spray bars may also be used to apply water to the soil cover. Management of runoff water within the Phase 1A landfill has been evaluated through calculations that are provided with the Engineering Report in Permit Attachment L. Because evaporation rates greatly exceed precipitation rates at the site, runoff water can be removed from the basin and eliminated by enhanced evaporation. Management of runoff water by recirculation for enhanced evaporation keeps all water that has a potential to contact waste within the lined landfill cell. ~~appropriate regulations. The contaminated water basin will be maintained to ensure that the adequate amount of protective cover soil (2 feet) is present over the liner system.~~

2.5.1.7 Wind Dispersal Control Procedures

Wind dispersal control will consist of a daily soil cover obtained from excavation. Typically, the daily cover will consist of soil spread on top of the waste placement area to a depth of approximately 0.5 foot~~feet~~.

Depending on the local wind conditions, traffic, and the number of fine particles in the soil cover, dust may be generated from the surface. Typically, this dust generation is reduced by restricting traffic to predetermined haul roads on the surface of the daily cover and applying small amounts of water spray to moisten the soil surface. Water applied for dust control may include clean water supply, leachate, and runoff water collected within the landfill contaminated water basin. The water will be applied using both~~with~~ a piping and sprinkler system and water trucks equipped with a pump, piping, and an array of nozzles that spray very small water droplets onto the soil cover.

The frequency of the water application depends on the climate and traffic. In areas on the daily cover surface where traffic is not present, an occasional water spray will cause a crust to form on the soil surface, inhibiting dust formation. Sufficient moisture will be applied to all soil surfaces, including roads, on an as needed basis to prevent wind erosion of the daily cover. However, the application of water will be limited so that ponding in the landfill does not occur. Because the water is a topical surface application, the majority of it will evaporate or be absorbed rather than seep through~~into~~ the waste to become leachate.

2.5.1.8 Gas Generation Management

The ~~Because the~~ landfill will not receive MSW or C&D waste, limiting the gas generated as a result of biological decomposition of organic wastes. ~~will be minimal.~~ Organic wastes placed in the landfill will meet LDRs, which will limit the organic gas generation potential. The waste acceptance procedures at the Facility will be designed to limit receipt of wastes with potential for significant gas generation. The waste acceptance program is described in Section 4.3 and outlines the procedures that will be used to test for reactive cyanides and sulfides, other reactive chemical groups, waste compatibility, and biodegradability of sorbents.

During the operational phase of the landfill, periodic checks will be made within the landfill to detect the presence of hazardous gases and volatile organics. Surveys of the active landfill surface area and the riser pipes with an organic vapor meter (OVM) or comparable device will be performed quarterly to detect the presence of organic compounds. PPE levels and respiratory protection levels will be modified accordingly, if necessary. This testing will be conducted in addition to the fingerprint testing conducted on incoming waste. The data from both tests will be evaluated to determine what steps are necessary to reduce the generation and/or release of these gases to levels which meet prescribed regulatory air quality standards.

Prior to closure of the landfill, an assessment will be made of the landfill waste gas generating potential. This assessment will be based on review of fingerprint test data and data gathered in the landfill during operations. Based on this assessment, if it is concluded that gas generation may result in gas build-ups beneath the barrier layer of the cover or releases following closure exceeding regulatory air quality standards, then provisions will be made to collect and monitor gas generation and release during the post-closure period. If this occurs, the latest technology available will be implemented into the construction of the cover system, which may require a modification to the Permit.

2.5.1.9 Cover Design

The design of the final cover is described in Section 8~~.0~~, Closure and Post-Closure of Permitted Units. Additional details of the final cover design are provided~~shown~~ in Permit Attachment L~~Volume III~~ of this application.

2.5.1.10 Landfill Location Description

The proposed site is in eastern Chaves County, New Mexico.

Geographic Location

The proposed site is located in a remote, unpopulated portion of New Mexico, approximately 43 miles east of the City of Roswell and 36 miles west of~~from~~ the City~~city~~ of Tatum. The primary land use in the surrounding area is ranching, which will not be impacted by landfill operations.

Geologic Setting

The proposed site is to be developed within impermeable, geologically stable sediments of the Dockum Group of Triassic age (see Section 3.4). The base of the proposed landfill will be designed to rest on 600-foot thickness of unsaturated mudstone of the Lower Dockum. This thick sequence acts as a geologic barrier to potential vertical migration of contaminants. Potential lateral migration through unsaturated Upper Dockum sediments will be retarded by the low permeability of the host sediments (siltstones and mudstones) and engineered barriers such as the liner systems.

2.5.2 Construction

Construction activities will consist of site preparation; excavation and preparation of landfill bottoms and subsurface sides; and construction of the liner, LCRS, and LDRS in accordance with the specifications and Construction Quality Assurance (CQA) Plan. The CQA plan is included as Permit Attachment M~~Appendix B of the engineering report presented in Volume IV~~.

2.5.2.1 Site Preparation

Existing site drainage will be modified to route any run-on away from the landfill area. Additionally, drainage of the landfill area itself will be modified to route water away from the initial fill area. Access roads and weighing units will be constructed. A fence will also be installed around the Facility. These components and installations are shown in Drawing 4 (Permit Attachment L1)~~presented in Volume III~~.

2.5.2.2 Excavation and Preparation of Landfill Bottom and Subsurface Sides

The landfill will be constructed and excavated in sections to allow a smaller portion of the landfill surface to be exposed to precipitation at any one time. The initial working area of the landfill will be excavated to design depth. The excavated material will be stockpiled on unexcavated soil near the active area for use as cover material. The landfill bottom will be sloped toward the central axis of each phase to provide drainage of leachate to the sump. The U.S. Environmental Protection Agency (EPA) minimum required slope of 1 ~~1~~ percent has been exceeded in all cases. The upper 6 inches of the subgrade will consist of a soil material that~~which~~ has been sized, moisture conditioned, compacted, and trimmed to provide a smooth stable surface for geosynthetic material placement.

2.5.2.3 Construction Quality Assurance Plan

The CQA~~Appendix B of the engineering report presented in Volume IV of this application contains the Construction Quality Assurance~~ Plan is provided as Permit Attachment M. ~~.~~ Implementation of CQA procedures will result in increased leachate collection efficiency and reduced leakage through the landfill liner. ~~and evaporation pond liners.~~ Additionally, use of CQA will result in fewer costly repairs to the landfill after wastes have been received, fewer occasions of exceeding the ALR, and a decreasing need for corrective action.

The CQA Plan describes the CQA procedures for the installation of the soil and geosynthetic components for the hazardous waste landfill, which comprise~~evaporation pond, and other units requiring subsurface containment systems comprised of~~ soils and geosynthetic components constructed at the Facility. These procedures apply to construction of the lining systems and final cover systems, including the LCRS and LDRS~~ systems~~.

The objectives of the CQA program include the following:

- development of a clearly defined organizational structure within which the project can be planned and completed;
- assurance that the methods, techniques, and procedures used to collect, analyze, verify, and report data will produce sound, documented, and defensible results;
- assurance that equipment or instrumentation used in field or laboratory testing activities has been properly maintained and calibrated as required;
- assurance that the required documentation of quality performance is properly generated and that such documentation is adequate and complete for the activity;
- development of permanent project CQA document files identifiable and traceable to each activity;
- systematic control of items, equipment, materials, or activities not in conformity with established requirements or methods, and assurance of prompt and effective corrective action when nonconforming conditions are identified;
- regular evaluation of the adequacy of the CQA program by means of quality audits coupled with the effective action necessary to correct deficiencies and prevent recurrence;
- assurance that technical and CQA personnel are qualified and trained to perform the work activities to which they have been assigned; and~~,~~
- assurance that subcontractors and consultants used in assisting project activities have an acceptable CQA program or are participating in accordance with the Facility CQA program guidelines.

Upon completion of construction activities, the Facility will submit certification signed by the New Mexico registered professional engineer serving as the CQA certifying engineer, which states that the unit has been constructed in accordance with the design drawings, CQA~~Construction Quality Assurance~~ Plan, and Construction Specifications and meets the requirement of 40 CFR 264.19. Documentation supporting the certification will be maintained in the operating record and will be furnished to ~~the~~ NMED upon request. Wastes will not be accepted at the constructed portion of the landfill until ~~the~~ NMED either approves the certification or waives the approval requirement.

2.5.3 Operation

The landfill will be operated in a safe and proper manner, in accordance with the following requirements.~~:~~

2.5.3.1 Inspections and Monitoring

Section 5~~.0~~, Procedures to Prevent Hazards, contains information on inspections and monitoring.

2.5.3.2 Maintenance and Repairs

The landfill structure will be maintained through a routine preventive maintenance program, which will be fully defined in the final site operations plan. Preventive~~Preventative~~ maintenance will involve regular visual inspections of the landfill liner (where feasible) and review of leachate collection and analysis results. Equipment, such as pumps, generators, electrical lighting, and warning systems, will be subject to manufacturer recommended programs. Preventive~~Preventative~~ maintenance information will be documented and any deviation from normal conditions will be closely tracked and corrected as necessary.

2.5.3.3 Warning Signs

Section 5~~.0~~, Procedures to Prevent Hazards, contains information about warning signs.

2.5.3.4 Record Keeping

All documentation pertaining to the results of waste analyses, waste compatibility analyses, and waste handling compliance will be maintained in the Facility operating record. The Facility will be capable of determining exactly where a waste has been placed within a three-dimensional grid system. Landfill inspection records will be maintained on file for at least 3 years, in accordance with 40 CFR 264.15(d) (see Section 5.2.2).

2.5.3.5 List of Hazardous Wastes to be Placed in Landfill

The wastes to be placed in the landfill are described in Section 4~~.0~~, Waste Analysis Plan.

2.5.3.6 Specific Requirements for Ignitable/Reactive Wastes

Wastes that do not meet LDRs, as defined in Section 4.5 of the Waste Analysis Plan, will not be placed in the landfill. Therefore, untreated ignitable and reactive waste (as defined in 20.4.1 NMAC~~-4.1~~) will not be placed in the landfill.

~~Procedures That Render Wastes Nonreactive~~

~~Reactive waste will be treated or mixed prior to placement in the landfill so that the resulting waste mixture no longer meets the definition of reactive waste.~~

~~Procedures for Preventing Reactions~~

~~Reactive waste will be separated from sources of reaction, including but not limited to open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks, spontaneous ignition, and radiant heat. When reactive waste is being handled, smoking and open flames will not be permitted. "No Smoking" signs written in English and Spanish will be conspicuously placed wherever there is a hazard from ignitable or reactive waste.~~

~~Procedures that Render Wastes Non-ignitable~~

~~Ignitable waste will be treated or mixed prior to placement in the landfill so that the resulting waste mixture no longer meets the definition of ignitable waste.~~

2.5.3.7 Procedures for Protecting Wastes

Procedures for the handling of incompatible wastes, lab packs, ~~bulk and containerized liquids,~~ and containers that are less than full are discussed below.

Procedures for Ensuring Safe Disposal of Incompatible Wastes

Procedures for identifying incompatible wastes are discussed in Section 4.~~0~~, Waste Analysis Plan. At a minimum, incompatible wastes will be spaced a sufficient distance apart in the landfill to prevent commingling. The landfill placement operation will be based on a set of grids along the north end of the landfill and along both the east and west sides of the landfill. Incompatible waste will be placed with a minimum of one grid in between the loads. Grids are normally spaced at approximately 50- to 100-foot intervals. Therefore, the minimum spacing would be 50 feet.

Procedures for Identifying Contents and Ensuring Proper Landfilling of Incoming Lab Packs

Lab packs may be placed in the landfill only if they meet the requirements in 40 CFR 264.316. Containers must be non-leaking and appropriate to the waste being contained. Appropriate non- biodegradable sorbents will be used. The Waste Analysis Plan presented in Section 4.~~0~~ will ensure that lab packs meet all of the applicable requirements prior to disposal. As with all other waste, lab packs must be properly characterized prior to acceptance at the Facility and meet the LDR treatment criteria prior to disposal. Lab packs will not be accepted if incompatible wastes are placed within the same lab pack or if reactive wastes have not been treated to render them non-reactive prior to receipt at the Facility. ~~.~~ Lab packs will meet all applicable LDRs (40 CFR 268)~~) requirements~~.

Special Requirements for Bulk and Containerized Liquids

Bulk and containerized wastes will not be placed in the landfill unless they meet the requirements in 40 CFR 264.314. Containers holding bulk~~free~~ liquids will not be received at the Facility or placed in the landfill. ~~unless all free liquid has been eliminated by absorption, decanting, solidification, or other method.~~ Very small containers, such as ampules or containers designed to hold liquids for use other than storage, may be placed in the landfill (40 CFR 264.314[d]).

Special Requirements for Containers

Containers, except those that are very small such as ampules, will be 90 percent full when placed in tact in the landfill. Containers less than 90 percent full will be crushed~~, shredded, or otherwise reduced in volume~~ to the maximum extent possible though compaction when placed~~prior to placement~~ in the landfill.

2.5.3.8 Action Leakage Rate

The ALR proposed for the landfill is 900 gallons per acre per day (gpad). This proposed ALR was selected based on a discussion in the preamble to the January 29, 1992~~,~~ final rule for Liners and Leak Detection

Systems for Hazardous Waste Land Disposal Units (57 FR 3462). A discussion of the proposed ALR and supporting calculations are presented in the engineering report in Permit Attachment L~~Volumes III and VI~~.

The average daily flow rate in the LDRS sump will be calculated in accordance with the Action Leakage Rate and Response Action Plan, which is presented in Permit Attachment J.

2.5.3.9 Response Action Plan

The elements of the response action plan for the landfill ~~and evaporation pond~~ include (1) reducing the head on the liner to the maximum extent possible to aid in the prevention of leaks, (2) determine the failure mechanism of any leaks, and establish procedures to minimize the potential for reoccurrence of this failure mechanism, and (3) responding immediately and appropriately to a leak exceeding the ALR. Each of these elements is described below. ~~The response action plan will apply to both the landfill and the evaporation pond. Activities that apply to the landfill only are specified.~~

Reducing the Head on the Landfill Liner

The head on the liner will be reduced by:

- Monitoring ~~monitoring~~ the leachate collection system sumps weekly and after all significant precipitation events.~~;~~
- Removing~~removing~~ pumpable liquids from the sump when monitoring indicates the presence of liquid. A reasonable effort will be made to remove as much liquid as possible. As previously described, it is standard landfill design practice to locate a low point or sump box in the base of the landfill sump. The pump for the sump is located at this low point, and it is from here that pumpable liquids are removed to the maximum extent possible.
- Waste material~~;~~ and soil cover will be placed in the landfill in a configuration to provide slopes that will prevent ponding and drain to the contaminated water collection basin within the Phase 1A landfill liner.~~,~~
- If~~if~~ water ponds on the surface of the daily cover due to a heavy rain event, vacuum trucks will be utilized to remove as much of the standing water as possible before it can seep into the waste.

Leak Detected Below the Action Leakage Rate

Flow rates less than the ALR are expected under normal operation conditions. However, the following actions will be taken in response to a leak below the ALR:

- determine whether the leak can be attributed to some operational disturbance such as an equipment or power failure;
- verify that the sump pump is working as designed;
- increase the pump rate on the leachate collection system pump;
- ~~for the landfill only:~~ remove all standing water, if any, from the surface of the landfill;
- assess operations to determine if waste receipt should be temporarily curtailed or waste should be removed for inspection, repair, or controls;
- determine if the flow rate varies with precipitation;
- ~~for the landfill only:~~ repair any damage to the exposed portion of the liner in a manner which conforms to original design specifications and by qualified technicians in accordance with the CQA Plan (Permit Attachment M~~see Volume IV~~);

- document any damage and repairs in the Facility operating record; and~~,~~
- investigate alternative sources of liquids.

Leak Detected Above Action Leakage Rate

If a leak is detected above the ALR, the following actions will be implemented in response:

- Notify the NMED in writing of the exceedance within 7 days of the determination;
- Submit a preliminary written assessment to NMED within 14 days of the exceedance determination, as to the amounts of liquids, likely sources of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned.
- Determine, to the extent practicable, the location, size, and cause of any leak;
- Determine whether waste receipt should cease or be curtailed, whether any waste should be removed from the unit for inspection, repairs, or controls, and whether or not the unit should be closed;
- Determine any other short-term and long-term actions to be taken to mitigate or stop any leaks;
- Within 30 days after the notification that the action leakage rate has been exceeded, submit to NMED the results of the determinations described above, the results of the actions taken, a description of the actions planned;
- Monthly, as long as the action leakage rate continues to be exceeded, submit a report to NMED summarizing the results of any remedial actions taken and planned; and
- In making the determinations described in this section, either conduct the following investigation or document why such an investigation is not needed:
  - Assess the source and amount of liquid from each source collected in the sump.
  - Conduct a hazardous constituent analysis of the liquid collected in the sump and use the results to help identify the source(s) of the liquid and possible location of any leaks as well as the potential hazard associated with the liquid and its mobility.
  - Assess the seriousness of any leaks in terms of potential for escaping into the environment.

2.5.3.10 Closure

A description of landfill closure is provided in Section 8.0, Closure and Post-Closure of Permitted Units.

~~2.6 Treatment In Evaporation Pond~~

~~Only waste that meets LDR treatment standards will be placed in the evaporation pond. Waste will be received from off site generators and from the leachate collection system associated with the landfill or other site units (i.e. waste storage areas). Evaporation will be the only treatment occurring in the evaporation pond.~~

~~2.6.1 Design of Evaporation Pond~~

~~The Facility is proposing design and operating practices for the evaporation pond in accordance with 40 CFR 264.221. The evaporation pond design is provided on Drawings 28 through 32 in Volume III and will have an approximate operating capacity of 5.2 million gallons over an approximate area of 78,600 square feet.~~

~~The evaporation pond has been designed as a double-lined unit with a LDRS between the primary and secondary liners. The unit is designed and will be constructed, maintained, and operated to prevent~~

~~overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment; and human error.~~

~~2.6.1.1 Liner System~~

~~The liner system, shown in Drawings 29 and 32 of Volume III, will include a primary (top) geomembrane liner above a geonet layer and a secondary (bottom) geomembrane liner, supported by 3 feet of compacted clay liner material with a hydraulic conductivity of no more than 1 x 10^{-7} cm/sec. Soil liner leachate compatibility tests (two stage permeability testing using ASTM D 5084) will be conducted prior to construction. In addition, a test fill will be constructed, as per the procedures outlined in the CQA Plan. Soil liner compatibility is normally not a problem unless the leachate contains high concentrations of organics (Eklund, 1985; Peterson and Gee, 1985; Mitchell and Madsen, 1987; Finno and Schubert, 1986; Lo et al., 1994; Day, 1994; Shackel ford, 1994). The Waste Analysis Plan (Section 4) does not allow the site to accept high concentrations of organics, therefore the soil and leachate compatibility is not expected to be a problem.~~

~~The compacted clay surface will provide a stable foundation for the liner and resistance to pressure gradients above and below the liner. The evaporation pond liner system will be located on top of the excavated subgrade which will be located approximately 15 feet below the existing ground surface. At this depth the basal portions of the evaporation pond will lie in either the Quaternary sand or Upper Dockum units. Settlement evaluations presented in the engineering report (see Appendix E in Volume V) demonstrate that either of these units will adequately serve as a foundation for the evaporation pond. Near surface evaporation pond slope areas will be located on top of Quaternary soil materials. The engineering report also presents settlement evaluations for the evaporation pond subgrade within the Quaternary soil materials and stability evaluation of any load bearing embankments.~~

~~Design and operating practices, together with the geologic setting of the Facility, will prevent the migration of any hazardous constituent to adjacent subsurface soil, surface water, or groundwater. The top liner is designed to minimize the migration of hazardous constituents through the liner system during the active life and closure period of the evaporation pond. A 60-mil HDPE geomembrane material will be used for the primary liner component. HDPE liners have been shown to be chemically resistant to landfill leachates based on operational performance and on EPA 9090 compatibility tests conducted on actual landfill leachates and synthetically generated leachates.~~

~~Calculations that define the stresses on the evaporation pond liner system due to thermal expansion and contraction are also provided in the engineering report (Appendix E, Volume VI).~~

~~Drawing 32 in Volume III shows that the bottom liner will be a two-component system, including a geomembrane and a compacted clay liner. The lower component, the 3 feet of compacted clay, will minimize the migration of hazardous constituents if a breach through the upper components occurs. Material for the evaporation pond compacted clay liner will be siltstone or mudstone obtained during landfill excavation within the Upper Dockum. During landfill excavation, appropriate siltstone and mudstone materials will be stockpiled and if necessary, conditioned such that compacted soil liner specifications are met. The test results presented in Appendices D and E (Volumes V and VI) indicate that the unprocessed material has an intact permeability close to 1 x 10^{-7} cm/sec. Therefore, with processing, the material can be placed and compacted to meet the permeability specification of 1 x 10^{-7} cm/sec or less. Additional laboratory tests will be conducted on processed siltstone and mudstone samples during the test fill program to confirm their permeability characteristics.~~

~~The liners will be constructed of materials that will be chemically resistant to the waste managed in the evaporation pond and any liquid that has accumulated in the leak detection system. The liner system materials will have appropriate chemical properties and sufficient strength and thickness to prevent failure as a result of pressure gradients, physical contact with the waste or leaked liquid to which they are exposed, climatic conditions, the stress of installation, and the stress of daily operation.~~

~~Information pertaining to the chemical properties and physical strength of the liner system materials was supplied by the manufacturer and is included in the construction specifications presented in Volume IV.~~

~~The geonet drainage system is capable of effectively minimizing the head developing on the secondary evaporation pond liner. Geonet clogging, which reduces the overall drainage capacity, has been incorporated into the design of the drainage system as a factor of safety. This safety factor has been applied in the ALR calculation presented in the engineering report (Volumes III and VI). This approach is suggested in EPA guidance for determining the ALR in the preamble to the January 29, 1992, final rule for Liners and Leak Detection System for Hazardous Waste Land Disposal Units (57 FR 3462).~~

~~Stresses on geosynthetics during installation are likely to be negligible. The evaporation pond slope lengths will be less than 4-0 feet, and the slope ratio is relatively shallow, causing little tensile stress to be exerted in the liner. Also, there will be no horizontal seams in the geosynthetic liner material. Traditional anchoring methods will be used. 60-mil HDPE material will be used, which, when properly installed and welded, is of sufficient tensile strength to withstand the stresses of installation.~~

~~2.6.1.2 Leak Detection and Removal System/Vadose Monitoring System~~

~~The LDRS consists of a geonet layer of cross-linked ribbed HDPE, a sump, and associated detection and liquid removal pipes. A pump located in the LDRS pipe will be used to remove leachate accumulating in the leachate collection systems. When leachate accumulates, it will be pumped to a tanker truck and either returned to the evaporation pond, stabilized in the onsite treatment unit, or stored in one of the liquid waste storage tanks.~~

~~The LDRS unit will have the following characteristics:~~

- ~~be constructed with a bottom slope of 1% or more;~~
- ~~be constructed of synthetic or geonet drainage materials with a minimum transmissivity of 5 x 10-3m2/sec;~~
- ~~be constructed of materials that are chemically resistant to the waste managed in the evaporation pond and any leachate generated in the landfill;~~
- ~~of sufficient strength and thickness to prevent collapse under pressure exerted by overlying wastes, and equipment used at the evaporation pond;~~
- ~~designed and operated to minimize clogging during the active life and closure period of the evaporation pond; and,~~
- ~~constructed with sump and liquid removal methods.~~

~~LDRS details are presented in Drawing 32 in Volume III. The LDRS will be sloped so that any leachate below the primary liner will drain to the centrally located sump. The sump pit design is also shown in the drawing.~~

~~The collection system has been designed to be of sufficient size to collect and remove liquids from the sump and prevent liquid from backing up into the drainage layer. A sump pump and associated piping will be installed in the lower portion of the sump. The sump system will be covered with gravel to bring the area to the level of the evaporation pond floor. The gravel will serve as an expanded drainage layer providing space for the piping.~~

~~The sump system will be provided with a method for measuring and recording the volume of liquids present and the volume of liquid removed. All pumpable liquids in the sump will be removed in a timely manner to maintain the head on the bottom liner below 12 inches.~~

~~A pump operating level will be established to ensure that backup into the drainage layer does not occur, and the head in the sump is maintained at less than 12 inches.~~

~~Methods and equipment to be used to measure and record liquid handling volumes during evaporation pond operation will include survey monuments and elevation rods, flow meters, and fluid level transducers. Elevation rods will be placed in the evaporation pond following pond construction. The rods will be fixed to a ballasted base, which will rest on the primary geomembrane liner. The rods will have graduated markings from which pond liquid elevations and critical freeboard levels can be observed and pond volumes can be determined Rod elevations will be checked periodically by survey. Flow meters will be used to record volumes of liquid discharged into the pond and removed from the LDRS drainage system sump. The transducers located in the LDRS sump will provide a reading for the liquid levels in the sump at any time during operation. The evaporation pond vadose monitoring sump serves as a detection system for leakage of the LDRS sump Leakage through the secondary liner system will flow into the vadose sump. This will allow the leakage to be detected and moved. The vadose pipe and gravel arrangement is similar to the LDRS arrangement.~~

~~2.6.1.3 Separator Berm System~~

~~The evaporation pond design incorporates a separator berm between the two pond sections, Pond lA and Pond 1B (see Drawing 28 in Volume III). This pond design provides two independent treatment areas. Thus, in the event that a leak should occur in one section of the pond, liquids could be pumped into the other section until repairs are completed. Two feet of freeboard will be maintained in the evaporation pond at all times. The evaporation pond design and ongoing proper maintenance of the unit will ensure sufficient structural integrity to prevent massive failure. The evaporation pond will be of sufficient volume and freeboard capacity to contain the 100-year 24-hour storm event. This design capacity, coupled with the management of surface water and routine inspections, will help prevent overtopping (see Section 2.6.4.3).~~

~~2.6.1.4 Run-On/Run-Off Control~~

~~The run-on/run-off system is designed to be constructed, operated and maintained to control at least the water volume resulting from a 24-hour, 25-year storm. Run-on originating off-site will be directed around the proposed evaporation pond into the site wide surface diversion channels shown in Drawing 25, using unlined ditches.~~

~~2.6.1.5 Evaporation Pond Location Description~~

~~As indicated in Drawing 4 presented in Volume III, the evaporation pond, will be located in the northwest corner of the active portion of the Facility.~~

~~2.6.2 Construction~~

~~Construction activities will consist of site preparation; excavation, and preparation of the bottom and sides of the evaporation pond; construction of dikes; installation of the liners, LDRS and vadose system; and CQA.~~

~~2.6.2.1 Site Preparation~~

~~Existing site drainage will be modified to route any run-on away from the evaporation pond area. Access roads and a truck discharge station will be constructed. These engineered controls and components are shown on Drawings 4, 5, and 31 in Volume III.~~

~~2.6.2.2 Excavation and Preparation of Evaporation Pond Bottom and Subsurface Sides~~

~~The evaporation pond will be constructed and excavated to a design depth of approximately 15 feet. The excavated material will be stockpiled for future use. The evaporation pond bottom will be constructed with a 2% (approximate) slope toward the central sump location.~~

~~2.6.2.3 Structural Fill Areas~~

~~Areas of the evaporation pond requiring structural fill will be constructed according to the specifications presented in Specifications, Section 02110 Site Preparation and Earthwork, Volume IV.~~

~~2.6.2.4 Liner, LDRS, and Vadose System Installation~~

~~Three feet of clay will be installed directly on the excavated subgrade, forming the lower portion of the secondary liner. The day will have a permeability of 1 x 10^{-7} cm/sec or less. A geomembrane liner will be placed over the entire clay liner, including the sump area and the separator berm. A geonet layer of cross-linked ribs, which will serve as the LDRS, will be installed next. The sump and associated piping will then be installed, and gravel will be placed in the depression to bring the surface level of the sump area to that of the evaporation pond floor. A filter geotextile will surround the gravel in thesump area to protect the geomembrane liner and to reduce the sediment clogging of the geonet.~~

~~The liners will be installed to cover all surrounding soils likely to be in contact with the waste or leachate.~~

~~The sump pump and pressure transducers (or other) liquid detection device will be installed next to the LDRS and vadose pipes during construction. These devices will be attached to a control panel. Any time liquids are detected at a specified level, the sump pump will be activated and the liquid will be removed. The pump activation level is related to the sump design and pump type selected. The wastewater will be sampled, analyzed and handled in accordance with the Facility requirements.~~

~~2.6.2.5 Construction Quality Assurance Plan~~

~~Section 2.5.2.3 contains information detailing the CQA Plan. In addition, the CQA plan is contained in Volume IV of this application.~~

~~2.6.3 Nature of Waste~~

~~Hazardous wastes which may be placed in the evaporation pond include all wastes listed in Part A of the application (Volume I), provided that LDR treatment standards are met prior to placement of the wastes. Potential contaminants in the wastewater will include those found in wastes accepted at the landfill and in other wastes as specified in the Waste Analysis Plan (see Section 4.0). In general, these wastes include RCRA hazardous wastes and PCB wastes (less than 50 ppm), excluding the waste types listed in Section 2.5.1.1 and the wastes covered by 20 NMAC 4.1.500 (including 40 CFR 264, Subparts BB and CC).~~

~~2.6.4 Operation of the Evaporation Pond~~

~~Operation of the evaporation pond will involve three main activities: (1) waste acceptance and receiving; (2) placement of wastewater into the evaporation pond; and (3) inspection, monitoring, and repair of the unit. Each of these activities is described below.~~

~~2.6.4.1 Waste Acceptance and Receiving~~

~~Off site generators must provide a full characterization of their waste to the Facility prior to receiving approval to ship the waste to the Facility. After approval has been received, shipment of waste to the Facility~~

~~will proceed as described in Section 2.1.2. Tanker trucks will then transport their waste to the tanker discharge pad at the evaporation pond.~~

~~Once the waste is received onsite, it will be sampled and fingerprint tested to verify that it is the same waste that was previously characterized Landfill leachate waste must also be sampled and analyzed prior to being placed in the evaporation pond. Waste analysis and fingerprint testing are more fully described in Section 4.0, Waste Analysis Plan. This waste analysis and characterization data will be used to ensure that the waste acceptance criteria specified in the RCRA permit are met and to identify any safety precautions that must be taken to properly manage the waste.~~

~~Following a determination that the leachate from the landfill meets the acceptance criteria, the waste will be pumped from the leachate collection tank to a tanker truck. Approved leachate trucks and off site waste trucks will transport the waste to the tanker discharge pad at the evaporation pond.~~

~~Landfill leachate collection waste and off site waste that is determined not to meet LDR treatment standards will be treated in the stabilization unit or shipped to other appropriate treatment facilities.~~

~~2.6.4.2 Placement of Wastewater into the Evaporation Pond~~

~~Tanker trucks will be unloaded directly into the evaporation pond through a series of hoses, valves and pipes. The tanker discharge pad will be constructed of concrete and will be sloped toward the evaporation pond to drain any spills or leaks into the pond. Details of the tanker discharge pad are provided in Sheets 1 and 2 of Drawing 31 (Volume III).~~

~~2.6.4.3 Inspections, Monitoring, and Repairs~~

~~The evaporation pond structure and dikes will be maintained through a routine inspection program. The volume of liquids in the ponds will be dependent on the waste market. Net evaporation (total evaporation minus rainfall) for the site is in the range of 80 inches per year. The freeboard level will be routinely inspected to ensure that approved or acceptable freeboard levels are maintained and that overtopping does not occur. Pond overtopping will be controlled operationally by maintaining evaporation pond fluid levels below the freeboard elevation and by ensuring that any storm water run- on from surrounding areas is diverted around the evaporation pond. Sludge will be removed by vacuum trucks and treated in the stabilization bins. Sludge will be removed on a routine basis to maintain the operational level in the pond. The vacuum trucks will park on a concrete pad during sludge removal. Sludge will be removed by means of pumps and flexible hoses. Vacuum trucks will be washed thoroughly in the truck wash unit after sludge removal and transportation to the stabilization bins. Grading of the surrounding surface area has been included as a part of the surface water management. Inspections will occur on a weekly basis and after storms to detect evidence of deterioration, malfunction, improper operation of overtopping control systems or sudden drops in the liquid level. The liner exposed above the operating pond level will be inspected to make sure that the liner is not damaged.~~

~~The engineering report includes a discussion of the evaporation pond LDRS ALR (see Section 4.0 in Volume III). LDRS drainage layer flow capacity, LDRS sump capacity, fluid head calculations, and flow rate conversions are included, as well as response actions for ALR exceedance.~~

~~The two evaporation pond sections allow for one section of the pond to be removed from service if the liquid level suddenly drops for an unknown reason. If liquid losses exceed daily evaporation losses and no other reasonable explanation is found, then that section of the evaporation pond will be shut down and authorities at the NMED will be notified immediately. If a section of the evaporation pond must be removed from service, flow of waste to that section will be stopped, leakage will be stopped by draining the pond to below the level of the leak, surface leakage will be contained, and all necessary steps will be taken to repair the liner system and prevent a future failure. Responses to such situations, including NMED notification, are described in Section 6.0, Contingency Plan.~~

~~Additional inspection and monitoring information is provided in Section 5.0, Procedures to Prevent Hazards.~~

~~2.6.4.4 Specific Requirements for Ignitable, Reactive, and/or Incompatible Wastes~~

~~Wastes that are ignitable, reactive, and/or incompatible will not be placed in the evaporation pond at the same time. Waste acceptance procedures, described in Section 4.0, Waste Analysis Plan, will ensure that such wastes are not inadvertently placed together in the evaporation pond.~~

~~2.6.4.5 Warning Signs~~

~~Section 5.0, Procedures to Prevent Hazards, contains information on warning signs.~~

~~2.6.4.6 Record Keeping~~

~~All documentation pertaining to the results of waste analyses or waste compatibility analyses will be maintained in the Facility operating record. Inspection records will be maintained in the inspection log for the evaporation pond.~~

~~2.6.4.7 Action Leakage Rate~~

~~The proposed ALR for the evaporation pond is 1,000 gpad. This ALR was selected based on a discussion in the preamble to the final rule for Liners and Leak Detection Systems for Hazardous Waste Land Disposal Units (57 FR 3462), in which the EPA indicates that an ALR below 1,000 gpad should not be required.~~

~~The average daily flow rate to the sump system will be calculated and recorded weekly during the active life and closure period of the evaporation pond to ensure that the ALR is not exceeded.~~

~~2.6.4.8 Response Action Plan~~

~~The response action plan is described in Section 2.5.3.9.~~

~~2.6.4.9 Closure~~

~~A description of how hazardous waste residues will be removed from the evaporation pond at closure is provided in Section 8.0, Closure and Post-Closure of Permitted Units.~~

2.7 Operations and Maintenance

The ~~All of the~~ regulated landfill unit~~facilities~~ will be constructed in accordance with the Design Drawing, Specifications, and CQA~~Construction Quality Assurance~~ Plan presented in Permit Attachments L1, L2,~~Volume III~~ and M. ~~W.~~ The operations and maintenance of the landfill unit~~units~~ will be in accordance with the Operations and Maintenance Plan presented in Permit Attachment N. ~~Volume II, Appendix O.~~ In general, all maintenance and repairs to the facilities will be completed to meet the requirements of the original Design Drawings and Specifications and will be monitored in compliance with the CQA Plan~~Construction Quality Assurance manual~~.

3. Groundwater Protection

On January 12, 2000, the NMED Hazardous Waste Bureau (HWB) granted GMI a Groundwater Monitoring Waiver for its proposed Triassic Park Waste Disposal Facility. The Groundwater Monitoring Waiver and a VZMS Work Plan for liquid detection and water quality monitoring were part of the permit approval for the Triassic Park Waste Disposal Facility authorized by NMED in a Final Order on March 18, 2002. Information supporting the groundwater monitoring waiver is included in Attachment H.

Section 3~~.0~~ presents hydrogeologic ~~historical and recent~~ field data that ~~, which~~ demonstrate that the proposed landfill at the Facility will not impact groundwater resources. The EPA's RCRA Groundwater Monitoring Technical Enforcement Guidance Document was used in the preparation of this material.

The proposed Facility is located in a remote portion of eastern Chaves County, New Mexico, 36 miles from the City~~city~~ of Tatum (~~see~~ Figure 3-1). Section 3.1, Geographical Setting and Topography, describes the favorable physical attributes of the proposed site location.

Climatic conditions, which are favorable for the efficient and environmentally safe operations of the proposed landfill and the ability to provide long-term isolation of hazardous waste, are described in Section 3.2. Data in this section were obtained from the National Oceanic and Atmospheric Administration's (NOAA's) recording station at Roswell, New Mexico.

Section 3.3, Soils and Land Use, describes soils, ranching, and other land uses in the area surrounding the proposed site. This section shows that the proposed hazardous waste disposal activities should have no impact on the existing occupational or recreational use of the surrounding land.

The regional and local geologic setting of the proposed landfill site is detailed in Section 3.4. Sediments of the Dockum Group of Triassic age are proposed as host rocks for this Facility. These unsaturated and low permeability sediments represent a stable geologic barrier to potential migration of contaminants from the proposed site.

Section 3.5, Surface Water and Water Balance, describes surface waters and meteorological conditions used to estimate groundwater recharge at the proposed site. Results from this section show that the proposed site's low groundwater recharge rate significantly reduces the potential for migration of contaminants to groundwater.

Regional and local aquifers are described in Section 3.6. This section documents the lack of groundwater present in the proposed Triassic host rocks and presents contaminant transport modeling results that demonstrate that the proposed landfill design, in conjunction with the site's geologic setting, will meet or surpass all RCRA minimum technology requirements.

Section 3.7, Groundwater Protection Requirements, presents the design of the VZMS, which will monitor the landfill for potential leaks and establish a ~~groundwater monitoring~~ network of monitor wells to monitor water quality in the uppermost saturated geologic intervals underlying~~for~~ the proposed Facility.

Section 3.8, Summary and Conclusions, summarizes the detailed technical data, which demonstrate that the proposed Facility is situated in a hydrologic setting that will assure long-term isolation of hazardous wastes from the environment. Technical data to support this conclusion are contained in the attachments~~appendices~~ included with this Permit Application~~application in Volume II~~.

3.1 Geographical Setting and Topography

The proposed site is located in a remote portion of eastern Chaves County in New Mexico. The proposed Facility area is located in the eastern half of Section 18 and western half of Section 17, T11S, R31E, encompassing 480 acres.

This site is approximately 4 miles south of U.S. Highway 380, which provides the main access to the property. Roswell, New Mexico is approximately 43 miles west of the proposed site, and Tatum, New Mexico is approximately 36 miles to the east. Other New Mexico communities in the region include Lovington (42 miles to the southeast) and Artesia (50 miles to the southwest).

3.1.1 Physiographic Setting

The proposed site lies within a region of transition between the northern extension of the Chihuahuan Desert and the Southern High Plains. The Caprock escarpment, located approximately 2 miles east of the proposed site, delineates the western boundary of the Southern High Plains province, which, in west Texas and eastern New Mexico, is known as the Llano Estacado. The Llano Estacado is a flat-lying elevated plain, whose grass-covered surface is remarkably different from the windblown, sandy desert environment to the west.

3.1.2 Topography

The proposed site is located on the far eastern flank of the Pecos River Basin. The land surface gently slopes to the west at approximately 40 to 50 feet per mile toward the river. This sloping plain is characterized by low-relief hummocky wind-blown deposits, sand ridges, and dunes. The average elevation above sea level of the proposed site is 4,150 feet.

The Caprock escarpment (or Mescalero Rim) is one of the most prominent topographic features in southeastern New Mexico. East of the proposed site, the escarpment has approximately 200 feet of relief. On top of the Caprock, the land surface consists of low-relief undulating plains.

Figure 3-2 contains a portion of the USGS topographic map coverage of the proposed site. The Caprock escarpment is well illustrated in the southeastern corner of the mapped area. The proposed site and surrounding area are covered by two USGS 71/2° quadrangle maps: Mescalero Point and Mescalero Point NE.

3.2 Climate

The information used to evaluate the climate of the project area was obtained from climatological data summaries from the Class A recording station in Roswell, New Mexico. This recording station is part of the National Climatic Center of NOAA. The local climatological data summaries provided extreme and normal values of the meteorological parameters (for the period of record at the Roswell Municipal Airport and more recent data from the Roswell Industrial Air Center) that were used to characterize the area's climate.

The climate of the region is semiarid, with generally mild temperatures, low precipitation and humidity, and a high evaporation rate. Winds are most commonly from the south and moderate. During the winter, the weather is dominated by a high-pressure system often situated in the central portion of the western United States and a low-pressure system commonly located in north-central Mexico. During the summer, the region is affected by a low-pressure system normally situated over Arizona.

3.2.1 Temperatures

Moderate temperatures are typical throughout the year, although seasonal changes are distinct. Mean annual temperatures in southeastern New Mexico are near 60°F (Eagleman, 1976). Temperatures in December through February show a large diurnal variation, averaging 36°F at Roswell. On approximately 75 percent of winter mornings, temperatures are below freezing, and afternoon maximum temperatures average in the high fifties. Afternoon winter temperatures of 70°F or more are not uncommon. Nighttime lows average near 23°F, occasionally dipping as low as 14°F. Generally, there are only two or three winter days when the temperature fails to rise above freezing.

Table 3-1 shows the average monthly and average daily maximum/minimum temperatures recorded for Roswell for a typical year.

3.2.2 Precipitation

Precipitation is light and unevenly distributed throughout the year. ~~and averages 10 to 13 inches.~~ Winter is the season of least precipitation, averaging less than 0.6 inch of rainfall per month. Snow averages about 5 inches per year at the site and seldom remains on the ground for more than a day because of the typically above-freezing temperatures in the afternoon. More than~~Approximately~~ half the annual precipitation comes from frequent thunderstorms associated with monsoon season moisture in June through September. Rains are usually brief but often~~occasionally~~ intense~~ when moisture from the Gulf of Mexico spreads over the region~~.

Precipitation for the project area varies greatly from year to year. For example, Roswell's record low and high annual precipitation are 2.9 inches in 2003 and 32.9~~is 4.35~~ inches in 1941. ~~.~~ The maximum 24-hour rainfall was 5.65 inches in October 1901. ~~The record annual high is 32.92 inches. Most years are either "wet" or "dry"; few are "average."~~ An average precipitation rate for Roswell, for a 118~~107~~-year period from 1878 to 2010~~1982~~, is 11.6~~10.61~~ inches per year. Table 3-2 shows monthly precipitation rates for the Roswell area for a 5~~five~~-year period and compares annual rates to the average precipitation.

3.2.3 Wind

Prevailing winds are from the south, with a normal mean wind speed at Roswell of 9.6 mph. An annual wind rose for a four-year period is shown in Figure 3-3. This wind rose shows the predominant southerly winds occurring 14 percent of the time.

3.3 Soils and Land Use

The proposed site is located in a rural portion of Chaves County, New Mexico. This section describes soil profiles of the land surface in this area, existing vegetation, and the current land usage.

3.3.1 Soil Profiles

Information on soil profiles at the proposed site has been obtained from the National Cooperative Soil Survey. This survey covers Chaves County and was made cooperatively by the Soil Conservation Service, the BLM, and the New Mexico Agricultural Experiment Station.

There are two types of soils present on the proposed site. The Roswell-Faskin-Jalmar Association is present on the sandy slopes throughout the property. The Alama Series is restricted to topographically lower drainage areas and is associated with flood plain deposits.

3.3.1.1 Roswell-Faskin-Jalmar Association

This association consists of excessively drained and well-drained soils with slopes of 0 to 15%. The association is about 40% Roswell soils, 25% Faskin soils, 15% Jalmar soils, and the remainder being a mixture of various soil types. The soils of this association are used for grazing and wildlife habitat. Vegetation is mainly sand dropseed, little bluestem, sand bluestem, sandbur, three-awn, shinnery oak, yucca, and sand sagebrush. Elevation ranges from 3,500 to 4,100 feet. The frost-free season ranges from 190 to ~~-~~205 days per year.

Roswell soils are deep, gently undulating to rolling, and rapidly permeable. They are found in hummocky or billowy areas of deep sands. They consist of a surface layer of light brown fine sand. The underlying material is pink fine sand.

Faskin soils are deep, level to nearly level, and moderately permeable. They are intermingled with Roswell soils in depressions. They have a surface layer of brown and strong brown fine sand and loamy fine sand. The subsoil is yellowish red sandy clay loam and reddish brown clay loam.

Jalmar soils are deep, evenly deposited, and moderately permeable. They are intermingled with Roswell soils in depressions. They consist of a surface layer of brown, reddish yellow, and yellowish red fine sand and loamy fine sand. The subsoil is light reddish brown, heavy loamy fine sand, and sandy clay loam.

3.3.1.2 Alama Series

The Alama Series consists of deep, well-drained soils formed in alluvium on flood plains. Slopes are 1% to 3%. Elevation is 3,400 to 3,600 feet. These soils are used for grazing, watershed, and wildlife habitat. Vegetation is mainly tobosa, buffalo grass, vine-mesquite, mesquite, and cactus. The frost- free season ranges from 200 to ~~-~~215 days per year.

In a representative profile, the surface layer of these soils is brown loam about 3 inches thick. The subsoil is reddish brown clay loam and silty day loam about 16 inches thick. The substratum is stratified reddish brown and light reddish brown sandy clay loam, silty clay loam, and loam to a depth of 69 inches or more. The soil profile is strongly calcareous and moderately alkaline throughout.

Permeability is moderately slow, and available water capacity is 11 to 12 inches. Effective rooting depth is 69 inches or more.

3.3.2 Land Ownership and Use

The property for the proposed site is owned by GMI. ~~Marley Ranches, Ltd.~~ Adjacent lands are both federally and privately owned. Generally, lands to the west are owned by the BLM, and lands to the east are privately owned.

The predominant land use in this area is grazing. With existing vegetation, approximately one section of land is required to sustain five animal units year-long. Intermittently, the land is the site of exploratory drilling for gas and oil wells, but there are no abandoned well sites within the proposed Facility boundary, and the nearest production well is approximately 3 miles from the proposed site.

The BLM has developed a recreation area known as Mescalero Sands approximately 2 miles northwest of the proposed site. The recreation area allows hikers and recreational vehicles in the sand dunes.

3.4 Geology

This section describes the regional and geologic setting of the proposed landfill

3.4.1 Regional Geology

The geologic formations present within the region range in age from Quaternary through Triassic. Those include Quaternary alluvium, Tertiary Ogallala Formation, and the Triassic Dockum Group. Permian sediments do not outcrop in this region but, because they underlie the proposed host sediments, they are also discussed in this section.

3.4.1.1 Regional Stratigraphy

The stratigraphic relationship of the formations discussed in this section is illustrated in Figure 3-4. Information concerning formation tops and thicknesses was obtained from well logs from the New Mexico Oil Conservation Division (OCD) office in Hobbs, New Mexico. Representative~~Appendix B presented in Volume II contains a representative~~ oil well logs are provided in Attachment T.

Quaternary

The surface throughout the project area is covered by alluvial deposits of Quaternary age. These deposits are comprised of fine-grained, red-brown sands, interbedded with red-brown silts and clays. A major source of these sediments was the topographically higher Ogallala Formation, as evidenced by the abundant granitic cobbles, chert pebbles, and fragments of petrified wood found throughout this unit. The thickness of these alluvial deposits along the eastern flank of the Pecos River Basin in Chaves County varies from a few feet to as much as 50 feet.

Tertiary

The "Caprock," which is the surface expression of the Tertiary Ogallala Formation, unconformably overlies Triassic sediments in southeastern New Mexico. This flat-lying sandstone and conglomeritic unit is approximately 300 to 400 feet thick. It consists of fluviatile sand, silt, clay, and gravel capped by caliche. The sand deposits of the Ogallala Formation consist of fine- to medium-grained quartz grains, which are silty and calcareous. Bedding features range from indistinctly bedded to massive to crossbedded. The formation varies from unconsolidated to weakly cohesive and contains local quartzite lenses. The sand intervals of the Ogallala Formation occur in various shades of gray and red.

Ogallala Formation silt and clay deposits are reddish brown, dusky red, and pink and contain caliche nodules. Gravels occur as basal conglomerates in intra-formational channel deposits and consist primarily of quartz, quartzite, sandstone, limestone, chert, igneous rock, and metamorphic rock. There are abundant petrified wood fragments throughout this unit.

Triassic

Triassic sediments are the potential host rocks for the proposed Facility and, as such, are described in more detail than the other formations. The Depositional Framework of the Lower Dockum Group (Triassic), Texas Bureau of Economic Geology, No. 97, 1979, by McGowen was used as a major reference for gathering information on the characteristics of Triassic sediments.

Triassic sediments unconformably overlie Permian sequences in Texas and New Mexico and have been classified as the Triassic Dockum Group. The Dockum Group is comprised of a complexly interrelated series of fluvial and lacustrine mudstone, siltstone, sandstone, and silty dolomite deposits that can be as much as 2,000 feet thick in this part of the Permian Basin. These sediments accumulated in a variety of continental depositional settings, including braided and meandering streams, alluvial fan deltas, lacustrine deltas, lacustrine systems, and mud flats.

The Triassic Dockum Group is divided into an Upper and Lower Unit. The Upper Dockum Unit is very near the surface within the project boundary, covered only by a thin veneer of Quaternary sediments. The character of this unit, also know as the Chinle Formation, is a series of fluvial sediments. These sediments conformably overlie the Lower Dockum Unit and consist of red-green micaceous mudstones, interbedded with thin, discontinuous lenses of siltstone and silty sandstones. A continental fluvial depositional environment predominated during Upper Dockum time, when the Triassic basin was filled with lacustrine sediments. The Chinle Formation is widespread in the southwestern United States.

The Lower Dockum accumulated in a fluvial lacustrine basin defined by the Amarillo Uplift on the north and the Glass Mountains on the south. As presented in the basin map shown on Figure 3-5, the Lower Dockum represents sediments from a large, regional depositional system. For any given portion of this basin, these sediments tend to be very homogeneous and not subject to abrupt local changes. This basin was peripherally filled, receiving sediment from the east, south, and west. Chief sediment sources were Paleozoic sedimentary rocks. Lowlands to the east and west were traversed chiefly by meandering streams. Higher gradient streams with flashy discharge existed at northern and southern ends of the basin. The large shallow lake (or lakes) was the last portion of the basin to be filled. The lacustrine sediments that accumulated here consist primarily of low-energy mudstone.

The proposed site, situated on the western flank of the Triassic paleobasin, is underlain by thick sequences of Lower Dockum mudstones. In Triassic times this area was dominated by meandering streams. The former tectonic belts were more than 200 miles away, and the regional slopes were relatively low. Surface exposures today in these areas consist of thick sequences of maroon-red-purple variegated mudstones with thin discontinuous layers of siltstones and silty sandstones.

The stratigraphy of Lower Dockum sediments in east-central New Mexico is significantly different from that of the proposed site. Figure 3-6, a subsurface sand percent map of this unit, was compiled from drill hole data from more than 1,500 oil wells throughout the basin. Thick sequences of sandstones at the northern and southern portions of the basin are shown projecting inward toward the center of the basin. In the New Mexico portion of this basin, these sand accumulations are related to the occurrence of the Santa Rosa Sandstones. This medium-to-coarse grained, white to buff sandstone represents the lowermost Triassic depositional unit and is a major aquifer in this portion of New Mexico.

Figure 3-6 illustrates that the great accumulation of Santa Rosa Sands that fills the northern portion of the Triassic paleobasin pinches out before reaching the Facility site. During the Lower Dockum time, the Facility site was part of a low-relief area with little fluvial deposition. The McGowen report specifies sand percentages of the Lower Dockum group in the Facility site area to be in the 10 to 20% range. This is consistent with data gathered from the two deeper drill holes completed north and south of the site boundary. There is a basal sand unit in the Lower Dockum below the site, but it appears not to be depositionally related to the Santa Rosa Sandstone.

Permian

Permian sediments are important to the geologic setting because they are immediately below the proposed Triassic host rocks. The deeper formations of Permian age were deposited in a restricted marine environment and thus contain salt deposits, which make the groundwater produced from them too brackish for use.

Permian sediments underlying the Triassic units in the project area are assigned to the Artesia Group. Oil well logs from the New Mexico OCD in Hobbs, New Mexico, have provided sufficient data to identify the Dewey Lake Formation, Rustler Formation, and Yates Formation from the upper portion of this group.

Geologic literature describes these Permian sediments to be gently dipping to the east. This fact was confirmed by using oil well log data to construct a graphic 3-point solution, as shown in Figure 3-7. Using the top of the anhydrite (Rustler) as a marker bed, the following simple calculations were made:

Known Point Elevations of Marker Bed

A = Lowest elevation - 2,975 feet
C = Highest elevation - 3,148 feet
B = Middle elevation - 3,091 feet

Strike Determination

Strike is defined as the direction of a horizontal line along the bedding plane and is calculated as follows:

D = point along AC with the same elevation as B (BD is strike)

$$AD = AC \times \frac{\text{difference in elevation between A and B}}{\text{difference in elevation between A and C}}$$

$$AD = 18{,}500 \text{ ft} \times \frac{3091 - 2975}{3148 - 2975} = 12{,}405 \text{ ft}$$

CD = 18,500 ft – 12,405 ft = 6,095 ft

BD = direction of strike = N6°E

Dip Determination

Dip is defined as the angle of the bedding plane measured from a horizontal line perpendicular to the strike and is calculated as follows:

E = point along strike, therefore, E(elevation) = B(elevation)

$$\text{Tangent of dip angle} = \frac{\text{E(elevation) - A(elevation)}}{\text{AE}}$$

$$\text{Tangent of dip angle} = \frac{3091 \text{ ft} - 2975 \text{ ft}}{7520 \text{ ft}} = \frac{116 \text{ ft}}{7520 \text{ ft}} = .015$$

Dip angle = Tangent $^{-1}$ (.015)

Dip angle = 0°52’

These calculations indicate a north-south strike and a dip of less than 1° to the east. These results are consistent with the reported regional dip for Permian (and Triassic) sediments along the western flank of the Permian Basin.

Dewey Lake Formation—The uppermost Permian sediments underlying the Triassic sequence in the project area correlate to the Dewey Lake Formation. These sediments are predominately red to red-brown mudstones and siltstones and are virtually indistinguishable from the overlying Triassic sediments. Geologic literature reports a conformable relationship between these sediments and the overlying Triassic sediments. There are approximately 240 feet of Permian redbeds in this section.

Rustler Formation—The top of the Rustler Formation was identified on OCD well logs and corresponds to the top of a 40-foot bed of anhydrite. These anhydrites are visible in outcrop on the hills immediately east of the Pecos River drainage east of Roswell, New Mexico. Underlying the anhydrite are approximately 500 feet of halite (salt). The Rustler Formation represents the youngest anhydrite sequence in the Permian Basin.

Yates Formation—Unconformably underlying the Rustler, the Yates Formation is composed primarily of interbedded sandstone with minor dolostone and limestone. The sands are light gray and fine to very fine grained. Limestone is white to very light gray microcrystalline lime mudstone with a chalky texture. Dolostone is pink to light gray and microcrystalline

3.4.1.2 Regional Structure

The tectonic setting and seismic activity are discussed in this section.

Tectonic Setting

The proposed Facility site is located on the western flank of the Permian Basin of west Texas. Because of the distance from tectonic centers and the minimal seismic activity, this is considered one of the more geologically stable regions within the United States.

The region underwent intense deformation, however, during late Paleozoic times. Major uplifting occurred along the Ouachita Tectonic Belt and the Wichita System of Texas and Oklahoma (shown in Figure 3-5). The Sacramento and Sangre de Cristo uplifts in northeastern New Mexico were also active during late Paleozoic time. The overall structural configuration of the Permian Basin was established at this time.

This period of intense deformation was followed by a long period of gradual subsidence. The sea covered the region, and throughout the remainder of Permian era, the Permian Basin was slowly filled with several thousand feet of evaporites, carbonates, and shales. As discussed in Section 3.4.1.1, non-marine deposition began in Triassic time with the accumulation of lacustrine/fluvial sediments into a large shallow lake.

During the late Cretaceous to early Tertiary Laramide Orogeny, there was renewed uplifting along the Sacramento, Sangre de Cristo, and other ranges within the Rocky Mountains. This orogeny uplifted the region to its present position and supplied sediments for the Tertiary Ogallala Formation.

Seismic Activity

The Permian Basin is an area of moderate to low seismic activity. Data obtained from the National Geophysical Data Center of NOAA indicate a total of 102 observed earthquakes within a 250-km (155-mile) radius of the proposed site. These data reflect observations made from 1930 to 1993.

As shown in Figure 3-8, there were no recorded earthquakes with a magnitude greater than 3.9 within 70 miles of the proposed site and no recorded seismic activity within a radius of 45 miles. The distance from any tectonic centers and the low recorded seismic activity suggest that the proposed site is located in an extremely stable environment where activity is not expected. Consequently, ~~little~~ damage from earthquake activity is not anticipated.

3.4.2 Site Geology

Figure 3-9 illustrates the surficial geology on and adjacent to the proposed site. This section will provide detailed descriptions of the proposed Triassic host sediments and the Quaternary alluvium that overlies these sediments only.

3.4.2.1 Site Stratigraphy

Specific data for this section was obtained through drilling activities described in Section 3.4.3. Figure 3-10 is a stratigraphic cross-section based on this drilling, illustrating relationships between the proposed Triassic host sediments and adjacent formations. Other site-specific cross-sections are located in ~~Volume II, Appendix G~~ Attachment Y.

Quaternary

The thickness of Quaternary alluvial deposits at the site varies from less than 10 feet to 35 feet. The upper portion of these sediments consists of fine to very fine, wind-blown yellow-brown sands. Below this sand are varying thicknesses of red-brown to yellow-brown siltstones and silty mudstones.

Scattered throughout these sediments are small chert pebbles and granitic cobbles derived from the Tertiary Ogallala Formation.

A caliche zone (Mescalero Caliche) is present in most of this unit. The caliche is found immediately under the top wind-blown sands and coats and fills fractures within the more consolidated siltstones. Where the Quaternary alluvium is quite thin, this caliche is found coating Triassic sediments.

Triassic

Drilling at the site has delineated 1,175 feet of Dockum sediments. Two distinct units can be identified in these sediments: the Upper Dockum (475 feet thick) and the Lower Dockum (700 feet thick). Within the proposed Facility boundary the thickness of the Upper Dockum unit never exceeds 100 feet. Upper Dockum sediments are in contact with the overlying Quaternary alluvium throughout the project area.

Upper Dockum—This unit consists of variegated (red-brown-green) mudstones interbedded with reddish gray siltstones and reddish-gray-green sandy siltstones. The siltstones are micaceous (predominantly muscovite), indicating they were part of a relatively active fluvial system capable of transporting material into the basin from distant source rocks.

From examination of lithology and down-hole electric logs, it is estimated that mudstones comprise 30 ~~30~~ percent of the unit. ~~is comprised of mudstones.~~ Lithologies of the remainder of the unit are evenly divided between siltstones and sandy siltstones. However, as the geotechnical properties of these two lithologies are very similar, this geologic discussion will simply refer to them both as siltstone. Mudstones were found to have an average permeability of 2.45 x 10^{-7} cm/s, and the siltstones average 1.22 x 10^{-5} cm/s.

These sediments were deposited in a fluvial environment. Mudstone and siltstone bodies are very lenticular and are found to pinch out abruptly. Accordingly, individual lithologies are not correlatable over significant distances (thousands of feet).

Cross-sections prepared from the close-spaced drilling within the proposed Facility boundary establish an understanding of the fluvial nature of this unit (see ~~Appendix G~~ Attachment Y, Cross-Sections). ~~in Volume II).~~ Figure 3--11 shows the locations of drill holes for the close-spaced drilling pattern and provides an index of cross-sections that illustrate the character of the Upper Dockum Unit. Also shown on Figure 3-11 is the location of the "most favorable" area for the construction of the proposed landfill. Figure ~~Figure~~ 3-12 shows the lithology of the site. As shown in the cross-sections on Figures 3-10 and 3-12, the lithology of this area is predominantly mudstone, with thin beds of siltstones. The lenticular nature of the mudstone and siltstone bodies is also shown in these cross-sections. Cross-sections 3-1 and 3-2~~,~~ in Attachment Y~~Appendix G (Volume II),~~ show the facies~~fades~~ relationships of the "most favorable" area.

The fluvial nature of the Upper Dockum Unit has led to the scouring of channels into the underlying Lower Dockum Unit. This scouring and the pinching-out of fluvial sediments have resulted in the local development of an undulatory surface on top of the Lower Dockum Unit. This phenomenon is well illustrated in Cross-sections 3-3, 3-4, and 3-5, in ~~Appendix G~~Attachment Y ~~(Volume II)~~.

Lower Dockum—The Lower Dockum Unit, described in Section 3.4.1.1, has a completely different character from the upper unit. The lower unit represents a time of relatively quiet lacustrine deposition, which resulted in the accumulation of thick sequences of predominantly mudstones interbedded with thin siltstones. These sediments are very homogeneous, in contrast with the abrupt facies changes present in the more active Upper Dockum depositional system.

Most of the close-spaced drilling within the proposed Facility boundary "bottomed" in Lower Dockum mudstones. These mudstones were consistently a moderate reddish brown color, which according to McGowen (1979)~~),~~ is associated with low stand lacustrine and mud flat deposition.

The 1995 confirmation drilling provided some important data on this unit. As illustrated in Figure 3- 13, all three holes penetrated the clays of the Lower Dockum unit. PB-36 encountered 64 feet of this unit, PB-37 encountered 55 feet, and PB-38 encountered 18 feet. A total of 10~~Ten~~ feet of core of Lower Dockum were collected from PB-36 at a depth of 138 to 148 feet and 7 feet of Lower Dockum were collected from PB-37 at a depth of 148 to 155 feet. Four representative samples of this core were sent to AGRA Earth & Environmental laboratories for permeability analyses. The results of these analyses confirm the Lower Dockum to be a very impermeable unit (average permeability of 5.7×10^{-8} cm/s), capable of performing as a geologic barrier to downward migration from the proposed landfill. Following are the results of the core analyses:

Core Interval	Permeability (cm/sec)
PB-36 (144'-445')	5.2×10^{-8}
PB-36 (147'-148')	6.8×10^{-8}
PB-37 (150'-151')	5.8×10^{-8}
PB-37 (154'-155')	4.9×10^{-8}

3.4.2.2 Site Structure

There are no mapped or otherwise identified faults ~~within the project area. As previously discussed, the proposed site is located in a geologically stable area. There are no mapped faults~~ on or adjacent to the project area. Color air photos of the area were examined for surface lineations, which can reflect faulting in the subsurface. All surface lineations observed on these photos were attributed to man-made features (i.e., fences, roads, etc.).

Subsurface drilling did not encounter displacement or repeating of geologic sequences that would be indicative of faulting. In the Upper Dockum Unit, there are abrupt changes in lithologies, but these are attributed to depositional processes associated with an active fluvial system. The fluvial nature of the Upper Dockum Unit has led to the scouring of channels into the underlying Lower Dockum Unit. This scouring and the pinching-out of fluvial sediments have resulted in the local development of an undulatory surface on top of the Lower Dockum Unit (Figure 3-14). Figure 3-14 also shows the northeast dip of the Lower Dockum.

3.4.3 Site Investigation Activities

Triassic sediments in eastern Chaves County were initially identified as excellent host rocks for proposed hazardous waste disposal because they (1) contain thick sequences of low permeability clays; (2) occur in remote, unpopulated areas; and (3) produce virtually no groundwater. This section describes the series of exploration activities undertaken to verify and document the suitability of the site for hazardous waste disposal.

As part of this permit application, a total of 41 drill holes were completed. The lithologies of these holes were recorded and a geophysical log was run on each drill hole. A total of 31 of ~~Thirty-one of~~ these drill holes were completed within the project boundary (Figure 3-15).

3.4.3.1 Preliminary Evaluation Activities

The first phase in determining an appropriate disposal site was to identify potential sites with exposed or near-surface Triassic sediments. To identify such sites, color aerial photos were obtained of areas underlain by Triassic sediments in eastern Chaves County (Figure 3-16). The areas exhibiting the characteristic coloration associated with the Triassic sediments on the photos were then plotted on topographic maps. The locations with desirable geology were screened for additional factors, including accessibility and land ownership. From this process, a prioritization of sites was developed and a shallow drilling program designed.

In July and September 1993, two shallow drilling programs were conducted to examine Triassic sediments underlying the Quaternary alluvium. Average depth of these holes was 40 to 60 feet, and the drilling was conducted on a spacing of approximately 1,000 feet between holes. As shown in Figure 3-17, three areas encompassing seven sections were examined. The objective of this drilling was to identify an area where the Triassic sediments were unsaturated, were situated close to the surface, and contained low permeability clays. An Ingersol Rand 1500 air-rotary drill was used to perform this work. This air-rotary technique was used because of the high quality of drill cuttings it produces and because the presence of any subsurface water can be easily detected.

Of all areas investigated, the surface and near-surface geology in the vicinity of Red Tank (the proposed site) was found to be the most favorable. Over most of this area, the thickness of Quaternary alluvium averaged approximately 10 feet, and the shallow drilling indicated the presence of unsaturated mudstones underlying the alluvium. Five shallow core holes were completed, adjacent to rotary air holes, to obtain preliminary geotechnical data on the near-surface Triassic sediments. As a result of the shallow depth of these sediments, many of the clays were very dry and brittle. This presented some difficulty in obtaining "undisturbed" core samples. Despite these difficulties, materials testing results showed low permeabilities for Triassic clays, ranging from 1×10^{-7} to 3×10^{-8} cm/s. These values, along with the local geologic setting, established the Red Tank area as an area conducive to more detailed site characterization.

Two deep holes (WW-1 and WW-2) were drilled to the base of the Dockum Group in November 1993. These holes encountered an unsaturated thickness of 600 to 650 feet of Lower Dockum mudstones consisting primarily of reddish brown, maroon, and purple mudstones with thin intervals of reddish brown silts.

Lithologic logs developed from cuttings samples and down-hole geophysical logs (gamma and thermal neutron) confirm the homogeneity of this thick mudstone interval. In addition, samples of drill cuttings from one of the deep holes (WW-2) were taken to the University of New Mexico's Diagnoses Laboratory for a grain size analysis. This analysis showed a remarkably constant grain size distribution throughout the sequence, which is consistent with the technical definition of a mudstone. This procedure involved desegregating, centrifuging, drying, wet sieving, and weighing the samples. A complete procedure and the results of this analysis are contained in ~~Volume II, Appendix F~~ Attachment X, Grain Size Analysis.

The 600- to 650-foot mudstone interval rests on a basal sandstone unit that is approximately 50 feet thick. This basal unit is present in oil well logs in the area as a clean to a silty sand. The deep drilling did not retrieve any cuttings from this basal unit. The drilling was performed with air, and the moisture in this unit prevented the return of cuttings to the surface. Casing was placed in these holes, and water levels were taken (~~Section~~ Section 3.6.2).

WW-1 and WW-2 were drilled north and south of the project boundary to characterize the nature of the Lower Dockum. Because of the consistent, continuous depositional environment within the lacustrine sediments at the Lower Dockum, it was decided (and approved by the NMED) that it was unnecessary to penetrate the entire Lower Dockum sediments within the site boundary. Such penetration would have certainly violated the integrity of the formation in the area of the planned hazardous waste landfill and in all likelihood would not have provided additional geologic information.

Details for the closure of the two deep wells (WW 1 and WW 2) will be provided for review and approval by NMED prior to plugging. Both wells will be abandoned prior to the start of any facility construction.

3.4.3.2 1994 Site Characterization Activities

In June 1994, a drilling plan for site characterization activities at the proposed site was prepared and submitted to the NMED Hazardous and Radioactive Materials Bureau. ~~of the New Mexico Environment Department.~~ The plan identified drilling locations, depths and methods, proposed geotechnical tests and methods, and down-hole geophysical logging methods. The 100-foot depth was sufficient to penetrate the base of the Upper Dockum (with the exception of the easternmost portion of the site). The plan was approved as submitted.

Drilling operations commenced on July 17, 1994 and a total of 36 drill holes were completed. There were three distinct phases of this drilling program: (1) close-spaced pattern drilling in the area of the proposed site (to a depth of 100 feet) to obtain detailed lithologic and hydrologic information for the design of a landfill, (2) stratigraphic drilling across the project area (to a depth of 200 feet) to correlate the site geology with the regional setting, and (3) selected core drilling in the proposed site for geotechnical samples. Samples of drill cuttings were collected and logged for each hole (see ~~Volume II, Appendix C~~ Attachment U, Lithology Logs and Plugging Logs). Southwest Geophysical Services, Inc. conducted down-hole geophysical logging of each drill hole. These electrical surveys consisted of thermal neutron and gamma logs. The electric logs provide lithologic information from drill holes to supplement and verify the lithologic interpretations based on drill cuttings. Copies of all geophysical logs can be found in ~~Volume II, Appendix D~~ Attachment V.

An air ~~A~~ rotary ~~air~~ rig (Ingersol Rand 1500) was used for this work. Drilling with air provides cleaner drill cuttings than drilling with water, and usually a good indication of water saturation. However, in the case of the Upper Dockum sediments on the Facility site, this drilling technique was not always successful in identifying water saturation. This failure was a result of the low to very low permeabilities of the silty sands and the low amount of water saturation. The pressure of the air from the drilling process prevented water from immediately entering the holes. If groundwater was present, it was not always detected until the hole had stabilized and a geophysical log was taken. Geophysical logs on all 31 drill~~chill~~ holes within the site boundary encountered no saturated Upper Dockum sediments.

Three core holes were completed and a total of 85 feet of core recovered. A CME-55 hollow-stem auger rig using a continuous sampler was used to collect these samples. The dry, brittle nature of these shallow, unsaturated sediments made the recovery of undisturbed core samples difficult.

Representative core samples of mudstones, siltstones, and sandy siltstones were sent to materials testing laboratories for measurement of geotechnical parameters to be used in the Facility design and contaminant transport modeling. In addition to core samples, 11 backhoe pits were dug adjacent to drill holes for the collection of bulk samples. Proctor tests were performed on these bulk samples to provide information required for design studies. All geotechnical laboratory results are contained in ~~Volume II, Appendix E~~ Attachment W.

3.4.3.3 1995 Confirmation Drilling Program

In order to confirm the unsaturated nature of the Upper Dockum sediments on the eastern boundary of the proposed Facility, a drilling plan was submitted to Mr. Bob Sweeney of NMED on June 26, 1995. This plan was modified and approved in a letter from Mr. Ronald A. Kern, dated July 12, 1995. A three-hole drilling program was conducted on the GMI site on July 24 and~~&~~ 25, 1995. Mr. Bob Sweeney visited the site and observed the drilling operations on Monday, July 24, 1995.

Holes PB-36, PB-37, and PB-38 were completed as an extension to an existing east-west line of drill holes. The westernmost drill hole was located on the eastern boundary of the proposed landfill. The other two holes were drilled 1,000 feet apart and examined the area immediately east of the proposed landfill. All surface locations for these drill holes were surveyed.

No groundwater saturation was encountered. All holes were completed with air so that saturated sediments could have easily been detected. Lithology logs describing drill hole cuttings were prepared in the field and down-hole geophysical logs were run on each hole. The geophysical logs included gamma ray, thermal neutron, and caliper profiles.

3.4.3.4 1999 Drilling Program

In order to further clarify the subsurface stratigraphy and groundwater conditions underlying and adjacent to the proposed site within the upper Dockum and its contact with the Lower Dockum, a drilling program was conducted in August 1999 consisting of 10 drill holes. This drilling program was conducted at the request of NMED and in accordance with the Final Work Plan for Stratigraphic and Groundwater Characterization Program, dated July 28, 1999. The results of this program were documented in Final Report for 1999 Stratigraphic and Groundwater Characterization Program, dated September 10, 1999 (Montgomery Watson).

The results of this program 1999 demonstrated that the subsurface stratigraphy underlying the proposed site is both continuous with and predictable from previous drilling results, as shown in Figure 3-14. There were no unexplainable features within the depositional environment. In all cases, the depth of the contact between the Upper Dockum and the Lower Dockum sediments was encountered where it was estimated to be. There was no groundwater within these sediments.

The groundwater characterization drilling demonstrated that there is even less groundwater in the vicinity of the site than originally thought. Pooled surface waters have the potential of migrating through the surface alluvial sediments. Limited saturation encountered one-mile northeast of the site in the Upper Dockum now appears to have been an isolated occurrence of perched groundwater. Upper Dockum sediments underlying the site and extending 0.75~~3/4~~ mile downgradient have been examined by over 40 drill holes and found to be unsaturated.

3.5 Surface Water and Water Balance

This section describes surface waters and meteorological conditions used to estimate groundwater recharge at the proposed site.

3.5.1 Surface Water

There are no perennial stream drainages on or near the proposed site. The nearest surface drainage is the Pecos River, approximately 30 miles to the west.

There is one small stock tank (Red Tank) within the proposed Facility boundary and several additional tanks on adjacent lands. These tanks are approximately 200 feet by 200 feet and contain water for livestock. The tanks are clay-lined and retain water from run-off or receive water from an underground pipeline. Water in the ~~underground~~ pipeline is supplied from three water wells on the Marley Ranch located in Section 10, T11S, R31E. These wells are east of the Mescalero Rim and produce water from the Ogallala Formation. In the past, water from the springs along the Caprock escarpment was used in this pipeline, but now water is pumped from the Ogallala Formation. The pipeline is ~~personally~~ owned and maintained by the Marley Ranch to provide water to cattle operations below the Caprock.

Once the site is designated as a disposal area, cattle operations on this property will cease and the Marley Ranch will stop using Red Tank. They will also re-route their ~~personal~~ pipeline, as appropriate, to avoid landfill operations and continue to supply water to their cattle operations below the Caprock.

3.5.2 Water Balance

The water balance analysis estimated groundwater recharge from direct precipitation and ~~,~~ surface water bodies~~, and irrigation~~ at the proposed landfill site. This information is useful for assessing the potential migration of contaminants released at or near the surface to groundwater. The groundwater recharge rate is directly related to the potential for contaminants spilled or leaked at the surface to reach groundwater. In areas with little or no groundwater recharge, there is less potential for groundwater contamination from releases of hazardous substances than in high recharge areas, because the mechanisms to transport potential contamination are limited.

A water balance requires quantification of the hydrologic components, which can result in changes in the amount of water stored in the area of interest. Often, water balances are calculated for an entire watershed to understand the relative importance of the hydrologic components within that area. For this analysis, the water balance was performed to estimate groundwater recharge at the proposed landfill site.

Groundwater recharge at the proposed site can be estimated by summing precipitation and ~~,~~ infiltration from surface water bodies~~, and irrigation~~ at the site and subtracting evapotranspiration and surface run-off. As no natural surface water bodies exist~~or irrigation occur~~ at the site, groundwater recharge is estimated as the difference between direct precipitation and evapotranspiration. This assumes no surface run-off at the site.

The water balance used precipitation~~Precipitation~~ data collected at the Roswell weather station indicating~~indicate~~ that mean annual precipitation is 10.~~61~~ 61 inches (Section 3.2.2). This annual mean is used as the average precipitation at the proposed site.

Evapotranspiration refers to the processes that return water to the atmosphere by a combination of direct evaporation and transpiration by plants.~~ and animals.~~ It is the largest item in the water budget because most of the precipitation that falls in the area returns almost immediately to the atmosphere without becoming part of the surface water or groundwater systems. On semi-arid~~unirrigated~~ rangeland, much of the precipitation that does not evaporate immediately is taken up fairly rapidly by plants and transpired. In a regional water balance conducted in southeastern New Mexico, it was estimated that approximately 96 percent of total precipitation is lost to evapotranspiration (Hunter, 1985). This number corresponds to data presented for the Rio Grande Basin by Todd (1983), which estimated that 95.4 percent of total precipitation was being lost to evapotranspiration.

Assuming a mean annual precipitation rate of 10.61 inches, of which 96 percent is lost to evapotranspiration, the net recharge to groundwater is estimated as 0.42 inch per year. This low groundwater recharge rate significantly reduces the potential for groundwater contamination from spills or leaks at the proposed Facility.

The purpose of this water balance is to provide a conceptual understanding of the hydrologic components at the site. The amount of groundwater recharge is a reflection of the arid climate of the region. The net recharge estimate of 0.42 inch per year (based on average hydrologic components) represents the expected long term annual conditions at the site. The relatively low recharge rate appears to be reasonable given the unsaturated conditions of the Upper Dockum within the site boundaries. Using the highest recorded annual precipitation value of 32.92 inches yields only a slightly higher recharge rate of 1.32 inches (assuming an evapotranspiration rate of 0.96). This short-term (1-year) increase in recharge is unlikely to have a significant impact on the unsaturated flow regime at the proposed site.

3.6 Groundwater

This section describes regional and local aquifers.

3.6.1 Regional Aquifers

In the region surrounding the proposed site, there are two geologic units that have produced groundwater, the Triassic and the Tertiary Ogallala Formation. Very minor amounts of groundwater have been produced from Triassic sediments,~~;~~ but the Tertiary Ogallala Formation is a major aquifer in southeastern New Mexico, west Texas, and several other western states.

An updated record~~A listing~~ of all water wells within a ~~4-mile radius and~~ 10-mile radius of the Facility ~~proposed site~~ was obtained from the New Mexico Office of the State Engineer (OSE) WATERS database in October 2011. No water wells are located within 3 miles of the Facility. ~~Engineer's office.~~ Water wells within a 10-mile radius are listed in Table 3-3 and shown in Figure 3-18. Water wells identified for the Permit Application dated October 2000~~, while those~~ within a 4-mile radius, along with oil well locations and the locations for all site investigation drilling activities, are shown in Figure 3-19.

A total of 33~~Sixteen~~ water wells were reported, 17~~fourteen~~ from the Ogallala Formation and 16~~two~~ from the Triassic. The ~~Of the two~~ Triassic wells are used for livestock and wildlife (11), domestic (4), and irrigation (1). The nearest well~~, one is now reported~~ to ~~be dry and~~ the site~~other~~ is ~~actually~~ located approximately 3~~more than 6~~ miles to the northeast (domestic well RA 10249). This well is located at the base~~west~~ of the Mescalero Escarpment and is 100 feet deep. Completion depths and details were not available for all of the Triassic wells. For the nine wells for which data are available, eight range in depth from 218 to 650 ft bgs. These wells likely penetrate the Lower Dockum sediments (including the Santa Rosa Sandstone equivalent). One well (RA 11023 POD1) was completed at a shallow depth of 101 ft bgs and is used for irrigation. This well penetrates Triassic sediments based on its~~proposed site. Six of these wells are shallow completions (100 feet or less) from the 1910's and 1940's and are used with windmills to supply water to livestock and wildlife. The numbers of these wells are RA-8585 through RA-8589 and RA-8363. These include wells that appear to penetrating Triassic sediments because of their~~ surface location; however, ~~s, but~~ due to the~~their~~ shallow depth~~s~~, the source of water could be from surficial~~surface~~ alluvial sediments.

The following ~~Four of the remaining eight wells range in depth from 560 to 640 feet and have been completed within the past seven years. These wells would have penetrated the Lower Dockum sediments (including the Santa Rosa Sandstone equivalent). Following is a~~ description of selected~~these~~ wells was included in the October 2000 permit application; this information was not available through the OSE WATERS database.~~:~~

- RA-8577 was drilled to a depth of 614 feet in 1992. Its~~It's~~ initial production was 4 gallons per minute.

- RA-9320 was drilled in 1996 to a depth of 650. ~~560.~~ The estimated yield was 6 gallons per minute; however, the water was determined to be not potable. The well was plugged and abandoned on November ~~11/~~25, 19~~/~~96.

- RA ~~-~~9568 was drilled to a depth of 550~~640~~ feet in 1998. It was a dry hole and was plugged and abandoned on August ~~08/~~14, 19~~/~~98.

- RA ~~-~~9670 was drilled in 1998 to a depth of 587. The estimated initial yield was 2 gallons per minute.

~~Little information about the remaining four wells was available at the time of the study.~~

3.6.1.1 Ogallala Aquifer

The Ogallala Aquifer is the primary freshwater aquifer within the regional study area and serves as the principal source of groundwater in the Southern High Plains. The saturated thickness of the Ogallala Aquifer ranges from a few feet to approximately 300 feet in the Southern High Plains. Groundwater within the Ogallala Aquifer is typically under water table conditions, with a regional hydraulic gradient toward the southeast ranging from approximately 10 feet per ~~/~~mile (ft/mi) to 15 ft/mi. ~~feet/mile.~~ The average hydraulic conductivity of the Ogallala Aquifer ranges from 3.5 x 10^{-4} cm/s to 9.5 x 10^{-3} cm/s.

The Ogallala Aquifer is recharged primarily through the infiltration of precipitation. The rate of recharge is believed to be less than 1 inch/year. Groundwater discharge from the Ogallala Aquifer occurs naturally through springs, underflow, evaporation, and transpiration, but groundwater is also removed artificially through pumpage and catchment. Currently, the rate of withdrawal exceeds the rate of recharge for much of the Ogallala Aquifer.

3.6.1.2 Triassic

Regionally, the only aquifer within Triassic sediments is the Lower Dockum Aquifer. However, because the Upper Dockum is known to have permeable facies~~faces~~ that locally produce low quantities of good to poor quality water, it is included in this section.

Lower Dockum Aquifer

The major aquifer within the Lower Dockum is the Santa Rosa Sandstone. This sandstone is present along the northern and southern flanks of the Permian Basin and is a principal source of groundwater in Roosevelt and Curry Counties, New Mexico. The Santa Rosa Sandstone is not present along the western flank of the Permian Basin, which includes the proposed site.

Where the Santa Rosa Aquifer has been studied, hydrochemical analyses and groundwater oxygen isotopes indicate that it is distinctly different from the Ogallala Aquifer. The thick, impermeable clays within the Triassic section have been sufficiently impermeable to prevent hydraulic communication between these aquifers.

Upper Dockum Aquifer

There is no regional aquifer developed within Upper Dockum sediments. In local areas, recharge to the Upper Dockum is provided through vertical infiltration from overlying aquifers which are water- bearing units within the Ogallala Formation. This relationship has been illustrated in Figure 3-10.

3.6.2 Site Groundwater

Potential Triassic host sediments within the proposed Facility boundary are unsaturated. Detailed drilling within this boundary has encountered no groundwater. Drilling outside the proposed Facility boundary has identified saturated zones in both the Upper and Lower Dockum Units. The following subsections contain descriptions of these saturated zones.

3.6.2.1 Ogallala Aquifer

The western boundary of the Ogallala Aquifer, represented by the Caprock escarpment, is located topographically/stratigraphically above and 2 miles east of the proposed site. The Ogallala Aquifer is not present at the Facility site. At the base of the escarpment, along the contact of the Ogallala Formation and the underlying Upper Dockum, are numerous springs, which are a result of downward-migrating Ogallala groundwater coming into contact with low permeability zones within the Upper Dockum and being diverted to the surface.

3.6.2.2 Upper Dockum - "Uppermost Aquifer"

For the purpose of this application, the uppermost aquifer is considered to be the Upper Dockum Unit. ~~because the Ogallala Aquifer is not present at the site.~~ The EPA has defined the uppermost aquifer as the geologic formation, group of formations, or part of a formation that is the aquifer nearest to the ground surface capable of yielding a significant amount of groundwater to wells or springs. The Upper Dockum Unit certainly does not yield a significant amount of groundwater. However, preliminary drilling in the site area has found portions of this unit to be water-bearing and to possess consistent hydrologic characteristics.

The identification of a confining layer on the lower boundary is an essential factor in the identification of the uppermost aquifer. The thick sequence of mudstones of the Lower Dockum Unit (as discussed in Section 3.4.2.1) represents a high-integrity aquitard, effectively confining the aquifer. Although there is a saturated basal sandstone in this unit, the 600 to 650 feet of mudstones separating the Upper Dockum sediments from this sandstone are of sufficiently low permeability to prevent hydraulic communication between the Upper and Lower Dockum Units.

As previously discussed in Section 3.6.2.1, several springs are present where the Ogallala Formation crops out, two miles east of the Facility site, along the 200-foot high Caprock escarpment. These springs are present where the Ogallala sands unconformably overlie impermeable Dockum mudstones and claystones and the groundwater moves laterally to the surface. Where these water-bearing Ogallala sands are in contact with more permeable units of the Upper Dockum, saturation of these underlying sediments occurs. The result, as illustrated in Figure 3-10, is the formation of a groundwater divide east of the proposed site. The majority of the groundwater entering the Upper Dockum flows to the east, conforming to the regional dip of the unit. There is also a minor flow component which slopes away from the unconformable contact, creating a steep hydraulic gradient towards the west. This gradient does not extend beneath the Facility site. As shown in Figure 3-20, this gradient must lie immediately east of PB-38, which is still unsaturated, whereas holes WW-1~~,~~ and PB-26 are saturated.

Where groundwater has been observed in the Upper Dockum, not all lithologies within the unit are saturated. Air drilling through these sediments found the mudstones to be unsaturated. The more permeable sandy siltstone facies were water-bearing below depths of 135 to 150 feet. These saturated lithologies were encountered approximately 2,500 feet east (downdip) of the proposed landfill site, beyond the proposed Facility boundary (Figure 3-20). It is extremely significant that this saturation does not extend beneath the Facility site. All 31 drill holes within the site boundary, as shown on Figure 3-15, were unsaturated. For this reason, there were no groundwater production tests conducted.

Exploratory drilling west of the proposed Facility boundary (updip), near the outcrop of the Upper Dockum Unit, the small sandy hills located along the section line between Section 18, T11S, R31E and Section 13, T1 1S, R30E, encountered an isolated occurrence of groundwater (Figure 3-19). In a single drill hole (PB-14), at a depth of 42 feet, a small accumulation of groundwater was found in a depression developed on the surface of the underlying Lower Dockum mudstones. This depression is consistent with the "scouring" of the Upper Dockum fluvial sediments into the Lower Dockum mudstones (Section 3.4.3.2). Closer spaced drilling in the vicinity of this occurrence encountered no other such accumulations. This isolated "pooling" is most likely a result of surface run-off entering the subsurface from the nearby outcrop and being caught in a small "stratigraphic trap."

Because of the identification of groundwater in borehole 14, an offset (borehole 14o) was completed 400 feet to the east (down-gradient). This borehole location was in addition to those pre-approved by the NMED, but determining the potential extent of groundwater saturation was important. Borehole 14o was drilled to a depth of 100 feet.

There was no saturation observed while drilling this offset, but the geophysical log indicated the presence of fluid at the bottom of this borehole. The top of the fluid was observed to be at a depth of 92.0 feet, indicating a maximum apparent concentration of 3.5 feet. This is an apparent concentration because a 2.25-inch probe will displace approximately one-half of the volume of the hole. Regardless of all of these factors, there was approximately 1~~one~~ gallon of fluid in the bottom of this borehole introduced by a heavy rainfall that occurred after the hole was drilled and before it could be logged. Due to the impermeable nature of the Lower Dockum mudstones, the water did not infiltrate into the formation and was trapped in the bottom of the hole.

The hole was cased with 3-inch plastic tubing and monitored for several weeks. No additional water entered the hole, and, in fact, the gallon of water eventually dispersed into the Lower Dockum. An examination of the log for PB-14o shows the bottom of the sandy silt unit (Upper Dockum) to be a depth of 36 feet. If the Upper Dockum was the source of the water, the hole would have equilibrated or filled to a depth of at least 36 feet. The fluid did not migrate upward through several hundred feet of Lower Dockum mudstones; therefore, there is no apparent subsurface source for the small quantity of water shown in the log for this hole.

Water Level Measurements—After the stratigraphically trapped water (Cross-section 3-3~~, Appendix G, Volume II~~in Attachment Y) was encountered, temporary casing was placed in the drill hole (PB-14) so that piezometric water levels could be measured. For the first six weeks after casing the drill hole, the water was pumped from the hole weekly. After each pumping event, the water returned to a static level of 42 feet. Subsequent water level measurements have confirmed a static water level in this drill hole.

In addition to casing drill hole PB-14, nine other drill holes, located downdip, were also cased. Although the Upper Dockum is unsaturated in these other drill holes, the holes were examined weekly for six weeks. No water was observed except for that previously described in PB-14o. The drill holes that were cased with 3-inch plastic casing and the perforated intervals for these holes are as follows:

Hole No.	Perforated Zone	Base of Upper Dockum
PB-14	30-80	42'
PB-14o	20-40	36'
PB-33	20-55	52'
PB-18	60-80	78'
PB-16	60-80	79'
PB-15	30-65	62'
PB-13	30-50	48'
PB-9	40-80	72'
PB-7	20-40	38'
PB-17	60-85	80'

The intent of installing casing in these 10 holes was to allow any groundwater in the vicinity of these drill holes to collect for detection purposes. The depths of the cased intervals varied because there is an approximate 1° regional dip to the east. All cased intervals extend down to the bottom of the Upper Dockum sand. Slits were cut in the PVC casing every foot throughout the perforated zones.

Water Quality—Preliminary water quality data were obtained from limited chemical analyses on a sample of the stratigraphically trapped groundwater from drill hole PB-14. These results include the following measurements:

- Total dissolved solids (TDS): ~~Dissolved Solids~~ 4,920 milligrams per liter (mg/L)
- Alkalinity: 396 mg/L
- Sodium: 1,640 mg/L
- Magnesium: 103 mg/L

These preliminary data indicate that water from the Upper Dockum is of poor quality. The most significant parameter is ~~total dissolved solids (~~TDS~~)~~; water with TDS values of greater than 1~~5~~,000 mg/L is considered to be unfit for human consumption.

3.6.2.3 Lower Dockum Aquifer

The basal sandstone of the Lower Dockum Unit is the water-bearing portion of this unit. As shown in Figure 3-10, this unit is overlain by a thick sequence (600 to 650 feet) of low permeability mudstones that act as an aquitard. The recharge area for the Lower Dockum Aquifer is the Pecos River drainage to the west. Groundwater flow direction is easterly, along the regional dip of this unit.

Most of the shallow drilling in the site area has "bottomed" in the upper portion of the aquitard. Two holes (WW-1 and WW-2) were drilled to approximately the base of the Triassic section and encountered water from the Lower Dockum Aquifer (Figure 3-20). Hole WW-1 also penetrated a saturated zone in the Upper Dockum Unit, resulting in a mixing of these groundwaters in this drill hole.

Both holes were drilled with an air ~~-~~rotary rig and drill cutting samples were collected. WW-1 was completed to a depth of 820 feet and, at the time of drilling, no water saturation was apparent in the drill cuttings. WW-2 was completed to a depth of 710 feet; however, circulation was lost at a depth of 645 feet. Loss of circulation commonly occurs when drill cuttings are too wet for the air pressure of the rig to remove the cuttings from the hole. It is likely that the basal sandstone of the Lower Dockum Unit was penetrated at this depth.

Water Level Measurements—Temporary plastic casing was placed in each of the two holes immediately after completion. In July 1994, geophysical logs were run for each hole, and water levels were identified. WW-1 had a water level of 155 feet. This level is 20 feet above the Upper/Lower Dockum contact, and it is likely that groundwater~~groundwaters~~ from both units is ~~are~~ present in this drill hole. A water level of 467 feet was observed for WW-2. This finding indicates that there is a hydrostatic head pressure within the Lower Dockum Aquifer of 178 feet.

Both of these cased holes were pumped and allowed to recover. After a sufficient recovery period, a static water level (155 feet for WW-1 and 467 feet for WW-2) was maintained.

Water Quality—Preliminary water quality data are presented only for WW-2. This drill hole encountered groundwater from the Lower Dockum. Because groundwater from the Upper Dockum and Lower Dockum was mixed in drill hole WW-1, preliminary water quality data from WW-1 do not accurately characterize either aquifer and are not presented. The results from WW-2 include the following:

- TDS: ~~Total Dissolved Solids~~18,800 mg/L

- Alkalinity: 83 mg/L
- Sodium: 7,030 mg/L
- Magnesium: 87 mg/L

These preliminary data indicate that the water quality of the Lower Dockum is saline. ~~very low.~~ The extremely high TDS values are indicative of long formation retention times, which reflects low groundwater flow and low permeability conditions within the Lower Dockum aquifer.

3.6.3 Contaminant Transport Modeling

For the purpose of this application, two types of groundwater modeling were performed to estimate potential contaminant transport times. One approach is extremely conservative and presents a "worst-case" scenario. One of the many conservative assumptions used in these calculations, despite field evidence, is that contaminant transport will take place under saturated conditions. A second, more realistic approach, assumes unsaturated flow conditions.

3.6.3.1 Saturated Flow Modeling

Saturated flow modeling was used to simulate potential leakage or infiltration from the Facility landfill. The objective of contaminant transport modeling was to calculate the time necessary for a hypothetical leak from the landfill to reach the uppermost aquifer. Travel time was calculated using a steady-state groundwater flow model. The model was based on results of the site investigation and geologic characterization, which indicated that perched groundwater exists upgradient and downgradient of the site (Section 3.6.2.2).

Perched groundwater located approximately 2,500 feet downgradient of the proposed landfill is the uppermost aquifer that could be affected by a contaminant. For the purpose of calculating travel time to the uppermost aquifer, contaminants were assumed to travel from the location of the Upper Dockum/Lower Dockum contact at borehole PB-3 to the perched groundwater downgradient of the site (Figure 3-20). This location was chosen for contaminant transport modeling because it represents the shortest distance from the proposed landfill to downgradient groundwater. The Lower Dockum unit will act as a barrier limiting the vertical migration of contaminants because of its lower permeability and contaminated groundwater will preferentially migrate along the Upper Dockum/Lower Dockum contact until reaching the uppermost aquifer, located 2,500 feet downgradient of the site.

As mentioned in Section 3.4.3.2, representative core samples from the Upper and Lower Dockum were sent to a materials testing laboratory for measurement of geotechnical parameters, including hydraulic conductivity (1994 Site Investigation).

The following assumptions were made during modeling groundwater flow and contaminant transport to the uppermost aquifer. All of these assumptions are believed to be conservative in that they result in shorter travel times to the uppermost aquifer:

- It was assumed that contaminants would migrate completely through siltstones, along the Upper Dockum/Lower Dockum contact. A saturated hydraulic conductivity value of the siltstone unit (1.22×10^{-5} cm/s) was used for calculating travel time. In reality, both higher permeability siltstones and lower permeability mudstones (2.45×10^{-7} cm/s) will exist along the migration pathway. As contaminant velocity is directly proportional to the permeability value that is used in the calculation, using a value approximately two orders of magnitude greater than the lower permeability unit results in an extremely conservative estimate of travel time to the uppermost aquifer.

- It is reasonable to assume that any lateral migration of contaminants from the proposed landfill will occur in the most permeable units (siltstones/sandstones) within the Upper Dockum unit. However, the fluvial depositional environment of the Upper Dockum resulted in the formation of discontinuous lenses of various lithologies. This discontinuous deposition pattern (fades changes) is well illustrated in cross-sections shown in Figure 3-13. Using these cross-sections as a specific example, any lateral migration within the siltstones/sandstones at the base of the Upper Dockum unit will encounter a lower permeability mudstones fades approximately 1,000 feet downgradient from the eastern edge of the proposed landfill. This permeability barrier will severely retard continued migration. In the contaminant modeling for this section, these lithologic changes were not credited. Instead, it was assumed that there was a continuous siltstone/sandstone migration pathway from the proposed landfill to the uppermost aquifer. This assumption, based on the discontinuous, fluvial deposition environment within the Upper Dockum, is considered to be conservative;

- To provide an additional degree of conservatism for the travel time calculations, a non-reactive contaminant was assumed to be transported in the groundwater at the interstitial water velocity. Most contaminants are reactive, which results in longer travel times. The ratio of the reactive transport time to non-reactive travel time is given by the retardation coefficient. The retardation coefficient can be calculated, for organic contaminants, by using Equation 1:

$$R = 1 + \frac{(\rho_b \,\&\, F_{oc} * K_{oc})}{\phi} \qquad (1)$$

where R = retardation coefficient
ρ_b = bulk density
K_{oc} = organic carbon partition coefficient
F_{oc} = fraction of organic carbon
ϕ = porosity

- For a typical reactive compound such as trichloroethylene (TCE), a retardation coefficient of 4.89 is calculated using measured values of 0.0089 for the fraction of organic carbon, 1.96 g/cm^3 for bulk density, and 0.48 for the porosity of the siltstone; and a handbook value of 107.15 cm^3/g for the organic carbon partition coefficient (Knox et al., 1993). This means that TCE would require 489 percent more time to reach the uppermost aquifer than a non-reactive contaminant;

- The Upper Dockum sediments in the area of the proposed landfill and extending approximately 2,500 feet downgradient from the landfill are unsaturated. For the purpose of this contaminant transport modeling, it was assumed that these sediments were saturated and that lateral migration occurred under steady-state conditions. Due to our understanding of the subsurface conditions of the Upper Dockum unit at the proposed site, this assumption is also considered to be conservative. Assuming saturated conditions results in a conservative estimate of travel time to the uppermost aquifer because unsaturated hydraulic conductivities are orders of magnitude less than saturated values, especially at low water contents (Fetter, 1988). Assuming saturated conditions may result in slightly underestimating hydraulic gradients, especially at short distances; however, at longer distances hydraulic gradients will approach saturated values. Most importantly, while hydraulic gradients vary only by a factor of two or three, this variation is more than offset by the use of values for hydraulic conductivity. The hydraulic conductivity values are orders of magnitude greater during saturated conditions.

- Saturated hydraulic conductivity and porosity values for the Upper Dockum siltstone used during modeling were based on laboratory tests of cores collected during the drilling program. Average saturated hydraulic conductivity and porosity values for the siltstone were 1.22 x 10^{-5} cm/s and 0.48, respectively.

- Travel time was calculated using a steady-state model represented by Darcy's Law as shown in Equation 2 (Fetter, 1988).

$$q = K_{sat} \frac{dh}{dl} \tag{2}$$

where q = darcy flux
K_{sat} = saturated hydraulic conductivity
h = hydraulic head
l = length

- The hydraulic gradient used in the model was calculated by dividing the elevation difference between the location of the hypothetical leak and the perched downgradient water (4055-4025) by the distance between these sites (2,500 feet). This calculation results in a hydraulic gradient of 0.012 and a darcy flux of 1.46 x 10^{-7} cm/s.

- Interstitial water velocity was calculated using Equation 3. Water content was assumed to be 0.48 based on the assumption of saturated flow.

$$v = \frac{q}{\theta} \tag{3}$$

where v = interstitial water velocity
q = darcy flux
θ = water content

The results of the modeling indicate that a solute would travel at an interstitial velocity of 3.05 x 10^{-7} cm/s and would require 7,920 years to reach the uppermost aquifer. This estimate of travel time is extremely conservative for the following reasons: (1) the saturated hydraulic conductivity of the siltstone used in the calculations is two orders of magnitude greater than the hydraulic conductivity of the mudstone; (2) non-reactive chemical transport was assumed; and (3) saturated hydraulic conductivity values used in the model are orders of magnitude greater than unsaturated values.

To confirm this travel time, similar calculations were conducted using the results of the 1995 confirmation drilling program. A hydraulic gradient of 0.0135 was calculated between drill holes PB-36 and PB-38. The same modeling parameters and equations were applied to this gradient. It was estimated that the time required for contaminants to migrate 2500 feet from the eastern boundary of the proposed landfill to the uppermost aquifer will be 7,042 years.

3.6.3.2 Unsaturated Flow Modeling

Unsaturated flow modeling was performed to simulate potential leakage or infiltration from the proposed hazardous waste landfill. Site characterization data indicate unsaturated conditions in the strata surrounding the proposed landfill. The unsaturated flow model developed by Mckee and Bumb (1988) predicts the extent of wetting fronts emanating from leakage sources on the base and side slopes of the landfill. Leakage rates were based on preliminary HELP (Hydrologic Evaluation of Landfill Performance) modeling results presented in Tables 3-3 and 3-4. The modeling results help illustrate how the natural hydrological conditions at the site inhibit subsurface fluid flow. [Note: These HELP modeling results should not be confused with those presented in the engineering report in the October 2000 Permit Application (provided in Calculation E-28 in Attachment BB)~~Volumes III and VI, which support the current landfill design~~.] Three separate simulations were performed to account for the heterogeneities at the site. The first simulation predicts the soil moisture distribution in the Lower Dockum from leakage sources at the base of the landfill. The second simulation predicts the lateral movement of the wetting front into the Upper Dockum from leakage sources on the side slopes of the landfill. The third simulation predicts fluid movement through the clay berm and adjacent Quaternary alluvium along the perimeter of the landfill. The predicted wetting fronts led to the estimation of unsaturated hydraulic conductivities, darcy flux rates, interstitial water velocities and approximate contaminant travel times to the nearest aquifers. The primary modeling objectives include the following:

- prediction of the effective saturation distribution (wetting front) emanating from the landfill source;
- determination of the unsaturated hydraulic conductivity and advective transport rates; and~~,~~
- breakthrough time of the wetting front at the edge of the clay berm.

Modeling Methodology

Unsaturated flow modeling was performed using the exact steady-state solution developed by Mckee and Bumb (1988) and Bumb and Mckee et al. (1988). The steady-state solution derived from the Richards equation (1931) of unsaturated flow provides more conservative results in lieu of transient based solutions. The Mckee and Bumb (1988) and Bumb and Mckee et al. (1988) steady-state solution for a continuous point source in an infinite isotropic medium is governed by the following equation:

$$\Delta\eta_{\infty} = \frac{Q^{\exp\left[\frac{\alpha}{2}\left(z-z'-\sqrt{r^2+(z-z')^2}\right)\right]}}{4\pi\sqrt{r^2+(z-z')^2}}$$

$$r = \sqrt{(x-x')^2-(y-y')^2} \tag{4}$$

$$\Delta\eta_{\infty} = \text{hydraulic potential}$$

$$S = S_r + (S_m - S_r)(\alpha\eta/K_o)^{1/n}$$

$$S_e = (\alpha\eta/K_o)^{1/n}$$

At the Facility site, the evapotranspiration rate is high with respect to precipitation. According to Mckee and Bumb (1988), the soils in semi-arid regions of the western United States are at or below residual saturation (S_r). Therefore, the observed initial moisture contents are probably at or near the residual moisture content. Generally fluid flow is inhibited at soil moisture contents at or below the residual moisture content. The amount of saturation above the residual moisture content is referred to as the effective saturation. Unsaturated hydraulic conductivity is a function of the effective saturation and is expressed in the following equation (Mckee and Bumb, 1988; Bumb and Mckee et al., 1988):

$$K(\theta) = K_o S_e^n \tag{5}$$

Brooks and Corey (1964) correlated the N exponent with the pore size distribution index a. Mckee and Bumb (1988) by confirmation of theoretical derivations by Irmay (1954) suggest an optimal value of 3 for η.

Under steady-state conditions flow is driven by the force of gravity as the matric potential approaches unity (Hillel, 1980). Therefore, under steady-state conditions the unsaturated hydraulic conductivity (K(θ)) is equal to the darcy flux (q(θ)), which in turn is multiplied by the unit area to obtain a leakage or discharge rate (Q). The following equations express these relationships:

$$q(\theta) = K(\theta)$$

$$Q = \frac{q(\theta)}{A} \tag{6}$$

The average interstitial water velocity was used to estimate advective transport rates of non-reactive conservative solutes. Approximate travel times to the nearest aquifers can be estimated from the interstitial water velocity using the following expression:

$$v = \frac{q}{\theta} \tag{7}$$

In summary, modeling assumptions include steady state unsaturated flow in an infinite domain, a continuous leakage source, flow through porous medium, complete saturation of the soil beneath the source, and initial uniform saturation of the medium. The modeling does not account for secondary permeability features such as faults, fractures and macropores.

Input Parameters

Input parameters and initial boundary conditions were based on observed field conditions, landfill design specification, and preliminary HELP modeling results. [Note: These preliminary HELP modeling results were based on a landfill liner design which did not incorporate a double liner system on the side slope areas. These results should not be confused with the HELP modeling results presented in the engineering report in the October 2000 Permit Application (provided in Calculation E-28 in Attachment BB). ~~Volume III and VI.~~ The results presented in the engineering report support the currently proposed landfill design which incorporates a double liner in all areas and does not indicate any leakage from the landfill.~~]~~ Average hydraulic parameters for the Lower and Upper Dockum and landfill design specifications are presented in this section. Input parameters used for the unsaturated flow modeling are presented in Table 3-6~~5~~.

The source term geometry was based on the east-west geologic cross-section. Modeled source coordinates correspond to the basal and eastern slope dimensions of the proposed landfill. Conservative average leakage rates from the preliminary HELP modeling were used as source terms along the base (8.58 gpad) and eastern side slope (40.86 gpad) of the landfill to provide conservative "worst-case" estimate of unsaturated flow. The leakage rate for the floor of the landfill was based on HELP modeling simulations between 70 and 200 years. The initial leakage rates for the first 50 years of HELP modeling were excluded from the average because these rates were extremely low and probably not representative of steady state conditions. These simulated leakage rates are based on extreme conditions such as waste moisture content conditions which exceed the field capacity of the waste and a termination of leachate pumping following the 30-year post-closure period. Average site-specific saturated hydraulic conductivity values for the Upper Dockum siltstone (1.22 x 10^{-5} cm/s) and Lower Dockum (5.68 x 10^{-8} cm/s) were used as initial conditions for the first two modeling simulations. The design specifications of the clay berm require material with a permeability on the order of 10^{-7} cm/s. The saturated hydraulic conductivity of the Quaternary alluvium was assumed to be three orders of magnitude less than that of the clay berm. The effective saturation values for the Upper and Lower Dockum simulations were based on site-specific average initial moisture contents (Stoller, 1994). The bubbling pressures for the Upper and Lower Dock-urn, clay berm, and Quaternary alluvium simulations were based on average values of similar types of geologic materials reported by Bumb and Mckee et al. (1988).

Initial boundary conditions are presented in Figure 3-21, which shows a schematic of the proposed landfill and surrounding hydrostratigraphy. As displayed in Figure 3-21, the Lower Dockum Aquifer is approximately 600 feet (200 meters) below the site. The perched aquifer in the Upper Dockum is located approximately 2,500 feet (755 meters) to the east. The clay berm surrounding the proposed landfill is approximately 20 feet (6 meters) thick and rests on top of the Upper Dockum. The initial soil moisture contents of the surrounding day berm and strata are assumed to be uniform and at residual saturation.

Modeling Results

The steady state unsaturated flow modeling results are presented in Figures 3-22 through 3-26. The Upper Dockum and clay berm results are presented as a function of lateral distance from the landfill source. The Lower Dockum results are presented as a function of depth from the source. The results of the modeling simulations are in reference to the landfill source.

Figure 3-22 displays the effective saturation at various distances from the source. As the wetting front disperses from the landfill source the chart shows abrupt decreases in saturation. The clay berm/Quaternary alluvium and Upper Dockum simulations show the sharpest decrease in saturation with S_e values decreasing by nearly an order of magnitude at less than 100 meters from the source. Although the effective saturation dissipates less rapidly in the Lower Dockum, moisture contents decrease by nearly on order of magnitude at approximately 200 meters from the landfill source. The modeling results indicate that the Lower Dockum maintains greater saturation than the Upper Dockum, clay berm and Quaternary alluvium because fluid movement is driven primarily by gravitational forces; therefore fluid migration is greatest in the vertical direction.

Figures 3-23 and 3-24 display the unsaturated hydraulic conductivity and interstitial water velocity results, respectively. Comparison of these data to the effective saturation distributions (Figure 3-22) shows the high degree of correlation between unsaturated flow and soil moisture content. Figures 3-23 and 3-24 show abrupt decreases in unsaturated hydraulic conductivity and interstitial water velocity, respectively, at relatively short distances from the source. Although Figure 3-24 shows that the interstitial water velocities decrease exponentially over distance, gross travel times may be estimated. The simulated interstitial water velocities were used to compute the following contaminant travel times of non-reactive solutes:

- contaminant travel time from the base of the landfill to the Lower Dockum Aquifer, located approximately 200 meters (600 feet) below the site, is estimated at 4,084,674 years;
- contaminant travel time from the eastern slope of the landfill to the perched groundwater in the Upper Dockum at a lateral distance of 755 meters (2,500 feet) was estimated at 3.4 billion years;
- breakthrough time of the wetting front at the edge of the clay berm (a travel distance of 6 meters or (20 feet) was estimated at 866 years; and~~,~~
- contaminant travel time through the clay berm and Quaternary alluvium to a point above the perched groundwater (a distance of 755 meters) was estimated at 574,507,913 years.

Figures 3-25 and 3-26 display the steady state leakage per unit area as a function of distance from the source. Figure 3-26 also shows that the leakage rate at the edge of the clay berm (6 meters from the source) is approximately 10 gpad but quickly dissipates in the Quaternary alluvium. Despite the high leakage rate (10 to 11 gpad), calculations indicate that it would take a wetting front approximately 866 years to reach the outer edge of the berm.

Explanation of equation parameters:

A = area [L^2]

k = hydraulic conductivity [L/T]

K_o = hydraulic conductivity at maximum saturation [L/T]

n = power in the power-law relationship for K as a function of soil saturation

Q = flow rate or strength of point source [L^3/T]

R = distance from point source [L]

S = saturation of the soil

S_e = effective saturation

S_m = maximum saturation

S_r = irreducible or residual saturation

v = velocity of particles

x,y,z = Cartesian coordinates, z defined positive downward [L]

x',y',z' = location of point source [L]

α = constant defined by n/β [l/L]

β = bubbling pressure [L]

θ = volumetric moisture content

ø = porosity

$\Delta\eta$ = hydraulic potential

3.7 Groundwater Protection Requirements

The following sections present general monitoring requirements and detection monitoring requirements, respectively.

3.7.1 General Monitoring Requirements

The selection of a monitoring program to identify contaminant releases from the proposed Facility was based on results of the geologic characterization and RCRA guidance. For the purposes of designing a monitoring program for the site, the Upper Dockum Unit was considered the uppermost aquifer (Section 3.6.2.2). This unit is not saturated within the Facility boundaries.

Two major geologic factors influence the design of a program to monitor potential contaminant releases from the site. These factors are the intermittent nature of saturation in the Upper Dockum downgradient of the Facility and the presence of a low permeability layer (the Lower Dockum) that significantly limits the potential for vertical migration of contaminants. These two factors influence potential groundwater transport pathways for contaminants released from the Facility, and~~,~~ therefore~~,~~ affect the placement of monitoring devises.

There is no regional aquifer ~~developed~~ within the Upper Dockum; however, adjacent to the project boundary, permeable zones have been observed to be saturated. Exploratory drilling upgradient and downgradient of the site has identified isolated pockets of groundwater in permeable facies of the Upper Dockum (Section 3.6.2.2). Downgradient of the site, perched groundwater was detected above the Upper Dockum/Lower Dockum contact, approximately 2,500 feet east of the proposed landfill. Upgradient of the site, an isolated pocket of groundwater was detected at bore ~~Bore~~hole 14. The low permeability of the underlying Lower Dockum will prevent significant vertical migration of groundwater and will direct flow downdip along the Upper Dockum/Lower Dockum contact in the direction of perched groundwater east of the site. Therefore, potential contaminant releases from the proposed Facility will preferentially migrate downdip along the Upper Dockum/Lower Dockum contact.

Given the geologic and hydrologic features controlling the movement of groundwater at the site, monitoring the Upper Dockum is the most effective manner in which to immediately detect potential releases from the Facility. However, the placement of monitoring wells in the Upper Dockum is limited due to the fact that this unit is unsaturated within the site boundary. The utility of placing groundwater monitoring wells 2,500 ~~500~~ feet downgradient of the landfill is questionable. The most effective monitoring program will involve vadose zone monitoring.

A formal groundwater monitoring waiver was submitted to NMED in January 2000 and approved January ~~in January~~ 12, 2000. As part of the groundwater monitoring waiver, a VZMS was proposed, and was approved in the 2002 permit. ~~a vadose zone monitoring system was proposed.~~ Details of the VZMS ~~vadose zone monitoring system~~ are presented in Section 3.7.2.

3.7.2 Vadose Zone Monitoring Requirements

The VZMS consists~~The vadose zone monitoring system will consist~~ of two components. The first is a~~will consist of~~ vadose zone sump beneath~~sumps in~~ the landfill LCRS and LDRS sumps. ~~the evaporation ponds.~~ The second component is~~will be~~ a network ~~series~~ of vadose zone monitoring wells downdip and updip~~downgradient~~ of the landfill with respect to the dip of the geologic formation stratigraphy. ~~facilities.~~ The intent of the VZMS sump ~~vadose monitoring system~~ is to provide an immediate indication if there is any leakage from the double composite liner system. Leakage from the secondary liner will be intercepted by the VZMS~~vadose zone~~ sump ~~monitoring system~~, which will be checked daily for the presence of liquids. The vadose zone monitoring wells are intended to detect any water flowing from the facilities in a lateral (downdip) direction.

The design of the VZMS ~~vadose zone sump monitoring system~~ is shown in the Design ~~design~~ Drawings 15 through 19 in Attachment L1. ~~Volume III.~~ It includes a 60-mil HDPE liner system below the bottom of the secondary liner system in the area of the sump. The vadose zone liner system is limited to an area directly beneath the sump, as this is the area expected to have the most liquids ponded for the longest period of time. Above the HDPE liner in the vadose zone sump, a drainage gravel surrounds a side slope riser pipe that extends into the sump. The side~~side~~ slope riser pipe allows a pump to be installed in the sump to remove accumulated liquids.

The VZMS~~vadose zone sump monitoring system~~, shown in the design drawings (Permit Attachment L1~~Volume III~~) and described above, is expected to be a much more immediate indicator of leakage from the landfill than a ~~any other type of~~ groundwater monitoring system in the deep regional aquifer. Given the geologic and hydraulic conditions at the base of the landfill (unsaturated Upper Dockum siltstones and claystones), any fluids leaking from the landfill will best be monitored by the VZMS sump and vadose zone monitoring wells at the Upper Dockum/Lower Dockum contact. Because~~migrate vertically with limited lateral dispersion and will be very difficult to intercept and detect. Since~~ each cell is graded so that leachate will collect in the sump, the sump ~~liquids will be present in this~~ area will have~~for the longest period of time, resulting in the sump area having~~ the highest hydraulic head on the liner system. A vadose liner below the sump areas will indicate quickly if liquids are escaping from the liner system in the sump area. The VZMS~~vadose zone~~ sump will not only provide an indication that the LDRS sump is leaking, but will also provide access to remove the leakage and minimize head buildup in the sump ~~sumps~~ and in liners above. ~~until the source of the leakage is found.~~ The VZMS sump for the landfill~~vadose sumps for the landfill and evaporation ponds~~ will be monitored for the presence of liquids whenever the primary or secondary sumps are monitored. As described in Section 5.2.2, these systems will be checked daily during active operations and closure.

Details of the location, depth and construction for the vadose zone monitoring system wells are presented in the VZMS Work Plan (Appendix I). ~~N, Volume II).~~ In addition, specific procedures for monitoring and sampling the sump and~~sumps or~~ wells and the required procedures for analyzing any ~~the wells~~ collected liquid are presented in the VZMS~~Vadose Zone Monitoring System~~ Work Plan.

3.8 Summary and Conclusions

The proposed location of the Facility landfill in eastern Chaves County, New Mexico is ideal. It is located in an unpopulated portion of the county, on privately owned land, and more than 36 miles from the nearest community. The semiarid climate of this region with its high evaporation rate and lack of surface water~~,~~ will play an important role in the proposed site's ability to confine and control material placed in the landfill.

Large-scale ranching is the primary land use for this portion of Chaves County. However, setting aside the 480 acres proposed for the Facility will have no impact on the ranching industry in the region, as these acres support fewer than five animal units year-long. Because~~Since~~ the economic stimulation provided by landfill-related jobs will greatly offset the minimal economic impact of the loss of grazing land, the project has the support of the surrounding community.

A geologic setting for the Facility was selected that will enable the proposed landfill to be developed in an environment that will protect groundwater resources and ensure long-term isolation of wastes. The host rocks for this Facility are the sediments of the Dockum Group of Triassic age. Because these sediments are unsaturated and of low permeability, they represent a stable geologic barrier to the potential migration of contaminants from the ~~proposed~~ landfill.

The ~~proposed~~ landfill will be developed within sediments of the Upper Dockum unit. These sediments, consisting of fluvial, interbedded mudstones (30 percent) and siltstones (70 percent), are unsaturated beneath the proposed site. The nearest groundwater production comes from the Tertiary Ogallala Aquifer. The western boundary of this aquifer forms a topographic feature called the Caprock, which is approximately 2 ~~two~~ miles east and several hundred feet higher than the proposed site.

While the Upper Dockum unit is unsaturated beneath the site, it is partially saturated 2,500 feet east of the proposed landfill (downdip). The source of this groundwater is infiltration from the overlying Ogallala Aquifer. Due to this perched groundwater, the Upper Dockum unit is designated as the uppermost aquifer for the purposes of this permit application.

The hydrologic setting of the Facility is extremely protective of groundwater resources. To demonstrate the integrity of the natural barriers present at this site, conservative contaminant transport modeling was performed, in which the most conservative parameters were consistently input into the modeling process. Acceptable conclusions were obtained even though "worst-case" assumptions were used. The site's actual values will obviously provide an even larger margin of safety than the conclusions indicate.

For example, conservative transport modeling calculated that it will take 7,000 to~~-~~ 8,000 years for potential contaminates to migrate laterally through the sediments on the flanks of the proposed landfill to the nearest perched groundwater-bearing intervals within the uppermost aquifer. To emphasize the conservative nature of these calculations, saturated conditions were assumed for this modeling even though the Upper Dockum sediments at the proposed site are unsaturated. The migration pathway was assumed to be entirely through highly permeable siltstones, although close-spaced drilling indicated that 30 percent of this pathway would be composed~~comprised~~ of low-permeability mudstones. A non-reactive contaminant was also assumed, even though in reality a contaminant would react with the sediments through which it was traveling, adding considerably to the overall travel time.

To illustrate the conservative nature of this 7,000- to 8,000-~~000 - 8000~~ year travel time, a second, unsaturated flow modeling approach was applied to the lateral contaminant migration scenario. This more realistic calculation resulted in an estimated travel time of 3.4 billion years.

The character of the Lower Dockum sediments is much different from that of the overlying Upper Dockum unit. The Lower Dockum consists of a 600-foot thickness of homogeneous, lacustrine mudstones overlying a thin basal sandstone. This thick sequence of unsaturated, low permeability mudstones represents a geologic barrier to the potential downward migration of contaminants from the proposed landfill. Unsaturated flow modeling estimated that 4 million years would be required for contaminants to migrate downward through these Lower Dockum mudstones and reach a Lower Dockum aquifer.

The description of the ~~proposed~~ Facility, as presented in this permit application, is a result of numerous years of investigation to identify an environmentally sound site in southeastern New Mexico where hazardous wastes could be safely disposed of. ~~.~~ The location, geology, and hydrology of the proposed site present a unique setting, where natural geologic barriers, combined with a protective~~well- conceived~~ landfill design, will ensure long-term isolation of hazardous wastes from the environment.

4. Waste Analysis Plan

The Triassic Park Hazardous Waste Disposal Facility (the Facility~~facility~~) is a commercial facility that receives hazardous waste generated off-site for ~~treatment, storage, and~~ disposal. This Waste Analysis Plan (WAP)~~waste analysis plan~~ establishes Facility ~~facility~~ requirements for accepting and characterizing hazardous waste generated both off-site and on-site. The WAP~~waste analysis plan~~ requirements are established in the 1995 New Mexico Hazardous Waste Management Regulations at 20.~~ NMAC~~ 4.1.500 ~~NMAC~~ incorporating 40 CFR 264.13, 20.~~ NMAC~~ 4.1.800 ~~NMAC~~ incorporating 40 CFR 268.7, and 20.~~ NMAC~~ 4.1.900 ~~NMAC~~ incorporating 40 CFR 270.14(b)(3). The most recent revision of this WAP~~waste analysis plan~~ will be maintained at the facility as part of the facility Operating Record. The facility will continually upgrade the WAP~~waste analysis plan~~ with regard to the ~~Land Disposal Restrictions (~~LDR~~)~~ regulations contained in 40 CFR 268.

Section 4.1 identifies wastes that~~which~~ will be accepted at the Facility ~~facility~~ and wastes that~~which~~ are prohibited. Section 4.2 lists criteria for waste acceptance and management. Sections 4.3 and 4.4 contain pre-acceptance procedures for initial acceptance of hazardous waste received from off-site generators and management procedures for incoming shipments of waste. The various waste analysis protocols that will be required at the Facility~~facility~~ are contained in Section 4.5. Sampling and analytical methods and protocols for quality assurance/quality control (QA/QC) are discussed in Sections 4.6 and 4.7. Section 4.8 explains the Facility's~~facility's~~ waste tracking system. Section 4.9 summarizes notification, certification, and recordkeeping requirements related to waste analysis.

4.1 Permitted and Prohibited Waste

Section 4.1.1 identifies hazardous waste permitted for acceptance at the Facility. ~~facility.~~ Hazardous waste prohibited at the Facility~~facility~~ is identified in Section 4.1.2.

4.1.1 Permitted Waste

The Facility~~facility~~ will ~~treat, store, and/or~~ dispose of only those hazardous wastes listed in Part A of the Facility Permit Application. ~~facility permit application.~~ Only hazardous waste which meets the ~~Land Disposal Restrictions (~~LDR~~)~~ treatment standards identified in 40 CFR 268, Subpart D~~, or can be treated at the facility to meet these standards,~~ will be accepted. These treatment standards are applicable to both primary contaminants and underlying constituents.

4.1.2 Prohibited Waste

The Facility will not accept the following wastes from off-site generators:

- *Dioxin*~~dioxin~~*-contaminated wastes*:~~;~~ Wastes listed in 40 CFR 268.31 as adopted by 20.~~ NMAC~~ 4.1.800 NMAC.~~;~~

- ~~*Certain*certain PCB-contaminated liquids. Ignitable PCB-contaminated liquids or liquids with PCB concentrations greater than or equal to 50 ppm;~~

- ~~certain~~ *PCB-contaminated soils*: ~~-~~ Soils with PCB concentrations greater than or equal to 500 ppm will not be accepted at the Facility~~facility~~, except for those soils (or other wastes) that~~which~~ are PCB bulk product waste or PCB remediation waste (40 CFR 761). The Facility~~facility~~ may obtain a permit from the U.S. Environmental Protection Agency (EPA) for management of Toxic Substances Control Act (TSCA) wastes in order to accept other wastes containing PCB concentrations greater than 500 ppm~~,~~. A copy of this permit will be transmitted to the New Mexico Environment Department (NMED) before such waste is accepted.~~;~~

- *Organic* ~~organic~~ *liquids/sludges:* ~~.~~ Liquids/sludges with organic concentrations at levels that make them subject to the treatment, storage, and disposal requirements described in 40 CFR 264 Subpart AA or CC; and that have not been treated, prior to receipt at the Facility~~facility~~, to applicable LDR treatment standards (40 CFR 264 Subpart AA and CC as adopted by 20.~~NMAC~~ 4.1.500 NMAC).~~);~~

- *Explosives:* ~~explosives.~~ Any substance or article, including a device, that~~which~~ is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or that~~which~~, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion.~~;~~

- *Radioactive*~~radioactive~~*/nuclear materials:* ~~.~~ Materials regulated by ~~the~~ NMED or the New Mexico Oil Conservation Division and defined in 20.3.1 NMAC ~~3.1~~ Subpart 14, or materials regulated under the Atomic Energy Act of 1954, as amended (including source, special nuclear materials and byproduct materials as defined in 10 CFR 20.1003).~~);~~

- *Medical*~~medical~~ *waste:* ~~.~~ Waste including infectious/biologic/pathogenic solid waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals. This also includes infectious waste as defined in 20.~~NMAC~~ 9.1.105.AL NMAC.~~;~~

- *Packing house and killing plant offal:* ~~.~~ Defined as a special waste by 20.~~NMAC~~ 9.1.105.~~-~~BZ NMAC.~~;~~

- *Certain*~~certain~~ *hazardous debris:* ~~.~~ Hazardous debris that~~which~~ has not been treated, prior to receipt at the Facility~~facility~~, to meet the LDR treatment standards.~~;~~

- *Certain*~~certain~~ *lab packs:* ~~.~~ Lab packs that~~which~~ contain wastes [identified in 40 CFR 268, Appendix IV (adopted by reference in 20.~~NMAC~~ 4.1.800 NMAC)] excluded from lab packs under the alternative treatment standards of 40 CFR 268.42(c) (adopted by reference in 20.~~NMAC~~ 4.1.800 NMAC).~~);~~

- *Compressed*~~compressed~~ *gases:* ~~.~~ Gases stored at pressures higher than atmospheric. ~~; and~~

- *Unknown*~~unknown~~ *or unidentified waste:* ~~.~~ These wastes cannot be accepted at the Facility except by special provision and direction from the NMED Secretary (e.g., emergency clean-up operations) or until full characterization has been performed.

4.2 Criteria for Waste Management at the Facility

Waste managed at the Facility~~facility~~ must meet the Facility's~~facility's~~ criteria for acceptance and management. Waste analysis (or, in some cases, acceptable process knowledge) will be used to ensure determination of:

- Complete~~complete~~ characterization of the waste.~~;~~

- Compliance~~compliance~~ with LDR treatment standards, including, where applicable, underlying constituents. If the waste stream does not meet the LDR treatment standards, the waste will be rejected. ~~if the facility does not have the appropriate treatment capability to bring it into compliance;~~

- Compliance~~compliance~~ with the Facility's~~facility's~~ regulatory and operational limits (e.g., the waste is not included in the permitted wastes listed in Part A of this application or the waste does not meet other operational boundaries established by this WAP).

4.3 Pre-Acceptance Procedures for Off-Site Waste

Before a waste stream is accepted, all off-site generators will be required to provide a complete waste characterization (Section 4.3.1). After evaluating the paperwork supplied by the generator (Section 4.3.2), the Facility~~facility~~ will send a representative sample of the waste to a laboratory for analysis and will evaluate the analytical results (Section 4.3.3). Finally, the Facility~~facility~~ will notify the generator that the Facility~~facility~~ will accept the waste stream (Section 4.3.4).

4.3.1 Waste Characterization Information Provided by the Generator

The activities associated with pre-acceptance of off-site waste streams are shown in Figure 4-1. The generator must provide the following waste characterization information for each waste stream:

- A ~~a~~ completed Waste Profile Form signed by an authorized agent of the generator. An example of a Waste Profile Form is contained in Permit Attachment F2. ~~Vol. II, Appendix H, of this application.~~ This form may be changed if the Facility~~facility~~ believes that more information is warranted or if there are changes in regulations governing the Facility.~~facility;~~
- Other ~~other~~ documentation that supports the information presented on the Waste Profile Form (e.g., material safety data sheets [MSDSs]).~~Material Safety Data Sheets);~~
- A~~a~~ description of the process that generated the waste.~~;~~
- A~~a~~ completed Land Disposal Restriction Notification.~~;~~
- All~~all~~ other supporting data required by 40 CFR 268.7.~~;~~
- All~~all~~ required certifications.~~;~~
- Waste ~~waste~~ analysis data used to characterize the waste and/or process knowledge documentation.~~; and~~
- A~~a~~ representative sample of the waste, of adequate volume for analysis.

If waste analysis is used to characterize the waste, the generator must supply, at a minimum, the following waste analysis data for each representative sample:

- identification of the sample medium (e.g., ~~aqueous,~~ sludge, soil);
- information about waste stratification;
- brief description of the sampling strategy, including
  - a description of the sampling technique (i.e., biased or random);
  - rationale for selection of the number and location of samples;
  - ~~○~~ a
  - description of the statistical approach, if any; and
  - the sample type (i.e., grab or composite);
- identification of the analytical methods that were used and the rationale for the selection of these parameters;
- final laboratory reports including case narratives, waste analyses, and QA/QC~~quality assurance/quality control~~ analyses; and

- identification of the laboratory that~~which~~ performed the waste analyses.

The Facility~~facility~~ will evaluate the way each representative sample was obtained in order to determine whether it is truly representative of the waste stream. The Facility~~facility~~ will evaluate the information provided by the supplier and will use the documents listed below for guidance.

- The Sampling Plan, Section 4.6 of this document
- Standard Practice for Sampling Waste and Soil for Volatile Organics (American Society for Testing and Materials (ASTM) D4547-91)
- Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods, Part III (US Environmental Protection Agency Publication SW-846, latest edition)
- RCRA Sampling Procedures Handbook (EPA Region VI)

In certain cases, generators may meet waste analysis requirements by supplying "acceptable knowledge". Acceptable knowledge includes process knowledge and waste analysis. (Permit Attachment F4 identifies acceptable knowledge requirements for foreign generators). Process knowledge includes detailed information of a waste obtained from existing published or documented waste analysis data or studies on hazardous wastes generated by processes similar to that which generated the waste, or industry or trade association hazardous waste profile studies, or EPA documents. Examples of waste streams where process knowledge may be adequate for characterization are K-listed wastes (hazardous wastes from specific sources), which are identified by comparing the specific process that generated the waste to those processes listed in ~~40~~ 40 CFR 261.32. The application of process knowledge is appropriate where the physical/chemical make-up of the waste is well known and consistent. Process knowledge is often used in conjunction with physical and analytical analysis.

Foreign Generators shall, in addition to all of the above requirements, analyze wastes at an accredited laboratory in accordance with Section 4.7.4, Laboratory Requirements for Foreign Generators, and shall characterize all waste streams in accordance with Permit Attachment F4, Waste Characterization Using Acceptable Knowledge.

4.3.2 Paperwork Evaluation

The Facility~~facility~~ will evaluate all of the waste characterization paperwork to determine if it adequately represents the physical and chemical characteristics of the waste stream and whether the waste stream is appropriate for management at the Facility. ~~facility.~~ As part of the pre-shipment process, the Facility~~facility~~ will work with the off-site waste generator to ensure that all necessary waste analyses and waste characterization information are provided to meet the applicable requirements for acceptance.

If waste analysis was used to characterize the waste, the Facility~~facility~~ will evaluate the data to determine that:

- appropriate extraction and preservation techniques were used;
- appropriate sampling strategies were used;
- appropriate sample types were collected ~~(e.g., to demonstrate compliance with the LDR treatment standards, hazardous waste regulations require that grab samples be collected for nonwastewaters and composite samples be collected for wastewaters)~~;
- appropriate parameters were selected for analysis;
- appropriate analytical methods were used;

- recommended holding times were met;
- detection limits were below applicable standards (e.g., the LDR standards); and
- the quality of the analytical data is adequate for making a waste determination based on an evaluation of the final laboratory reports.

If the data supplied are not adequate to provide a complete characterization of the waste stream, the Facility~~facility~~ will either require additional information from the generator or will not agree to accept the waste.

All of the waste characterization information supplied by the generator will be maintained in the Facility's~~facility's~~ Operating Record._ In addition, the Facility's~~facility's~~ evaluation of this information and the results of the independent analysis will be maintained in the Operating Record.

4.3.3 Representative Sample Assessment

After evaluation and approval of the sample representativeness and waste characterization data paperwork, the representative sample submitted by the generator will be analyzed by a qualified laboratory other than the one used by the generator._ Based upon the Facility~~facility~~ evaluation of the information supplied by the generator, the Facility~~facility~~ will inform the laboratory of the medium type (e.g.,~~ liquid,~~ aqueous or~~,~~ solid) and appropriate parameters for analysis._ The rationale for selection will be maintained in the Facility~~facility~~ Operating Record.

The generator's Waste Profile Form will be compared with the results of the laboratory analysis of the representative sample and with the Facility's~~facility's~~ permit to ensure that the waste is acceptable for ~~storage, treatment, and/or~~ disposal at the Facility. ~~facility.~~ Should there be a discrepancy between the analytical results and the generator information, the Facility~~facility~~ will contact the generator to resolve the discrepancy._ The generator will not be authorized to ship the waste until all discrepancies are resolved. _If the discrepancies cannot be resolved with the information provided by the generator, the Facility~~facility~~ will request a new Waste Profile Form and any additional information that may be required to characterize the waste adequately. In addition, the Facility~~facility~~ may require the generator to submit additional samples of the waste for analysis._ If the generator cannot supply adequate information to provide a complete characterization of the waste stream, the Facility~~facility~~ will not accept the waste._ The generator will submit a new Waste Profile Form for each new waste stream and for an existing waste stream if it is modified significantly.

4.3.3.1 Major Discrepancies

Major discrepancies include the following:

- analytical results indicating that the generator applied an incomplete or wrong waste code to the waste stream;
- analytical results indicating that the generator submitted incomplete or wrong information on the LDR Notification Form;
- analytical results including constituents or underlying hazardous characteristics that are not explained by a description of the process; and
- other information indicating that the waste stream is not characterized properly.

In the event of a major discrepancy, the Facility~~facility~~ will reject the paperwork and require the generator to analyze the waste in accordance with a sampling plan that is consistent with the guidance in EPA document SW-846, *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*, Chapter 9._ The Facility~~facility~~

will require the generator to resubmit the waste characterization information listed in Section 4.3.1 and one or more additional representative samples for analysis.

4.3.3.2 Minor Discrepancies

Minor discrepancies include any other waste characterization discrepancy (e.g., discrepancies that~~which~~ do not question hazardous waste code assignments, waste treatment, or the presence of prohibited items). In the event of a minor discrepancy, the Facility~~facility~~ will work with the generator to resolve the discrepancy. For example, uncertainties regarding whether sorbents are present will be handled as minor discrepancies. The Facility~~facility~~ will contact the generator if the Waste Profile Form does not indicate whether a sorbent was added to the waste, or if it indicates that a sorbent was added but does not specify the name and type of sorbent and whether it is biodegradable. If the generator cannot provide this documentation, the waste must be tested to determine whether~~if~~ it contains a biodegradable sorbent. If the waste is determined to contain a biodegradable sorbent, it will be ~~stabilized prior to disposal or~~ rejected.

4.3.3.3 Additional Waste Acceptance Conditions

In addition to complete characterization of the waste, the Facility~~facility~~ will also evaluate the waste to ensure that it can be managed at the Facility. ~~facility.~~ Waste analysis will be conducted where necessary to ensure that:

- the waste is not prohibited (e.g., the waste is included in Part A of this application, is not listed in Section 4.1 as a prohibited waste, or does not exceed allowable PCB concentrations or include dioxins);
- the LDR treatment standards contained in 40 CFR~~,~~ 268, Subpart D, including the standards for underlying hazardous constituents, are met;
- the general requirements contained in 40 CFR 264.17 for ignitable, reactive, and/or incompatible waste are met; and
- ~~the special requirements for bulk and containerized liquids contained in 40 CFR 264.314 are met; and~~
- the waste does not contain biodegradable sorbents, as required in 40 CFR 264.314(e).

All major and minor discrepancies, discrepancy resolutions, and compliance with the additional waste acceptance conditions listed above will be documented in writing and maintained in the Facility~~facility~~ Operating Record.

4.3.4 Notification and Approval of Waste Shipment

After the Facility~~facility~~ determines that the waste stream meets the pre-acceptance requirements, the Facility~~facility~~ will send a written notification to the generator. This notification will include the following:

- a statement that the waste is acceptable for shipment;
- a unique identifier number for the waste stream, assigned by the Facility~~facility~~ (see Section 4.10);
- instructions to put the unique identifier number on all shipment paperwork and all future waste characterization data that are submitted for the waste stream;
- a requirement to notify the Facility~~facility~~ at least 24 hours before shipping, so that the Facility~~facility~~ can ensure that there are sufficient resources and capacity to manage the shipment when it arrives;

- a statement that the Facility~~facility~~ reserves the right to delay shipments beyond the 24-hour time~~-~~frame;
- instructions to ensure safe management of the waste (e.g., packaging or labeling requirements not otherwise required by regulations);
- if the generator has treated the waste prior to shipment to meet applicable LDR treatment standards, a requirement that the generator develop and follow a written WAP that~~waste analysis plan which~~ describes the procedures used; and
- a requirement that the generator retain on-site a copy of all notices, certifications, demonstrations, waste analysis data, and other documentation produced pursuant to characterization of the waste stream for five years from the date that the waste was last sent to the Facility~~facility~~.

Once the Facility~~facility~~ has completed pre-acceptance requirements and has determined that a waste stream is acceptable for shipment, the on-site laboratory will be notified in writing. The notification will include the waste type, waste stream identifier, physical form, packaging, and how the waste is to be managed. This information will be used by the laboratory as follows:

- the waste stream identifier will be used to track the samples in relation to the waste stream;
- the waste type ~~and management methods (storage, solidification, evaporation, and/or disposal)~~ will be used to help determine the analytical methods that will be employed for fingerprint analysis; and
- the physical form and packaging will determine the most applicable sampling methods.

Using this information, the on-site laboratory will designate a sampling and analytical protocol specific to each waste stream as described in Section 4.6. The unique identifier number for the waste stream will be used to track all activities for the waste stream. Individual shipments from within the waste stream will receive an additional identifier to enable the Facility~~facility~~ to tie information back to the specific shipment as well as to the waste stream.

4.4 Procedures for Incoming Waste Acceptance

The activities associated with incoming waste shipment~~shipments (typically, in drums, roll-off boxes, vacuum trucks, and tanker trucks)~~ are shown in Figure 4-2.~~-~~ These procedures will be used for both initial shipment of a waste stream and ~~as well as~~ for waste streams that have previously been accepted by the Facility~~facility~~ from the same generator and process. The Facility~~facility~~ will review the waste shipment paperwork and resolve paperwork discrepancies (Section 4.4.1), and visually inspect the waste inside the containers and roll-off boxes (Section ~~Section~~ 4.4.2). Waste analyses for incoming shipments consist of fingerprint analysis and an annual analysis to update characterization of the waste stream (Section 4.4.3). Based on the Facility's~~facility's~~ evaluation of the waste stream, a determination to accept or reject the waste will be made (Section 4.4.4).~~.~~

4.4.1 Paperwork Review

Upon receipt of a waste shipment, the truck will be routed to a parking area outside the Facility~~facility~~ gate while documents are reviewed. The Facility~~facility~~ will:

- review all paperwork for completeness to verify that all required documentation is present and signed as necessary;
- compare the information in the manifest, the Waste Profile Form, the LDR Notification Form, and pre-acceptance waste characterization information for consistency;

- compare the number of containers, the volume or weight of the waste, and the waste labels on each container with the manifest for consistency; and
- review all paperwork to verify that the unique identifier number for the waste stream is on all the waste shipment paperwork and all accompanying waste characterization data.

If the Facility~~facility~~ determines that the paperwork is complete and consistent, the waste shipment will be routed to the truck sampling station, a staging area inside the Facility~~facility~~ gate.

If the Facility~~facility~~ determines that the paperwork is incomplete or inconsistent, the waste shipment will be routed to a segregated, secure area inside the Facility~~facility~~ gate pending resolution of the discrepancies. An attempt will be made to resolve discrepancies with the waste generator or transporter within 24 hours. In those instances where a discrepancy with the manifest cannot be resolved within 15 days of receiving the waste, a letter will be submitted to NMED describing the discrepancy and the attempts made to reconcile it. A copy of the manifest or shipping paper at issue also will be provided to NMED, as specified in 40 CFR 264.72(b). If the Facility~~facility~~ is unable to resolve the manifest discrepancies, the waste will not be accepted.

The Facility~~facility~~ will resolve significant manifest discrepancies in accordance with 40 CFR 264.72. Manifest discrepancies are differences between the quantity or type of hazardous waste designated on the manifest and the quantity or type of hazardous waste contained in the shipment received at the Facility~~facility~~.

Significant discrepancies in quantity are:

- *Bulk*~~bulk~~ *waste*: ~~-~~ Variations greater than 10 percent in weight.~~; and~~
- *Batch*~~batch~~ *waste*: ~~-~~ Any variation in piece count, such as a discrepancy of one drum in a truckload.

Significant discrepancies in type are obvious differences which can be discovered by inspection or waste analysis, such as waste solvent substituted for waste acid, or toxic constituents not reported on the manifest or shipping paper.

All discrepancy resolutions will be documented in writing and maintained in the Facility~~facility~~ Operating Record. If manifest discrepancies are not resolved within 90 days of identifying the discrepancy, waste will not be accepted for ~~storage or~~ disposal, and the waste will either be returned to the sender or disposed at an appropriate off-site facility.

4.4.2 Visual Inspection

After all paperwork discrepancies have been resolved, the Facility~~facility~~ will physically open and inspect the waste inside drums and roll-off boxes for color, similar physical appearance (e.g., single phase, bi-layer, multi-layer), and physical state (e.g., solid or ~~,~~ semi-solid). ~~, or liquid).~~ This information will be compared with the waste characterization information provided by the generator and the physical appearance of the representative sample. If the color and/or viscosity of bulk wastes (solids and sludges) appear inconsistent, the Facility~~facility~~ may elect to perform additional chemical tests (~~,~~ i.e., composite samples would be taken from within the different areas of coloration or viscosity). ~~.~~

The Facility~~facility~~ will inspect a minimum of 10 percent of all drums of each waste stream per shipment (but not less than one drum per waste stream)~~),~~ and each roll-off container~~ or tanker truck~~.

The Facility~~facility~~ will physically open all containers of hazardous debris and inspect the contents to ensure that the waste shipment matches the waste that is expected. Prior to acceptance of hazardous debris, the Facility~~facility~~ will require the generator to provide a certification that the waste has been treated in accordance with the requirements defined for the treatment of hazardous debris in 40 CFR 268. Hazardous debris is visually inspected because it is exempted from the representative sample waste analysis requirements discussed in Section 4.7.2. This visual inspection will ensure that the waste stream matches the description provided by the generator.

Certain loads may not be sampled, at the discretion of the Facility~~facility~~ manager or laboratory supervisor, for environmental and safety reasons (e.g., severe weather which causes unsafe working conditions). In these cases, the generator or his agent will be required to provide a signed certification that the load conforms to the Waste Profile Form. This variance from established procedure will be documented in the Facility~~facility~~ Operating Record.

If a discrepancy is found, the Facility~~facility~~ will contact the waste generator for resolution (see Section 4.4.1). The results of visual inspections and all discrepancy resolutions will be documented in writing and maintained in the Facility~~facility~~ Operation Record. If discrepancies noted during visual examination are not resolved within 90 days of identifying the discrepancy, waste will not be accepted for ~~storage or~~ disposal, and the waste will either be returned to the sender or disposed of off-site at an appropriate facility.

4.4.3 Waste Analysis for Incoming Shipments

Waste analysis for incoming shipments consists of fingerprint tests (Section 4.5.4) and an annual analysis to ensure correct characterization of each waste stream (Section 4.5.3).

4.3.3.1 Fingerprint Test Procedure

Fingerprint testing is an abbreviated analysis and is used to confirm that an incoming shipment of waste received at the Facility~~facility~~ is the actual waste expected and that it matches the expected chemical content for that waste. Fingerprint analysis will be conducted on each waste stream in each shipment prior to shipment acceptance. Fingerprint analysis will be conducted generally for parameters that will give information that can be used to help verify that a waste stream received from off-site matches the expected characteristics of the waste.

While the incoming shipment is staged at the sampling station, laboratory personnel~~,~~ or other trained personnel~~,~~ will review the sampling and laboratory requirements for the specific waste stream. After completion of this review, sampling personnel will obtain the necessary samples in the manner prescribed by the Sampling Plan and applicable laboratory requirements. Sampling will be conducted in accordance with approved site operating procedures. These procedures will detail the sampling requirements, sample labeling, chain-of-custody requirements, any necessary sample preservation requirements, and other sampling components (see Section 4.6).

Each waste stream in each shipment will be sampled in accordance with the following sampling rate, at a minimum:

- *Bulk*~~bulk~~ *waste*: ~~.–~~ One sample will be collected from each shipment of bulk waste (one shipment of bulk waste is considered to be one truck load or one roll-off box). If, upon visual inspection, the color and characteristics~~viscosity~~ of solids or sludges appear inconsistent, the Facility may elect to obtain additional samples.~~–~~ These samples would be composites from within the different areas of color or characteristics.~~viscosity; and~~
- *Batch*~~batch~~ *waste*: ~~.–~~ One sample will be collected from each 10~~ten~~ waste drums in each waste stream in each shipment. If there are fewer~~less~~ than 10~~ten~~ waste drums in the waste stream, one drum will be sampled.~~–~~ One sample will be collected from each drum if the waste appears to be inconsistent with the pre-acceptance waste characterization data.

The Facility~~facility~~ can increase this sampling rate for any reason. For example, the Facility~~facility~~ may decide to collect additional samples if the waste appears to be inconsistent with the pre-acceptance characterization data. In some instances, the Facility~~facility~~ may elect to waive one or more analyses under the following conditions:

- The ~~the~~ transported waste is a portion of a continuously shipped, well documented waste stream, such as waste produced from a consistent, non-variable process or contaminated soils from a specific remedial action. ~~;~~
- The ~~the~~ waste has been approved for receipt by NMED on an emergency basis.~~; or~~
- Facility~~facility~~ personnel at the point of generation sampled, or oversaw the sampling of, the waste, and the fingerprint test/supplemental analyses have been conducted. (In cases where a generator is sending very large or continual shipments, the Facility~~facility~~ may elect to station personnel at the point of generation to obtain samples prior to or during loading of the waste).

Prior to waiving sampling and analysis requirements, however, the Facility~~facility~~ will request a variance from NMED and will not dispose of the waste until NMED approval is received.

4.4.3.2 Annual Analysis Procedure

As part of the Facility's~~facility's~~ QA/QC procedures (see Section 4.7), the representative sample analysis for each waste stream from each generator will be repeated annually. Repeating this pre-acceptance procedure will ensure that the analysis is accurate and up-to-date and that the waste stream has remained within the operational bounds of the Facility. ~~facility.~~ This annual analysis will be performed by an independent laboratory. This analysis will be repeated more frequently if the Facility~~facility~~ believes, or has been informed by the generator, that the process generating the waste stream has changed. In the case of a change in the waste generation process the waste stream will be managed as a new waste stream in accordance with the requirements of this WAP. ~~waste analysis plan.~~

4.4.4 Acceptance/Rejection Determination

4.4.4.1 Discrepancy Resolution

Upon completion of the fingerprint analysis, a determination will be made as to whether or not the wastes are consistent with the pre-acceptance waste characterization information and within acceptance limits of the Facility. ~~facility and specific management units.~~ If any of the analyses determine the waste is not within the operational acceptance limits for disposal~~a specific management unit~~, the waste will not be accepted by the Facility. ~~facility for that unit.~~ If the results of the analysis conflict with the waste profile information, the Facility~~facility~~ may take any or all of the following actions:

- Resample~~resample~~ the waste, if necessary, and perform a second fingerprint test. The Facility~~facility~~ manager has discretion to accept the waste if the second fingerprint results match those on the waste profile sheet. The discrepancy between results will be explained and included in the Facility~~facility~~ Operating Record for that waste stream or shipment.~~;~~
- Perform~~perform~~ further characterization as necessary to verify the composition of the waste by sending a sample to a qualified independent analytical laboratory.~~; and/or~~
- Reject~~reject~~ the entire waste shipment or the nonconforming portion of the shipment.

If discrepancies between fingerprint analysis and waste stream characterization information exist upon completion of discrepancy resolution, the waste will be rejected by the Facility. ~~facility.~~ The Facility~~facility~~ will return the rejected waste to the generator or ensure proper disposal of the waste at an appropriate off-site facility within 30 days of the waste rejection.

4.4.4.2 Shipment Acceptance Procedures

Once the decision has been made to accept a waste shipment, the appropriate papers will be signed for the generator, and the waste stream will be transported by truck to the landfill. ~~an appropriate management unit.~~

4.5 Waste Analysis

Tables 4-1 through 4-3 specify parameters which will be analyzed to ensure that all criteria for waste acceptance and management are met. The Facility~~facility~~ will use approved SW-846 or ASTM analytical methods, or other approved method. If an alternative method not contained in SW-846 is to be used, the Facility~~facility~~ will demonstrate that such alternative method is equivalent to the approved method contained in SW-846 or this WAP. ~~waste analysis plan.~~ Alternative methods will be submitted to the NMED Secretary at least 15 days prior to the sample collection event.

Section 4.5.1 identifies the rationale for selecting parameters and analytical methods which will be used to test hazardous waste managed at the Facility. ~~facility.~~ Requirements for the pre-acceptance analysis of a representative sample of waste generated off-site and for the annual analysis are discussed in Sections 4.5.2 and 4.5.3, respectively. Section 4.5.4 contains requirements for fingerprint testing. Section ~~Section~~ 4.5.5 contains waste analysis requirements specific for the landfill. ~~to storage, treatment, and disposal units.~~ Section 4.5.6 contains requirements for ~~waste~~ analysis of waste generated on-site.

4.5.1 Analytical Parameters

The analytical parameter lists for pre-acceptance waste characterization, fingerprint analysis, and additional unit-specific analysis are presented in Tables 4-1, 4-2, and 4-3.~~-~~ The Facility ~~facility~~ will augment these lists~~,~~ as necessary~~,~~ to ensure that additional considerations pertaining to waste-stream-~~-~~specific pre-~~-~~acceptance characteristics, LDR standards analysis, and other Facility~~facility~~ operational limits are met. The rationale used to determine pre-acceptance characterization is specified in Section 4.5.1.1. The rationale for selecting additional parameters to ensure compliance with the LDR standards is specified in Section 4.5.1.2. The rationale for selecting parameters to ensure compliance with other facility regulatory and operational limits is contained in Section 4.5.1.3. For each waste stream accepted~~, treated,~~ and disposed of at the facility, appropriate parameters will be selected to ensure that each of the facility acceptance criteria is met.

4.5.1.1 Parameters for Waste Characterization

Table 4-1 specifies parameters to confirm that a waste stream agrees with the information provided by the generator. The rationale for the selection of these parameters is as follows:

- *Total*~~total~~ *volatile organic compounds (VOCs): ~~).~~* This test will determine the presence and concentration of individual VOCs.~~;~~

- *Total*~~total~~ *semi~~-~~volatile organic compounds (SVOCs): ~~).~~* This test will determine the presence and concentration of individual SVOCs.~~;~~

- *Metals*~~metals~~ *and inorganic constituents: ~~.~~* These tests will determine the presence and concentrations of individual metals and other inorganic constituents.~~;~~

- *Physical*~~physical~~ *appearance: ~~.~~* This test determines the general identity of the waste and establishes baseline characteristics that can then be subjectively compared with the waste shipment when it arrives at the facility. The waste is visually inspected and the physical appearance of the waste is recorded, including, at a minimum, the following properties: Color, physical state (solid or ~~,~~ semi-solid~~, or liquid~~), texture, viscosity, layering (single phase, bi-layer, multi-layer), and presence of free liquids.~~;~~

- *pH*: ~~.~~ This test indicates the corrosive nature of the waste. It also determines compatibility with other wastes and with ~~containers or~~ liners. ~~, and treatment requirements.~~ The tolerance range for pH is plus or minus 2.5 pH units.~~; and~~

- *Radioactivity screen:* ~~radioactivity screen.~~ This test screens each load using a gamma ray scintillation detector or other appropriate equipment. This test will be used to ensure that the level of radioactivity observed in NORM waste or equipment from oil, gas, and water production containing hazardous constituents, or other naturally occurring radioactive materials not regulated under 20.3.1.14 NMAC, is not above regulated limits as defined in 20.3.1.14 NMAC ~~3.1, Subpart 14~~ (i.e., the maximum radiation exposure reading at any accessible point does not exceed 50 microroentgens per hour [Φ~~(Φ~~R/hr]~~),~~ and the maximum radiation reading for sludges and scales contained in oil, gas, and water production equipment does not exceed 50 Φ~~Φ~~R/hr, or, if the radiation readings for removable sludges and scales exceed 50 Φ~~Φ~~R/hr, the concentration of radium 226, in a representative sample, does not exceed 30 picocuries per gram [~~(~~pCi/g]). Material~~)) or is not a material~~ regulated under the Atomic Energy Act of 1954, as amended, is not permitted for waste management. ~~.~~

4.5.1.2 Additional Analysis to Ensure Compliance with the LDR Treatment Standards

~~The facility will ensure that LDR treatment standards are met by identifying the appropriate treatment standard requirements as follows:~~

- ~~Total waste standards. All hazardous constituents in the waste or in the treatment residue must be at or below the values for these constituents contained in the Table in 40 CFR 268.40~~

- ~~Waste extract standards. The hazardous constituents in the extract of the waste or in the extract of treatment residue must be at or below the values found in the Table in 40 CPR 268.40, and~~

- ~~Technology standards. The waste must be treated using the technology specified in the Table in 40 CFR 268.40.~~

~~Identification of parameters to demonstrate compliance with LDR standards will be conducted as follows:~~

- ~~identification of all hazardous applicable characteristic and listed EPA Hazardous Waste Numbers;~~

- ~~identification of the appropriate subcategory for each applicable EPA Hazardous Waste Number (from the most current version of the Table in 40 CFR 268.40);~~

- ~~determination of wastewater/nonwastewater status for the waste stream;~~

- ~~identification of all underlying hazardous constituents for each applicable EPA Hazardous Waste Number (from the most current version of the Tables in 40 CFR 268.40 and 268.48; and~~

- ~~selection of the most current versions of the analytical methods associated with all identified hazardous wastes, underlying hazardous constituents, subcategories, and wastewater/nonwastewater status (from Table 4-2, SW-846, or equivalent).~~

The rationale for the selection of additional parameters to ensure compliance with the LDR standards is as follows:

- *Ignitability:* ~~total organic carbon (TOC). This test determines the total organic carbon concentration of the waste and is needed to determine whether the waste is a wastewater or nonwastewater;~~

- ~~total suspended solids (TSS). This test determines the total suspended solids concentration of the waste and is needed to determine whether the waste is a wastewater or nonwastewater;~~

- ~~ignitability.~~ This is a qualitative test to determine the ignitable nature of the waste and ~~,~~ indicate if the waste is prohibited. ~~, and determine treatment requirements.~~ It also helps to determine whether the waste is compatible with ~~containers, tanks,~~ liners, piping, structures, equipment, and other waste streams.~~;~~

- *Explosive*~~explosive~~ *meter vapor test (TLV sniff test):* ~~).~~ This test determines the fire-producing potential of the waste and whether it is regulated as flammable or combustible by the US Department of Transportation. If liquid waste exceeds 200 ppm, the waste will also be tested for ignitability using the flash point test. The tolerance range for the TLV sniff test is plus or minus 200 ppm.~~;~~

- *Flash*~~flash~~ *point test:* ~~.~~ This test determines the flash point of the waste and determines whether the waste is ignitable.~~;~~

- *pH:* ~~.~~ This test indicates the corrosive nature of the waste. It also determines compatibility with other wastes and with ~~containers or~~ liners. ~~, and treatment requirements.~~ The tolerance range for pH is plus or minus 2.5 pH units.~~;~~

- *Reactive* ~~reactive~~ *sulfide:* ~~.~~ This test determines the reactive nature of the waste and~~,~~ indicates if the waste is prohibited. ~~, and determines treatment requirements.~~ It is also used to determine whether the waste is compatible with ~~containers, tanks,~~ liners, piping, structures, equipment, and other waste streams. Wastes containing total releasable sulfide with concentrations less than 500 ppm are considered non-reactive.

- *Reactive*~~reactive~~ *cyanide:* ~~.~~ This test determines if cyanide could potentially be reactive under acidic conditions, indicates if the waste is prohibited. ~~, and determines treatment requirements.~~ It also determines whether the waste is compatible with ~~containers, tanks,~~ liners, piping, structures, equipment, and other waste streams. Wastes containing total releaseable cyanide with concentrations less than 250 250 ppm are considered non-reactive.~~;~~

- *Reactivity* ~~reactivity~~ *(compatibility):* ~~).~~ This test determines the compatibility between the waste and the liner~~, tank, container,~~ or equipment which the waste may contact.

  The Facility~~facility~~ will ensure that potentially incompatible wastes will not be ~~stored, treated, or~~ disposed of in the same location. The facility will perform a compatibility determination based on the pre-acceptance waste characterization information. Acceptable knowledge or assessment information provided on the Waste Profile Form may be used to assign compatibility codes to each waste type form based on 40 CFR 264, Appendix V. ~~For wastes that will be mixed with other waste streams for the purpose of treatment, chemical analysis will be required to ensure the compatibility of the waste streams.~~

  Chemical analysis will be accomplished in three steps, as appropriate for the waste being analyzed:

- An~~an~~ analysis of the waste for reactive cyanide and sulfide. This analysis will be used to determine the waste's potential to release dangerous levels of hydrogen cyanide or hydrogen sulfide gases in acidic conditions (i.e., pH less than 2).~~);~~

- An~~an~~ evaluation of the reactivity characteristics of the waste through process knowledge and a series of analytical procedures that will test for the presence of reactive chemical groups. The procedures in the EPA document, *Design and Development of a Hazardous Waste Reactivity Testing Protocol,* EPA-600/2-84-057, February 1984, will be followed and the results used to assign the waste a reactivity group designation. Figure 4-3, Sequence of Procedure Sets for Determining Reactivity Group, summarizes the reactivity testing protocol.~~; and~~

- Use~~use~~ of the reactivity group designation contained in Figure 4-3 to evaluate compatibility of the waste with other wastes by comparing it to the compatibility matrix shown in Figure 4-4, Reactivity Group Designation. (Refer to EPA document, A Method for Determining the Compatibility of Hazardous Wastes, EPA-600/2-80-076, April 1980, and 40 CFR Part 264, Appendix V, for additional information on waste compatibility).

- *Total* ~~total volatile organic compounds (~~*VOCs*: ~~).~~ This test will determine the presence and concentration of individual VOCs.~~;~~

- *Total* ~~total semi-volatile organic compounds (~~*SVOCs*: ~~).~~ This test will determine the presence and concentration of individual SVOCs.~~;~~

- *Metals:* ~~metals.~~ These tests will determine the presence and concentrations of individual metals and other inorganic constituents.~~;~~

- *Organochlorine*~~organochlorine~~ *pesticides*: ~~.~~ This test determines the pesticide concentration of the waste.~~;~~

- *Chlorinated*~~chlorinated~~ *herbicides*: ~~.~~ This test determines the herbicide concentration of the waste.~~;~~

- *PCBs*: ~~.~~ This is a quantitative test to determine whether PCBs are contained in oil-bearing and other types of waste and to determine the concentration.~~; and~~

- *Leachate:* ~~leachate.~~ Leachate must be tested for all leachate constituents listed in the table~~Table~~ in 40 CFR 268.40.

4.5.1.3 Additional Analysis to Ensure Compliance with Regulatory and Operational Limits

The rationale for the selection of additional parameters to ensure compliance with the Facility's~~facility's~~ regulatory and operational limits is as follows:

- *Radioactivity screen:* ~~radioactivity screen.~~ See Section 4.5.1.1. This test will determine if the waste is prohibited from acceptance at the Facility~~facility~~ (see Section 4.1.2 for a list of prohibited wastes).~~);~~

- *PCBs*: ~~.—~~ See Section 4.5.1.2. This test will determine if the waste contains a prohibited concentration of PCBs.~~;~~

- *VOCs (Subpart BB)*: ~~).-~~ These tests are conducted as required by 40 CFR 264.1063(d) to determine, for each piece of equipment subject to the requirements of 40 CFR~~;~~ 264, Subpart BB, whether the equipment contains or exceeds 10 percent VOCs by weight. Applicable process knowledge may be used to make this determination.~~;~~

- ~~*Dioxins*VOCs (Subpart CC). These tests are conducted as required by 40 CFR 264.1084(a)(3)(iii) to determine, if wastes placed in tanks, the evaporation pond, and the stabilization bins are subject to the requirements of Subpart CC. A hazardous waste with a volatile organic concentration equal to or greater than 500 ppmw will be accepted only for storage in approved containers and direct disposal in the landfill;~~

- ~~dioxins~~ *and dibenzofurans*: ~~.~~ This test is conducted to ensure that the waste stream does not contain dioxins and/or dibenzofurans.~~;~~

- *Non-*~~non~~*biodegradable sorbent test*: ~~.~~ This test is performed as required by 40 CFR 264.314 (prohibition of liquids in landfills). This test is required if the Facility~~facility~~ determines that the generator did not indicate whether a sorbent was added to the waste or indicates that a sorbent was added but did not specify the name and type of sorbent and whether it is nonbiodegradable. If any of this information is not present, the generator will be contacted for clarification. If uncertainty remains, 40 CFR 264.314(e)(1)(i-iii) will be reviewed. If the sorbent's biodegradability cannot be determined from the list or if the name of the sorbent is unknown, the material will be analyzed following one of the tests referenced in 40 CFR 264.314(e)(2). The Facility~~facility~~ will select one of the following tests:
  - ASTM Method G21-70 (1984a) - Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi;
  - ASTM Method G22-76 (1984b) - Standard Practice for Determining Resistance of Plastics to Bacteria;
  - OECD Test 301B - CO_2 Evolution (Modified Sturm Test) ASTM Method G21-70 (1984a) - Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi; or
  - Other approved test method.

- *Total*~~total~~ *organic halogens (TOX)*: ~~).~~ This test determines if concentrations of halogens in the waste are in compliance with the LDR treatment standards. It also determines if the waste contains constituents that could degrade a liner. Wastes containing TOX greater than 1,000 mg/L~~l~~ (based on TCLP extract) will not be placed in the ~~evaporation pond or the~~ landfill.~~;~~

- *Free* ~~free~~ *liquid content test (paint filter liquids test)*: ~~).~~ This test is a qualitative test to determine the free liquids concentration contained within the waste matrix and will be used as a control parameter for wastes that are to be landfilled.~~;~~

- *Toxicity*~~toxicity~~ *characteristic leaching procedure (TCLP)*: ~~).~~ This test must be used to obtain an extract of the waste where treatment standards are based on concentrations in the waste extract:~~;~~
  - major ions and metals in non-leachate (sulfides and sulfates, radionuclides, VOCs, SVOCs, pesticides, PCBs, perchlorate, and TPH).

4.5.2 Representative Sample Analysis

The Facility~~facility~~ will select parameters for analysis to ensure that the criteria for waste acceptance identified in Section 4.2 are met. The analysis will include, at a minimum, testing for each hazardous waste contained in the waste stream, as identified by EPA hazardous waste code, and for each underlying hazardous constituent, as identified in 40 CFR 268.48, Table 4-1, Parameters and Methods for Representative Sample Analysis.

Additionally, parameters on Tables 4-2, Tests and Analytical Methods for Fingerprint Analysis, and 4-3, Additional Tests and Analytical Methods, will be included, as applicable.

For foreign wastes, in addition to the conditions specified above, representative sample analysis for each waste stream shall include testing for all constituents listed in 40 CFR 268.48 using practical quantitation limits capable of measuring the standards specified in 268.48. The results of this test will be used to perform the comparison with the generator's Waste Profile Form specified in the *Representative Sample Assessment* Section (Waste Analysis Plan Condition 4.3.3). Testing for all constituents listed in 40 CFR 268.48 shall not be required for the annual analyses.

Hazardous debris, as defined in 40 CFR 268.2(g), that has already been treated to meet the LDR treatment standards as described in 40 CFR 268.45 does not have to meet the representative sample analysis requirements if the Facility~~facility~~ determines that the generator provided waste characterization information that demonstrates that the proper EPA Hazardous Waste Numbers were applied and indicates whether or not the LDR treatment standards have been met.

4.5.3 Annual Analysis

The representative sample analysis for each waste stream from each generator will be repeated annually at an independent laboratory not used by the generator (see Section 4.4.3.2).

4.5.4 Fingerprint Analysis

Fingerprint samples will be analyzed for all parameters listed on Table 4-2, and may include tests for physical appearance, pH, and radioactivity. Additional fingerprint parameters will be selected based on the pre-acceptance waste characterization data, shipment paperwork, physical form of the waste, and the visual inspection of the contents of containers and bulk waste. The Facility~~facility~~ will follow the additional parameter selection process described in Section 2.2 of the EPA guidance document, *Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes* (EPA, OSWER 9938.4-03, April 1994).

Because the Facility~~facility~~ already knows the detailed chemical and physical properties of a waste, additional necessary and appropriate fingerprint or spot check parameters can be chosen easily, as~~since~~ the purpose of the fingerprint is only to verify that the waste fingerprint analysis will include, at a minimum, the parameters received is the waste expected. These parameters will be analyzed at the on-site laboratory. Analyses which are not within the on-site laboratory's capability will be sent to an independent laboratory for analysis.

Fingerprint analysis will also include parameters as necessary to ensure that the waste is within the Facility~~facility~~ regulatory and operational acceptance limits (see Table 4-3). To select these additional sample parameters, the Facility~~facility~~ will consider.

- compliance with applicable regulatory and permit requirements~~.~~ (This may require select~~-~~ion of parameters not reported by the generator);
- identification of incompatible and inappropriate wastes; and
- process and design considerations.

As noted, fingerprint analysis helps the Facility ~~facility~~ minimize the potential to receive waste that is unacceptable. Therefore, the level of additional analysis required for a waste shipment is a function of Facility~~facility~~ knowledge about the waste generation process and the waste generator. The Facility~~facility~~ may elect to perform additional fingerprint tests to achieve a higher level of confidence that a full waste characterization is achieved. If discrepancies are noted between the received waste and the Waste Profile

Form, the waste will be further analyzed using additional fingerprint parameters. Discrepancies that can result in the Facility~~facility~~ requiring additional analysis include non-conformance with the results of required testing or a change in color, texture, liquid content, or other characteristics that can be observed upon receipt.

The Facility~~facility~~ will follow the additional parameter selection process described in Section 2.2 of the EPA guidance document, *Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes* (EPA, OSWER 9938.4-03, April 1994).

4.5.5 Additional Analysis Requirements for the Landfill ~~Specific Management Units~~

4.5.5.1 Overview of Waste Management Procedures in the Permitted Hazardous Waste Management Unit~~s~~

Upon completion of the fingerprint analysis, and supplemental analyses if conducted, waste will be transferred to the appropriate staging area. Prior to ~~interim or~~ final disposition of the waste, however, additional analyses may be required to ensure that requirements for the landfill~~permitted hazardous waste management units~~ are met.

Analysis necessary for disposal ~~specific management units~~ is generally conducted as part of the pre-acceptance procedure (see Section 4.7.2). Appropriate parameters will be selected from Tables 4-2 and 4-3. The Facility~~facility~~ will use a combination of process knowledge and analytical results to obtain the information needed prior to placing waste in the landfill. ~~one of the management units.~~ The Facility~~facility~~ may elect to use other EPA-~~-~~approved analytical methods if it is felt that information other than that obtainable by these methods is needed to manage the waste safely.

The landfill has ~~All hazardous waste management units will have~~ specific ignitability, reactivity, and compatibility requirements that ~~which~~ must be met. Acceptable knowledge or waste analysis will be used to determine whether a waste stream is ignitable, reactive, or incompatible with other wastes to be placed in the landfill. ~~when stored or mingled.~~ In addition, acceptable knowledge or waste analysis will be used to determine whether the waste stream is compatible with the ~~container or tank in which it is placed, or with the liner of the evaporation pond or~~ landfill. Specific ignitability, reactivity, and compatibility tests will be conducted as part of the representative sample analysis, and may be repeated in the fingerprint test, for wastes assigned to specific management units. Management of these wastes is discussed inPermit Attachment B, Section 5.5. ~~in Vol. I, Section 5.5 of this application.~~ Ignitability, reactivity, and compatibility determination is discussed in Section 4.5.1.2.

The Facility~~facility~~ will conduct compatibility tests as part of the representative sample analysis procedure on an incoming waste stream specific to ~~each management unit and specific to~~ other waste streams with which it may be combined. ~~Special requirements for specific management units are discussed in Sections 4.5.5.2 through 4.5.5.5.~~

~~4.5.5.2 Waste Analysis Requirements Specific to Storage Units.~~

~~Wastes will be stored in the drum storage building, the roll-off container storage area, and the liquid waste storage tanks Waste characterization is accomplished through the representative sample analysis, the yearly update of the representative sample analysis, and on-going fingerprint analysis. The ignitability, reactivity, and incompatibility of each waste stream will be determined using procedures listed in Table 4-2 to ensure that stored waste is compatible with other wastes and with the container or tank in which it is placed. Spills or releases of hazardous waste and/or fluids removed from the leak detection systems will be tested to determine if the recovered material is hazardous.~~

~~Procedures from Table 4-3 will be used to determine whether a hazardous waste stored in containers must comply with the requirements of 40 CFR 264, Subpart CC. If it must comply, the container will be managed to meet Container Level 1 and Level 2 standards as appropriate. Waste which must comply with the requirements of 40 CFR 264, Subpart CC, will not be placed in storage tanks~~

~~The facility will ensure that containers are either at least 90 percent full when placed in the landfill, or are crushed, shredded, or similarly reduced in volume to the maximum practical extent.~~

~~4.5.5.3 Waste Analysis Requirements Specific to the Landfill. Evaporation Pond~~

~~Prior to placement of waste in the landfill, it must be determined that the waste Liquid waste streams may be placed in the evaporation pond for drying before they are sent to the stabilization tanks for solidification. Following evaporation of the pond liquids, sludge will be removed from the bottom with trash pumps or hand excavation equipment.~~

~~Waste will be characterized by representative sample analyses and fingerprint analyses, using the parameters listed on Tables 4-1 through 4-3, as applicable, before it is placed in the evaporation pond. A determination of ignitability, reactivity, and incompatibility with other wastes with which the waste may be combined and with the pond liner will be made. It will also be tested to ensure that the LDR standards are met and that the waste placed in the pond does not contain volatile organic concentrations equal to or greater than 500 ppmw.~~

~~Because evaporation in the pond may change the chemical composition of the waste, or different waste streams may be combined in the pond, analysis to ensure that the LDR standards are met will be conducted on a waste stream after it leaves the pond. Applicable knowledge will be used to determine appropriate parameters for analysis. If, after treatment, a waste displays a characteristic for the first time, the characteristic waste code will be added to the LDR Notification Form and facility records. The waste will be retreated, if necessary, to meet the characteristic treatment standard before land disposal.~~

~~Dilution of restricted wastes will not be used as a substitute for adequate treatment for non-toxic hazardous characteristic waste. If toxic characteristic wastes and listed wastes are amenable to the same type of treatment and aggregation is a part of treatment, then the aggregation step does not constitute impermissible dilution.~~

~~4.5.5.4 Waste Analysis Requirements Specific to the Stabilization Tanks~~

~~Waste treated in the stabilization tanks is characterized to determine the hazardous constituents contained in the waste and to ensure that waste placed in the stabilization tank is compatible with the tank liner and with the previous waste type treated. Acidic or caustic material may be neutralized by the stabilization process.~~

~~In addition to the representative sample provided by the generator during the pre-acceptance period, a second representative sample of any waste requiring stabilization prior to placement in the landfill (or a sample of waste coming from the evaporation pond for stabilization) must be supplied. This sample will be used for bench-scale testing to determine regulated constituent leaching based on varying admixtures and ratios (i.e., to determine treatability of wastes). The stabilization process will result in a dry and structurally stable material that is suitable for compaction and landfilling.~~

~~Bench-scale tests will be conducted as part of the representative sample analysis for incoming waste streams which will go directly to the stabilization tanks, or for a waste stream from the evaporation pond. Selection of treatment reagents and quantities will be established according to the waste profile and the post-treatment LDR requirements. Stabilization agents that will be tested include, but are not limited to, lime, fly ash, and Portland cement.~~

~~The waste will also be treated to ensure that it does not contain volatile organic concentrations equal to or greater than 500 ppmw.~~

~~The EPA universal treatment standard (see 40 CFR 268.48) will be met for wastes treated on-site. Waste streams that carry more than one characteristic or listed EPA Hazardous Waste Number will be treated to the most stringent treatment requirements for each hazardous waste constituent, including underlying hazardous constituents. When wastes with different treatment standards are combined solely for the purpose of treatment, the most stringent treatment specified will be met for each hazardous constituent in the combined waste.~~

~~After stabilization, wastes will be retested prior to placement in the landfill to determine whether they meet LDR requirements. If LDR requirements are not met, the waste will be retreated. After testing, stabilized waste will be placed in roll-off containers and placed on the roll-off pad until cured.~~

4.5.5.5 Waste Analysis Requirements Specific to the Landfill

~~The stabilized waste will be retested p~~Prior to placement in the landfill, it must be determined that the waste ~~to determine whether it~~ meets LDR standards as set forth in 40 CFR 268, Subpart D. 40 CFR 268.40 states that a waste identified in the table "Treatment Standards for Hazardous Wastes" may be land disposed only if it meets the requirements found in the table. For each waste, the table identifies one of three types of treatment standard requirements:

- All hazardous constituents in the waste or in the treatment residue must be at or below the values found in the table for that waste ("total waste standards"); or
- The hazardous constituents in the extract of the waste or in the extract of the treatment residue must be at or below the values found in the table ("waste extract standards"); or
- The waste must be treated using the technology specified in the table ("technology standard") which are described in detail in 40 CFR 268.42, Table 4-1.

In cases where treatment standards are based on concentrations in the waste extract, the generator ~~facility~~ will use toxicity characteristic leaching procedures (TCLP, see 40 CFR 261, Appendix II) to determine if the waste meets the standards. The sampling and analysis protocols outlined in Sections 4.5 through 4.7 of this permit application will apply to all wastes to ensure compliance with LDR standards. Parameters for analysis will be determined by the characterization of the waste before analysis. All information obtained to document LDR compliance will be maintained in the Facility~~facility~~ Operating Record.

In addition to other required procedures and analyses, on an annual basis the Facility~~facility~~ will randomly sample and analyze a minimum of 10 percent of incoming waste streams that are to be directly landfilled to verify conformance with the LDR requirements. These additional samples will be analyzed for the specific regulated hazardous constituents contained in the hazardous waste stream. The data generated from these samples, in conjunction with the generator-supplied data, will be used to verify conformance with the LDR requirements.

Facility personnel, either at the Facility~~facility~~ or at the point of generation, will collect these samples. The samples will be split into a minimum of two aliquots. One will be retained and the other analyzed for conformance with the applicable LDR requirements. If the results of the analysis indicate that the waste does not conform with the applicable LDR requirements, the retained sample will be analyzed, generator-supplied information re-evaluated, and an evaluation made of the potential for the waste's variability based on the process that generates the waste stream.

The retained sample will subsequently be analyzed, the generator-supplied information re-evaluated, and an evaluation made of the potential for the waste's variability based on the process that generated the waste stream. These factors, along with an evaluation of the QA/QC data from the laboratory (both the generator's and the Facility's~~facility's~~), will be used to determine if the subject waste stream is eligible for continued disposal at the Facility~~facility~~ or if additional treatment is necessary prior to disposal. Disposal of the waste stream will be discontinued until the discrepancy regarding compliance with the LDR requirements has been resolved and the generator has demonstrated that its on-going program for compliance with LDR requirements is adequate.

Procedures to meet LDR standards for specific wastes include the following:~~.~~

- *Lab*~~lab~~ *packs*: ~~.~~ Prior to acceptance by the Facility for disposal, hazardous wastes contained in lab packs will be treated to meet applicable treatment standards for each waste type identified. ~~Procedures to determine applicable treatment requirements, and the subsequent treatment of lab wastes to applicable standards, will be consistent with procedures implemented for other waste types.~~ Lab packs will also be analyzed to ensure that they do not contain hazardous wastes listed in 40 CFR 264, Appendix IV. In cases where hazardous lab pack wastes are combined with non-~~-~~hazardous lab pack wastes prior to or during treatment, the entire mixture will be treated to meet the most stringent treatment standard for each hazardous constituent before being disposed of in the landfill.~~;~~

- *Ignitable or* ~~ignitable or~~ *reactive wastes*: ~~.~~ Ignitable or reactive hazardous waste will be tested to ensure that it will not be placed in the landfill until the waste has been rendered non-ignitable or non-reactive by treatment.~~;~~

- *Characteristic*~~characteristic~~ *wastes.* Generator process knowledge and/or analytical data will be used to determine whether characteristic wastes meet the applicable treatment standards or to demonstrate that the waste has been treated by the appropriate specified treatment technology. In accordance with 40 CFR 268.41, where treatment standards are based on concentrations in the waste extract, generators shipping waste to the Facility~~facility~~ will determine if their wastes meet treatment standards.~~;~~

- ~~*Reactive*bulk liquids. All hazardous *wastes*: will be tested for the presence of free liquids (paint filter test) to ensure that no free liquids are placed in the landfill. No containers holding free liquids will be placed in the landfill unless the container is in a lab pack, or the container was designed to hold liquid for use other than storage, such as a battery or capacitor, or the container is very small, such as an ampule;~~

- ~~reactive wastes.~~ Reactive wastes will not be placed in the landfill until they have been rendered nonreactive by treatment.~~;~~

- *Incompatible wastes*: ~~incompatible wastes.~~ Incompatible wastes will be sufficiently separated when placed in the landfill to ensure that they do not combine to cause adverse reactions. These wastes will be managed to ensure that they meet the requirements specified in 40 CFR 264.313 and 274.17. This management includes placing incompatible wastes in non-adjacent landfill grids and treatment of potentially noncompatible wastes prior to shipment of the waste to the Facility.. ~~landfilling;~~

- *Hazardous* ~~hazardous~~ *debris*: The Facility~~. Hazardous debris will not be treated at the facility. Therefore, the facility~~ will only accept hazardous debris that has been treated and certified to meet the LDR treatment standards specified in 40 CFR 268.45(b) or (c) by the generator prior to shipment to the Facility.~~facility; and~~

- *Listed*~~listed~~ *waste*: ~~.~~ Listed waste will not be placed in the landfill until it has been shown to meet the requirements of 40 CFR 268.40.

4.5.6 Waste Analysis Requirements for Waste Generated On-Site

4.5.6.1 Overview of Waste Generated On~~on~~-Site

The Facility~~facility~~ is expected to generate some waste on-site through ~~waste treatment,~~ day-to-day facility operations, leachate, or releases of hazardous waste to the environment (see Table 4-4).

Waste generated on-site will be assumed to be RCRA-regulated until process knowledge and/or sampling and analysis can be used to determine the actual nature of the waste. Sampling and analysis will be accomplished in accordance with the requirements this WAP~~waste analysis plan~~.

The Facility~~facility~~ will select waste analysis parameters to confirm the identity of waste streams generated at the Facility. ~~facility.~~ The selection of waste analysis parameters will typically be based on knowledge of the physical and chemical processes that produced the waste stream. If there is doubt as to the specific source, the Facility~~facility~~ will use the waste tracking system to identify all possible sources and to develop a list of specific parameters for laboratory analysis. Acceptable knowledge and analytical testing as necessary will be used to ensure compliance with LDR requirements and provide waste compatibility and other information to determine appropriate waste management activities.

~~After analysis, the waste will be returned to the unit from which it came or sent to another appropriate unit.~~ The Facility~~facility~~ will ensure that all on-site generated waste sent to the landfill meets all LDR treatment standards.

~~Treated waste is considered newly generated waste because hazardous waste treatment at the facility will result in a change in the physical and/or chemical character or composition of the waste. Treated waste will be recharacterized, using waste analysis or acceptable knowledge as appropriate and it will be tested to ensure that LDR treatment standards are met before disposal in the landfill. Waste analysis requirements are discussed in Section 4.5.5.5.~~

Day-to-day operations at the Facility~~facility~~ will produce some waste on-site from day-to-day operations (e.g., paint and paint strippers, laboratory chemicals and equipment, vehicle maintenance). This waste will be characterized using acceptable knowledge, or waste analysis if the source cannot be definitively determined. If it is hazardous waste and meets all disposal requirements, it may be ~~sent to the evaporation pond or stabilization tanks for treatment as appropriate, and~~ disposed in the landfill. If it does not meet the requirements for disposal in the landfill or if it is not hazardous waste, it will be sent off-site for disposal.

A **release** is defined as "any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous waste (including hazardous constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed~~dosed~~ receptacles containing hazardous wastes or hazardous constituents)". Management protocols for releases generated on-site are discussed below:~~.~~

- *Spills*~~spills~~ *and leaks*: ~~.~~ Spills and leaks may occur during ordinary Facility~~facility~~ operations (e.g., release of fluid from a leaking drum to the cell trench and sump in the drum handling unit, a spill at any loading or unloading area~~, or overtopping at the evaporation pond~~).

Provisions for the detection, characterization, and management of spills and leaks are discussed in ~~Vol. I,~~ Sections 2.0, 5.4.2~~–~~, 6.3.5.2, and 6.3.7 of this Permit Application. ~~application.~~ If spills and/or leaks are identified during inspections, the materials will typically be removed from the system, characterized, and managed appropriately. If necessary, the contaminated area will be sampled to ensure that all contaminated materials are removed.

- *Decontamination*~~decontamination~~ *rinse water*: ~~.~~ Personal protective~~protection~~ equipment (PPE), as well as other equipment (e.g., trucks, sampling equipment, industrial absorbents used during spill or leak clean-up, emergency equipment), may become contaminated during the course of site operations such as the handling of wastes, the transfer of waste to another unit, or emergency operations. The water used to rinse this equipment will be analyzed to determine if it is a hazardous waste and if the equipment has been adequately decontaminated. Provisions for the detection, characterization, and management of decontamination rinse water are discussed in ~~Vol. I,~~ Sections 5.2.5, ~~and~~ 5.2.10, and ~~Vol. III, Section~~ 9.1.2~~,~~ of this Permit Application. ~~application. Rinse water will be removed to the truck wash area.~~ Rinse water and residues will be chemically analyzed and handled in an appropriate manner.~~;~~

- *Run-*~~run-~~*on/run-off*: ~~.~~ Facility stormwater control is provided by a network of surface run-on and run-off diversion channels and collection and detention basins (see ~~Vol. III,~~ Drawing 25 of the Facility design drawings in Permit Attachment L1). ~~this application).~~ To control the run-off from the Facility~~facility~~, several collection channels and culverts will be built to divert discharges from storm events to a stormwater retention basin (see Section 2.7 of the Operations and Maintenance Plan, submitted separately). Procedures for management of run-on/run-off are discussed in ~~Volume I,~~ Sections 2.5.1.6, 2.6.1.4, and 5.4.2 of this Permit Application. ~~. Contaminated water will be characterized, treated in the evaporation pond and/or stabilization bins, and disposed of in the landfill in compliance with appropriate regulations.~~ Sampling will be conducted upstream of the stormwater detention~~retention~~ basin to determine the source of any~~point where~~ hazardous constituents that could be~~were~~ introduced into the stormwater. Appropriate corrective actions will be implemented to prevent further contamination during future stormwater events.

- *Investigation* ~~investigation-~~*derived wastes (IDW)*: ~~.~~ IDW may include drill muds and~~,~~ cuttings from ~~, and~~ well installation ~~purge waters~~ associated with the investigation of spills and releases; ~~purge waters,~~ soils and other materials from regularly scheduled sampling activities associated with waste management units and the vadose zone monitoring system; and contaminated PPE. All IDW will be assumed to be hazardous waste until site or material specific information becomes available. IDW will be stored near the point of generation in appropriately labeled containers for no greater than 90 days and will be appropriately analyzed to determine whether it is either a characteristic or listed hazardous waste. Analysis of materials associated with the IDW may be used also to characterize the IDW. An example of associated analysis for urge waters from the vadose zone monitoring system would be the final analytical results for the samples collected to satisfy regularly scheduled monitoring requirements.

- *Contaminated soil:* ~~contaminated soil.~~ Soil means unconsolidated earthen material consisting of clay, silt, sand or gravel size particles as classified by the US Natural Resource Conservation Service, or a mixture of such materials with liquids, sludges or solids which is inseparable by simple mechanical removal processes and is made primarily of soil by volume based on visual inspection. Contaminated soil is soil impacted by a hazardous constituent release. Soil may become impacted by a release either at the surface or subsurface. If the contaminated soil exists at the surface, the appropriate response is described in the Contingency Plan in the Permit Application. If the contaminated soil exists subsurface, the appropriate response will be developed by NMED as permit conditions. Contaminated soils that are managed as hazardous wastes will be analyzed and managed in accordance with the alternative LDR treatment standards for contaminated soil contained in 40 CFR ~~40 CFR~~ 268.49.

- *Air*~~air~~ *emissions*: ~~.~~ Procedures for detection of hazardous gases and volatile organic at the landfill are discussed in ~~Vol. I,~~ Sections 2.5.1.8 and 6.2.2 of this Permit Application. ~~application.~~ Procedures to minimize wind dispersal of dust throughout the Facility~~facility~~ are identified in Section 5.4.8. This section also discusses pollution control systems in the stabilization unit to minimize the release of particulate to the atmosphere. _The Facility~~facility~~ will apply to NMED for a new source air emissions permit before start-up of operations.

- *Leachate*: ~~.~~ Leachate ~~collected from the storage units or the stabilization building is treated as a spill or release. Leaches~~ as used here refers to landfill ~~and evaporation pond~~ fluids._ The definition of leachate is in 40 CFR 260.10, collected from the leachate collection and removal~~Leachate Collection and Removal System, the Leak Detection~~ system (LCRS), the leak detection and removal system (LCRS), or the vadose zone monitoring system (VZMS) sump~~, or the Vadose Zone Monitoring System sumps~~.

~~Leak detection and removal/vadose zone monitoring for evaporation pond leachate is discussed in Vol. 1, Sections 2.6.1.2 and 2.6.4.3 of this application. Procedures for the removal of evaporation pond leachate are discussed in Section 2.5.4.3. Leachate will be removed by vacuum truck on a regular basis, combined with leachate from the landfill and treated in the stabilization tanks to remove free liquids and to ensure that LDR treatment standards are met.~~

Leak detection and removal/vadose zone monitoring for landfill leachate is discussed in Sections 2.5.~~Vol.~~ 1~~,~~ ~~Sections 2.5.1~~.3, 2.5.1.4, and 2.5.1.5 and in the Engineering Report in Permit Attachment L. ~~.~~ Leachate generated from the landfill will be managed and removed by enhanced evaporation through~~pumped out of the unit sumps into the temporary~~ leachate recirculation within the landfill. All leachate will be contained within the lined landfill unit. ~~storage tank. It will then be tested to assure compliance with LDR requirements defined in 40 CFR 268 for F039 listed wastes.~~

~~Leachate will be transferred daily from both the landfill and the surface impoundment sumps and combined in temporary storage tanks for management purposes. The combined leachate will be analyzed monthly for the F039 underlying hazardous constituents to determine whether it meets LDR treatment standards and can undergo evaporation in the surface impoundment prior to stabilization.~~

Leachate may also be collected from the vadose zone monitoring wells, but only in the unlikely event of a leachate release from the landfill. ~~Vadose Zone Monitoring Wells.~~ These wells will be monitored monthly; if any fluids are present, they will be sampled and analyzed for all F039 constituents._ Biennially, the wells will be analyzed for all the Ground Waste Monitoring List constituents identified in 40 CFR 264, Appendix IX, if water is present.

Leachate sampling and analysis will follow the sampling and analytical procedures and recordkeeping requirements contained in the VZMS~~Vadose Zone Monitoring System~~ Work Plan (Attachment I) and this section.

4.6 Sampling Plan

The Sampling Plan is based upon the guidance provided in Chapter 9 of SW-846._ The overall plan takes into account the regulatory and scientific objectives identified in this WAP. ~~waste analysis plan.~~ Based upon these objectives, the sampling strategy ensures that the data collected will minimize the potential for accepting waste that is unsuitable for management at the Facility. ~~facility.~~ Modifications to the Sampling

Plan to include detailed sampling protocols specific to the site activities will likely be required to reflect the sampling to be performed during operation of the Facility~~facility~~.

The sampling program will take into account the different types of waste constituents and the various waste matrices that may be encountered. _By taking these variables into account, the Facility~~facility~~ will identify the protocols by which sample locations will be selected and the methods most appropriate for collecting samples from the different waste streams.

The latest revision of SW-846 methods (ASTM) or other approved methods will be used, and site procedures will be revised as necessary to incorporate new requirements.

General sampling methods and collection techniques are discussed in section 4.6.1. Section 4.6.2 contains specific sampling procedures. Section 4.6.3 and 4.6.4 provide information on sample location and sample type, respectively. Section 4.6.5 discusses sampling ~~quality assurance/quality control (~~QA/QC~~)~~ procedures. Sections 4.6.6 and 4.6.7 present requirements regarding sample preservation, volume and holding times, and ~~for~~ equipment decontamination, respectively.

4.6.1 Sampling Methods

Sampling methods will follow Appendix I of 40 CFR, Part 261 unless a more appropriate method is identified. Table F~~4~~-5~~, Sampling Methods,~~ lists general waste matrices and appropriate sampling methods that will be used at the Facility.

~~facility.~~ Matrices that will be sampled include containerized liquid, viscous liquids/sludges, crushed/powdered material, rock/rock-like material, soil, and fly-ash-like material. The methods and equipment used for sampling wastes will vary with the form and consistency of the material to be sampled. Also, these matrices will be sampled using a variety of sampling tools (see Table F~~4~~-5), including the Coliwasa (containerized liquid/viscous liquid), dipper (containerized liquid/viscous liquid), thief (containerized liquid/viscous liquid), weighted bottle (containerized liquid), scoop (sludge, powdered material, rock/soil material, fly-ash material), shovel (powdered material, rock/soil material), auger (soil/fly-ash-like material) and tube sampler (fly-ash like material and liquids). The Facility~~facility~~ will select the appropriate sampling method from Table F~~4~~-5 based upon the sample matrices, chemical constituents within the sample, and sampling conditions. If a sampling method not presented on Table F~~4~~-5 would be more appropriate for the specific matrices to be sampled given site-specific conditions or if the procedures presented below must be modified, an alternative method will be used. If an alternative method is used, the sampling method will be well documented, justified, placed in the Operating Record, and approved by NMED prior to implementation.

Sampling equipment will be compatible with waste, and are generally made of glass, steel, or Teflon. Stainless steel is more suitable for sampling solids and soils, while glass and Teflon are more suitable for liquids.

~~4.6.1.1 Sampling with a Coliwasa~~

~~The Coliwasa is used to collect extremely viscous liquid or sludge samples, as well as containerized liquid samples. The Coliwasa provides a representative sample of layered and homogenous liquid materials, and the sampler consists of glass, plastic, or metal tube with an end closure that can be opened and closed while the tube is submerged in the sample material. The following general process will be used to sample with the Coliwasa:~~

~~1. Clean/Decontaminate Coliwasa~~

~~2. Adjust sampler's mechanisms to ensure that the stopper provides tight closure. Open sampler.~~

~~3. Lower sampler into waste so that liquid level inside and outside the sampler remain the same.~~

~~4. When sampler hits the base of the material to be sampled, the sample tube is pushed down to close and sampler and lock the stopper.~~

~~5. Withdraw the Coliwasa from the waste and place sample into the appropriate sample container.~~

~~Note that only plastic Coliwasas constructed of Teflon should be used to sample organics. Glass coliwasas are not used to sample hydrofluoric acid liquids, and if solids are present at the base of the sampled matrix, an alternative sample device will be used to obtain a representative sample of the solid phase.~~

4.6.1.2 Sampling with a Dipper

Dippers are used to collect liquid samples and free-flowing slurries. The dipper consists of a glass, plastic, or stainless steel beaker or similar container typically clamped, as necessary, to the end of a pole which serves as a handle. The following process will be used to sample with the dipper:~~.~~

1. Clean/decontaminate the dipper.

2. Insert dipper into the liquid to be sampled, preferably through the entire sample container, if possible.

3. Remove dipper and place sample into the appropriate sample container.

4.6.1.3 Sampling with a Thief Sampler

A thief sampler may be used to collect ~~viscous liquid/~~sludge samples or to sample small dry granules. Thief samplers~~Thiefs~~ typically consist of two slotted concentric tubes of stainless steel; the outer tub has a conical tip allowing the sampler to penetrate the sample material, while the inner tube is rotated to open/close the sampler. The following general process will be used to sample with a thief~~Thief~~ sampler:

1. Clean/decontaminate the sampler.

2. Insert closed thief into material to be sampled. Rotate the inner tube to open the thief; collect sample.

3. Withdraw the thief, and remove inner tube, transferring sample to sampler container.

~~4.6.1.4 Sampling with a Weighted Bottle~~

~~The weighted bottle is used to sample liquids and free-flowing slurries that are relatively homogeneous. The sampler consists of a glass or plastic bottle with a sinker, stopper, and line that is used to lower/raise the bottle within the sampler matrix. The following general process will be used to sample with a weighted bottle:~~

~~1. Clean/Decontaminate the sampler~~

~~2. Assemble weighted bottle sampler~~

~~3. Lower the sampler to the desired depth and remove stopper~~

~~4. Allow bottle to fill~~

~~5. Raise sampler and cap (sampler can serve as the sample container).~~

~~Nonfluorocarbon plastic bottles should not be used to sample organics. Before sampling, ensure that sample line, sinker, and other equipment are compatible with waste materials (i.e. waste will not corrode sampling equipment).~~

4.6.1.5 Sampling with a Scoop/Shovel

Scoops/shovels are used to sample rock/soil-like, solid or powdered matrices. The following general process will be used to sample with scoops/shovels:

1. Clean/decontaminate the sampler.

2. Obtain a full cross section of the waste material using the scoop or shovel that is large enough to contain the waste collected in one cross sectional sweep.

4.6.1.6 Sampling with an Auger

Augers are used to sample relatively hard packed solid waste material or soils. Augers are spiral drilling blades attached to metal shafts which are "turned" downward through sample material, allowing sample to exit the sample matrix by moving upward along the auger spirals. The following general process will be used to sample with an auger:

1. Clean/decontaminate the sampler.

2. Drill downward, using the auger, into the waste material, capturing waste moving upward along the auger blades in the appropriate sample container.

4.6.1.7 Sampling with a Tube Sampler

Tube samplers are used to collect soil/solid samples, and are generally glass or steel tubing that can be inserted into relatively compact matrix. (Modified tube samplers, however, can be used for liquid sampling.) Following insertion of the tube, and tube is extracted with the sample contained in the inserted tube. The following general process will be used to sample with the tube sampler:

1. 1. Clean/decontaminate the sampler.

2. Lower/insert the tube into the waste to the desired depth.

3. When the desired depth is reached, slowly withdraw the tube, taking care to retain as much sample with the tube as possible.

4. Extract sample into the appropriate sample container.

4.6.2 Sample Collection Procedures

This section discusses the general sampling procedures for each type of sample to be collected at the Facility~~facility~~, as presented in Table 4-6. It is recognized that the specific sampling that will take place at the Facility~~facility~~ may differ from general procedures included herein, and approval by NMED is required before revisions are implemented. Additionally, selection of sample locations (Section 4.6.2.8) and sample types (Section 4.6.2.9) for on-site samples to be collected are addressed.

4.6.2.1 Fingerprint Sampling

Fingerprint sampling will be conducted for all in-coming waste, except for debris waste. E~~(~~each container of debris waste will be visually inspected, however, as will each drum and roll-off, regardless of waste matrix. ~~).~~ Matrices that will undergo fingerprint sampling include sludges and ~~,~~solids~~, and liquids,~~ arriving in containers such as ~~tanker trucks,~~ roll-offs~~,~~ and drums/containers. Refer to Table 4-6 and Section 4.4.3.1 for sampling frequency and waste analysis.

~~Tanker trucks delivering bulk liquids will be sampled through an access hatch, with a vertical sample collected using a Coliwasa or other appropriate sampling devise (see Section 4.6.1).~~ Trucks delivering bulk solid material (e.g. in roll-offs) will be sampled using solid sampling equipment, such as a scoop (see Section ~~Section~~ 4.6.1). A surface sample will be collected from the front one-third~~1/3~~ area of the truck, middle one-third area~~1/3 are~~, and rear one-third~~1/3~~ area of the bulk; samples will then be composited (see Section 4.6.4). Vertical waste composition will be determined, as possible, by collecting an additional sample from more than approximately 2 feet below the surface of the waste at each of the three sample locations using the appropriate sample collection tool (e.g., auger); these three samples will be composited with the first three samples. All loads will be visually inspected during unloading. If the load exhibits different color, texture, or wetness, samples from these areas will also be collected and included in the composite sample.

Sample methodology for drummed waste will depend on the sample matrix, but will likely include ~~liquid sample collection using a Coliwasa and~~ solid sampling using a scoop or auger. A single sample, collected through as much depth of the drummed waste as possible, will be collected. The location of samples collected is discussed in Section 4.6.3.

The Facility~~facility~~ will detail the sampling method used for fingerprint waste sample collection, including but not limited to sample collection technique, sample type, sample representativeness, sample volume, sample containers, sample preservation, chain-of-custody, etc., and will place this information in the Operating Record.

4.6.2.2 Annual Sampling

Wastes that underwent representative sampling prior to initial waste shipment will undergo annual sampling to confirm waste composition. The Facility~~facility~~ will assess the representative sampling procedure prior to initial waste acceptance, and this same representative sampling procedure will be used for annual sampling. Annual sampling will follow the representative sampling process performed prior to initial waste shipment; if the process is modified, the Facility~~facility~~ will assess the sampling process to ensure collection of a representative sample, and place this assessment in the Operating Record.

4.6.2.3 Spills/Releases

See Section 4.6.2.7

~~4.6.2.4 Evaporation Pond Output~~

~~Evaporation Pond output will consist of liquids and sludges/solids of varying viscosity/degree of solidification. This waste is then transferred, as appropriate, to stabilization tanks, and/or the landfill. Each waste transfer will be sampled with a single grab sample selected from the waste transferred at the midpoint/middle of sample transfer, if the waste is homogenous. Alternatively, if the waste is heterogeneous, a composite sample may be collected in the transfer vessel using a tube sampler or other appropriate sample devise, with the extracted sample then composited. If modification to these sampling methods to meet waste/site-specific requirements occurs, all information pertaining to the modified method will be detailed in the Operating Record. Samples will be analyzed to assess continued waste LDR compliance. The facility will detail the sampling method used for each output waste, including but not limited to sample collection technique, sample type, sample representativeness, sample volume, sample containers, sample preservation, chain-of-custody, etc., and will place this information in the Operating Record. Note that leachate and waste sludge may be generated within/below the Evaporation Pond, however, these are considered "on-site" generated waste and are discussed in Section 4.6.2.7.~~

~~4.6.2.5 Stabilization Tank Input/Output~~

~~Stabilization Tank input wastes include liquid (e.g. leachate) and sludges. Output includes sludges, liquid, and solidified sludge. Input samples are to be sampled primarily for bench-scale testing to assess solidification~~

~~techniques. Sampling methodology will be dependent upon the matrix sampled, but must include at least one grab sample from the input waste container/stream of sufficient volume to perform bench-scale assessments (assuming a homogenous waste stream). A composite sample will be collected if the stream is heterogeneous in nature. Output waste must be sampled to ensure continued compliance with LDR requirements; see Section 4.6.2.4 for output sampling methodologies. The facility will detail the sampling method used for each input/output waste, including but not limited to sample collection technique, sample type, sample representativeness, sample volume, sample containers, sample preservation, chain of custody, etc., and will place this information in the Operating Record.~~

4.6.2.6 Landfill Input

All incoming waste to the landfill will be sampled to ensure continued compliance with LDR requirements. On~~For waste originating from the stabilization tank or evaporation pond, output sampling will fulfill this requirement. For wastes directly placed in the Landfill from offsite sources, and on~~ an annual basis, the Facility~~facility~~ will randomly sample and analyze a minimum of 10 percent of incoming waste streams that are to be directly landfilled to verify conformance with the LDR requirements. These additional samples will be analyzed for the specific regulated hazardous constituents contained in the hazardous waste stream. The data generated from these samples, in conjunction with the generator-supplied data, will be used to verify conformance with the LDR requirements. Sampling procedures will follow those presented in Sections 4.6.2.1 and 4.6.2.4, as applicable.

4.6.2.7 On-Site Generated Waste

Several wastes may be generated on-site that require sampling and analysis (see Table 4-4). Specifically, treated waste, day-to-day generated waste (e.g. ~~truck wash, liquid waste storage area, and stabilization area decontamination rinse,~~ personal protective equipment), releases of wastes, run-on/run-off, investigation-derived waste, contaminated soil, air emissions, and leachate/sludges from the ~~evaporation pond/~~landfill are considered on-site generated waste.

~~Leachate/sludges from the evaporation pond and landfill will be placed in temporary storage tanks and/or the stabilization tank. Sampling of leachate/sludges must occur prior to emplacement in the stabilization tanks and/or evaporation pond, and will entail either sampling required of input to these units, or collection of a representative sample from the temporary holding tank using the appropriate sampling devise (e.g. Coliwasa, weighted sampling bottle). Also see Sections 4.6.2.5 and 4.6.2.6.~~

4.6.3 Selection of Sample Locations

The Facility ~~facility~~ will collect samples from containers and roll-off boxes using either random (i.e., probability) or biased (i.e., authoritative) sampling methods. Random sampling methods will be used to select drummed containers for fingerprint analysis. All other on-site sampling, except for annual sampling of waste directly landfilled (i.e., 10 percent of the waste) requires sampling of each load, bulk container, or waste transfer, and random selection of waste containers to be sampled is therefore not applicable. However, the Facility~~facility~~ will collect random samples from within the waste to be sampled for non-fingerprint or annual analysis (e.g., leachate, landfill input) if the wastes are expected to be fairly homogeneous waste streams. A biased sampling method will be used to select roll-off~~/tanker~~ waste sample locations. (Biased samples will be collected if the wastes are expected to be or are found to be heterogeneous.) For some waste streams, the Facility~~facility~~ may use both sampling techniques, as determined appropriate by the facility and justified in the Operating Record.

With random sampling, every unit in a population (e.g., every drum from a given waste stream in a shipment) has a theoretically equal chance of being selected for sampling. Consequently, data generated by these samples are unbiased estimators of the range of concentrations in a population. If a sufficient number of samples are taken, they would be representative of the average concentrations within the entire population.

For example, in the case of drums, those drums to be fingerprint sampled will be numbered, and numbers will be randomly drawn to determine those containers that will be sampled.

With biased sampling, a preference is given to selecting only certain units in a population. This technique requires the sampler to use discretion and to have knowledge of the waste. The sampler selects the sample locations from areas where contamination is known or suspected (e.g., the sampler could collect a biased sample from areas where there is layering or differences in color or consistency). Also, the Facility~~facility~~ may use a field screening instrument to bias the sample location, (e.g., a photoionization detector could be used to select locations having higher volatile organic concentrations). EPA-approved ASTM method D140-70 identifies the procedure for estimating the number of containers that should be sampled. Samples collected from roll-offs, for example, may include biased sampling if areas of obvious discoloration, and other pertinent information, are noted.

The Facility~~facility~~ will document the sampling technique that is used to locate each waste sample collected pursuant to this WAP. ~~waste analysis plan.~~ The Facility~~facility~~ will maintain this information in the Facility~~facility~~ Operating Record.

4.6.4 Sample Types

Samples of the waste will be collected as either composite or grab samples. It is possible that the Facility~~facility~~ may modify or augment the procedures discussed below for the collection of composite and grab samples before the Facility~~facility~~ becomes operational; if so, these revisions will be approved by NMED prior to implementation.

In composite sampling, a number of samples are initially collected from a waste and combined into a single sample which is then analyzed for the constituents of concern. Composite sampling is a valid method for homogeneous samples and tends to minimize the between-sample variation, much like the maximization of the physical size of a sample. This has the effect of reducing the number of samples that must be analyzed to verify the contents of a waste shipment. Composite samples can also be obtained from a waste that has stratified; however, a composite would only be made from samples obtained from the same strata within the waste. Composite samples will be taken with clean sampling equipment and samples will be blended before analysis. ~~Composite sampling will be used to obtain samples of wastewaters.~~ Grab sampling will be used to obtain samples of ~~nonwastewaters and~~ heterogeneous wastes.

4.6.5 Sampling QA/QC

QA sampling procedures will be conducted in accordance with the guidance provided in the EPA document SW-846 and EPA's waste analysis plan guidance manual, *Waste Analysis at Facilities that~~That~~ Generate, Treat, Store~~,~~ and Dispose of Hazardous Waste.* ~~s.~~ The QA requirements will be applicable to on-site sampling (e.g., leachate collection system samples~~, truck rinsate, waste removed from the evaporation pond~~) as well as to the sampling of incoming waste shipments. This program is necessary to ensure that decisions regarding the acceptance and disposition of waste are based on sound, statistically valid, and documented data. Additional QA procedures associated with sampling and analysis determined prior to initiation of on-site sampling will be included in the Operating Record.

The sampling QA program will include the following:

- training requirements for personnel responsible for sample collection;
- chain-of-custody protocols for tracking samples;
- QA review of procedures to ensure proper use of equipment;

- protocols for equipment maintenance;
- identification of required sampling techniques for specific media;
- field sampling QC procedures; and
- documentation of sampling locations.

Deviations from the approved sampling program, sampling methods, or chemical analytical methods will be documented and reviewed by personnel responsible for site QA. NMED will be notified in writing of the QA exceptions within seven days of the occurrence and measures will be taken to correct the problems as soon as practicable.

4.6.5.1 Training Requirements for Personnel Responsible for Sample Collection

All personnel and supervisory staff responsible for collecting waste samples for screening and chemical analysis will be trained in the use of all sampling methods and equipment used at the site.

4.6.5.2 Chain-of-Custody Protocols for Tracking Samples

The integrity of the sampling/analytical scheme will be maintained by following chain-of-custody procedures from the point of sample collection through analytical data reporting to sample disposal. The possession and handling of samples will be traceable from the time of collection through analysis and final disposition.

A sample is considered to be in a person's custody if it is:

- in a person's physical possession;
- in view of the person after taking possession; or
- secured in a container sealed by the responsible person so that it cannot be tampered with during transport to the designated destination or during storage after being secured by that person in an area of restricted access.

The sampler will place a sample label on each sample container. The label will include the following information:

- sample number, a unique identifier that is traceable to the waste stream and shipment;
- name of collector (sampler);
- date and time of collection; and
- place of collection.

Labels will be affixed to sample containers prior to or at the time of sampling and will be filled out at the time of collection.

Sample chain-of-custody seals will be required if the sample is designated to leave the possession of Facility~~facility~~ personnel for transport to an analytical laboratory. The seal will include the same information as the sample label. The seal will be attached in such a way that it is necessary to break it in order to open the sample container. In addition, chain-of-custody seals will be affixed to sample storage containers in a similar manner in order to prevent tampering prior to shipment from the Facility~~facility~~ to off-site analytical laboratories. Samples and storage containers which require seals must be sealed prior to leaving the possession of Facility~~facility~~ personnel.

To establish the documentation necessary to trace sample possession from the time of collection, a chain-of-custody record will be filled out and will accompany every sample. A sample chain-of-custody record is provided in Permit Attachment F3~~Vol. II of this application~~.

If the sample is to be shipped off-site for analysis, it will be accompanied by a sample analysis request sheet. The sample analysis request sheet will include the information necessary to identify the sample and the analyses requested by the Facility. ~~facility.~~ Samples shipped off-site for analysis will be packaged and shipped in accordance with DOT transportation requirements.

Laboratory samples will be maintained in a secure area and retained until holding times expire, as listed in SW-846, or three months, whichever comes earlier. After the holding time or three month holding period has expired, samples will be disposed at the Facility~~facility~~ with compatible waste batches. Records of the date the samples are removed from storage and the date and method of disposal will be maintained at the Facility~~facility~~ until completion of post-closure care. In cases where samples are not analyzed within their holding times, the Facility~~facility~~ will resample.

4.6.5.3 QA Review of Procedures to Ensure Proper Use of Equipment

Standard operating procedures will be developed for the use, decontamination, and storage of sampling equipment used to characterize waste shipped to the Facility. ~~facility.~~ The standard operating procedures will include the sampling equipment to be used, instructions for use, and the applications for use of the equipment for collection of samples from specific media and types of shipping containers. The procedures and QA standards for waste sample collection will be included in the standard operating procedures.

4.6.5.4 Protocols for Equipment Maintenance

The protocols for equipment maintenance will be included in the standard operating procedures. Protocols will be developed, as described in the preceding paragraph, for use, decontamination, and storage of equipment. Protocols for equipment maintenance will be included in the standard operating procedures~~.~~ (See Section 4.6.7 for general decontamination requirements).

4.6.5.5 Identification of Required Sampling Techniques For Specific Media

The sampling methods and equipment used for collecting samples from specific media will be selected in accordance with the guidelines included in 40 CFR, Part 261, Appendix I, and in the EPA guidance manual, *Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Waste*~~s~~, Chapter 2. Alternative sampling methods may be used with prior approval of NMED.

4.6.5.6 Field Sampling QC Procedures

Blank and duplicate samples will be obtained during waste characterization sampling to confirm that sample collection and handling procedures meet the QA/QC standards outlined in the standard operating procedures and data quality objectives included in the Facility~~facility~~ sampling manual. Duplicate samples will be collected at a minimum frequency of 10 percent (1 ~~one~~ for every 10 samples). Field blanks and equipment blanks will be collected at a minimum frequency of 5 percent (1 ~~one~~ for every 20 samples). Trip blanks will be included with all sample kits where samples are sent to off-site laboratories for chemical analysis. The field QA samples are described below:

- *Field* ~~field~~ *blanks*: ~~.~~ Field blanks are prepared in the field by filling a clean container with pure de-ionized water and appropriate preservative (if required for a specific activity). Contaminants found may indicate airborne contamination, contaminated equipment, or cross-contamination during sampling. A minimum of one field blank will be collected for every 20 waste samples collected.~~;~~

- *Trip* ~~trip~~ *blanks*: ~~.~~ Trip blanks are sample containers that are prepared with an inert material such as de-ionized water and carried into and out of the field, but not opened at any time during the sampling event. Contaminants detected in the trip blank may indicate that the source where the sample was prepared or the container that transported the trip blank was contaminated. A trip blank will accompany all sample shipping containers sent from and to off-site laboratories.~~;~~

- *Equipment* ~~equipment~~ *blanks*: ~~.~~ Equipment blanks are prepared in the field prior to sampling by running de-ionized water over sampling equipment and placing it into a clean sample container. Contamination in this type of sample will indicate that the sampling equipment is contaminated. A minimum of one equipment blank will be collected for every 20 waste samples collected.~~; and~~

- *Field*~~field~~ *duplicates*: ~~.~~ Field duplicates are independent samples that are taken from the same location at the same time and are used to measure the effectiveness of obtaining representative samples. A minimum of one field duplicate will be collected for every 10 waste samples collected.

4.6.5.7 Documentation of Sampling Activities

Sampling activities, including observations and field procedures, will be recorded on appropriate forms and kept on file at the Facility. ~~facility.~~ Copies of the completed forms will be maintained in a bound and sequentially numbered file. The record of waste stream sampling activities will include:

- the date;
- the time of arrival and departure;
- weather conditions (including estimated temperature and wind direction);
- the name of the sample collector;
- daily activities and times sampling was conducted;
- observations;
- a record of samples collected, with sample designations and locations specified;
- field monitoring data, including health and safety monitoring;
- a list of equipment used and calibration records, if appropriate;
- a list of additional data sheets completed; and
- the signature of personnel completing the field record.

Each sample collected during waste stream sampling activities will be identified by a unique sample designation. The sample designation will be included on the sample label. QA samples will be designated with a "Q" (QA/QC samples) at the end of the sample designation, followed by one of the following to indicate the type of QA sample:

- ~~D.~~ "D" will be used for a duplicate sample;
- ~~E.~~ "E" will be used for equipment rinsate blanks;
- ~~F.~~ "F" will be used for field blank samples; or
- ~~TB.~~ "TB" will be used for field trip blanks.

This coding will be used to assure that duplicates and blanks are submitted "blind" to the laboratory, but can still be easily tracked by the Facility~~facility~~ for QA purposes.

4.6.6 Sample Preservation, Volumes, and Holding

Table 4-7 presents general preservation, container, and holding time information for samples collected. SW-~~-~~846 guidelines have been used to determine these general requirements, although these may be modified or augmented to account for waste-specific requirements, waste-container compatibility considerations, or additional waste parameters for analysis. Specific sample volumes and containers appropriate for the sampling event will be determined by the Facility.~~facility.~~ Prior to any sampling event, sample container labels will be prepared and affixed to sample containers, and all sample containers will be certified clean by the supplying laboratory. Sample labels will identify, at a minimum, sample number, date, sampler, matrix, analyses to be performed, and sample preservation. Once collected, samples will be placed immediately into the shipping container (i.e., cooler), and chain-of-custody documentation will be filled out (see Section~~section~~ 4.6.5.2).

4.6.7 Equipment Decontamination

Sampling equipment will be decontaminated prior to use. Decontamination of sampling equipment typically includes initial scrubbing with a biodegradeable commercial detergent, followed by a de-ionized water rinse. The decontamination process will include wiping down of sampling equipment to remove surface residue, followed by detergent wash, rinse, a second detergent wash, and second rinse. Modifications to this process may be required to account for site/contaminant conditions, and may take place so long as the decontamination procedure is well documented and appropriate supporting information is placed in the Operating Record.

4.7 Analytical Methods

Analytical methods which the Facility~~facility~~ will use for specific tests are identified in the waste analysis tables (Tables 4-1 through 4-3). All analytical methods used in conjunction with this WAP~~waste analysis plan~~ must be EPA-approved methods or methods required by hazardous waste regulations. If there is no equivalent EPA-approved method, an ASTM method or other approved method may be used. If the Facility~~facility~~ or a generator wishes to use alternate test methods, the Facility~~facility~~ or generator will first demonstrate to the NMED Secretary that the proposed method is equal or superior to the corresponding methods prescribed in 40 CFR 261 or 264, in accordance with 40 CFR 260.21.

An example of a non-EPA method required by hazardous waste regulations are the ASTM tests specified in 40 CFR 264.314(e)(2) to determine the presence of non-biodegradable sorbents.

Section 4.7.1 identifies the duties of the laboratory manager. Section 4.7.2 identifies the contents of the laboratory QA/QC plan. Requirements for off-site laboratories used by the Facility~~facility~~ are contained in Section 4.7.3.

4.7.1 Duties of the Laboratory Manager

The on-site laboratory manager will have the following responsibilities to ensure an effective quality assurance program:

- ensuring that laboratory personnel are adequately trained to perform sampling and analytical procedures and in safety procedures;
- ensuring that equipment and instrumentation under his or her control are calibrated and functioning properly;

- coordinating internal and external assurance audits;
- reviewing procedures and QA plans of outside laboratories used. QA/QC practices will be considered during the selection of independent analytical laboratories. QA/QC practices that will be reviewed include written procedures, certification, internal and external audits, personnel training, and chain-of-custody procedures; and
- development, updating, and implementation of the laboratory QA plan.

4.7.2 Facility Laboratory QA/QC Plan

Prior to beginning operations, the Facility~~facility~~ will develop procedures which will comprise the laboratory QA/QC plan. The Facility~~facility~~ will develop a QA manual for operation of the on-site laboratory. The manual will be submitted to NMED for review.

The results of chemical analysis of waste samples generated by the on-site laboratory will not be used as part of the waste acceptance evaluation process prior to NMED's review of the QA manual.

The overall QA objective for measurement data is to ensure that data of known and acceptable quality are provided. All measurements will be made to yield accurate and precise results representative of the media and conditions measured. QA objectives for precision, accuracy, and completeness will be established for each measurement variable, where possible, and will be included in the QA manuals of the on-site and off-site laboratories where waste samples will be submitted for chemical analysis. The laboratory procedures, practices, and qualifications will be included in the QA manual for each laboratory.

The laboratory QA/QC plan will be based on guidance provided in EPA's *Requirements for Quality Assurance Project Plans for Environmental Data Operations* (EPA QA/R-5). As such, the plan will address the following key elements in compliance with EPA QA/R-5: project organization; laboratory quality assurance organization; data quality objectives and criteria; employee training and certification requirements; laboratory analytical methods; quality control requirements; laboratory equipment and instrumentation calibration, testing, inspection, and maintenance; QA/QC of suppliers and vendors; data acquisition requirements; data management; data review, validation and verification; and, reconciliation with quality objectives and criteria. These elements and other procedures which will be included in this plan are discussed in the following sections:

- laboratory quality assurance;
- equipment calibration;
- laboratory QA/QC samples;
- laboratory QC;
- analytical procedures; and
- laboratory maintenance.

4.7.2.1 Laboratory Quality Assurance

The Facility~~facility~~ laboratory and each off-site laboratory will maintain an internal quality assurance program, as documented in its laboratory quality assurance manual. The laboratories will use a combination of blanks, surrogates, duplicates, MS/MSD (matrix spike/matrix spike duplicate) and laboratory control samples, BS/BSD (blank spike/blank spike duplicate), to demonstrate analytical QA/QC. Control limits will be established for individual chemicals or groups of chemicals based on the long-term performance of the test methods. The specific procedures to be completed and the laboratory control limits will be included in the QA manual for each laboratory.

4.7.2.2 Equipment Calibration

The laboratory equipment calibration procedures, calibration frequency, and calibration standards will be in accordance with EPA (or equivalent method) specified test methodology requirements and will be documented in the laboratory's QA manual. All instruments and equipment used by the laboratory will be operated, calibrated, and maintained according to manufacturers' guidelines and recommendations. Operation, calibration, and maintenance will be performed by personnel who have been properly trained in these procedures. A routine schedule and record of instrument calibration and maintenance will be kept on file at the laboratory.

4.7.2.3 Laboratory QA/QC samples

Analytical procedures will be evaluated by analyzing reagent or method blanks, surrogates, MS/MSDs, BS/BSDs, and/or laboratory duplicates, as required or appropriate for each method. The laboratory QA/QC samples and frequency of analysis to be completed will be in accordance with EPA or equivalent method protocols and will be included in the QA manual for each laboratory.

The laboratory QA manuals and procedures will incorporate data quality objectives (DQOs) to verify that waste characterization data obtained by the methods established in this WAP~~waste analysis plan~~ meet regulatory requirements with regard to regulatory compliance and Facility~~facility~~ waste management requirements. The following DQOs~~DQ0s~~ are established for the sampling and analysis of waste managed by the Facility:~~this facility;~~

- Identify and quantify the hazardous constituents in the waste to ensure compliance with 40 CFR 264 and the requirements of the Facility~~facility~~ permit, and
- Compare the contaminant concentrations in the waste with the specified characteristics of 40 CFR 261 in order that the waste may be managed in accordance with Facility~~facility~~ requirements.

To ensure that the laboratory data quality objectives are met, the following analyses will be completed in the laboratory to monitor the analytical process:

- *Laboratory* ~~laboratory~~ *duplicate samples*: ~~.~~ Laboratory duplicate samples will be analyzed to monitor for intralaboratory precision of data generated. These samples will be analyzed at a rate of no less than 5 ~~five~~ percent (1 ~~one~~ for every 20 samples) of the total samples with at least one replicate if fewer than 20 samples are analyzed for any particular parameter.~~;~~
- *Spiked* ~~spiked~~ *samples (MS/BS)*: ~~).~~ Spiked samples will be analyzed to monitor analytical precision. Spiked samples will be tested on no less than a five percent (1~~one~~ for every 20 samples) basis for any particular parameter. At least one spiked sample will be run if fewer than 20 samples are analyzed.~~;~~
- *Control* ~~control~~ *charts*: ~~.~~ Control charts will be utilized to establish laboratory control limits to monitor and review the accuracy of the data generated as a result of spike analyses. Control limits reflect long-term data accuracy trends and will be modified as new data are acquired.~~;~~
- *Method*~~method~~/*reagent blanks*: ~~.~~ Method/reagent blanks will be prepared using samples of purified water or reagents which will then subjected to the entire sample analytical procedure to monitor potential contamination of samples due to contamination in the laboratory or laboratory equipment. Method or reagent blanks will be included with each set of samples.~~;~~
- *Laboratory* ~~laboratory~~ *equipment blanks*: ~~.~~ Laboratory equipment blanks will be analyzed to monitor potential contamination of samples due to improper or ineffective cleaning of equipment. These

samples will be analyzed at a rate of no less than 5~~five~~ percent (1~~one~~ for every 20 samples) of the total samples.~~;~~

- *Quality*~~quality~~ *control samples:* ~~.~~ QC samples will be analyzed to monitor for accuracy of data generated. EPA QC samples or samples purchased from a reputable independent source will be submitted to off-site laboratories as blind samples for chemical analysis of a set of selected analytes approved by NMED at the beginning of the Facility~~facility~~ operation and also at regular intervals during the Facility~~facility~~ operating life.~~;~~

- *Surrogates:* ~~surrogates.~~ Surrogates will be analyzed in accordance with EPA guidelines for organics analysis. Surrogate recovery is a measure of the effectiveness of the analytical process. Surrogates will be tested on no less than a 5~~five~~ percent (1~~one~~ for every 20 samples) basis for any analysis of organic compounds.~~;~~

- *Calibration*~~calibration~~ *standards and devices:* ~~.~~ Calibration standards and devices will be used in accordance with the manufacturers' recommended guidelines to calibrate laboratory instrumentation.~~;~~ ~~and~~

- *Internal*~~internal~~ *standards:* ~~.~~ Internal standards prepared in the laboratory will be referenced against external standards to measure accuracy.

Laboratory QC procedures will be included in the laboratory QA manuals prepared by each laboratory.

4.7.2.4 Laboratory Quality Control

QC objectives for the analytical data are a means of checking and controlling the sources of error in analytical data results. The criteria for data evaluation include assessing the data accuracy, precision, completeness, representativeness, and comparability. The criteria are described below:

- *Accuracy:* ~~accuracy.~~ Accuracy is a measure of the error between chemical analytical results and the true sample concentrations. Accuracy is a measure of the bias in a system and will be expressed as the percent recovery of spiked samples. Accuracy will be presented as percent recovery and will be calculated as follows:

  $$\%R - (S\text{-}U) \text{ X } 100\%C_{sa}$$

  where %R = percent recovery
  S = spike sample analytical result
  U = sample analytical result
  C_{sa} = known spike concentration

  The data quality objectives (DQOs) for accuracy for each analytical method will be presented in the laboratory QA manual.~~;~~

- *Precision:* ~~precision.~~ Precision is a measure of data variability. Variability can be attributed to sampling activities and/or chemical analysis. Relative percent difference (RPD) will be used to assess the precision of the sampling and analytical method and will be calculated as follows:

  RPD = [*~~[*~~C_1 - C_2*/(~~*/(~~C_1 + C_2)/2)] x 100

  where RPD = relative percent difference
  C1 = larger of the two concentrations

C_2 = smaller of the two concentrations

The DQOs for precision for each analytical method will be presented in the laboratory QA manual.~~;~~

- *Completeness:* ~~completeness.~~ Completeness will be evaluated to assess whether a sufficient amount of valid data is obtained. Completeness is described as the ratio of acceptable measurements. Completeness will be calculated as follows:

  C = (Number of samples having acceptable data)/(total number of samples analyzed) x 100%

  where C = completeness

  The DQOs for completeness will be presented in the laboratory QA manual.~~;~~

- *Representativeness:* ~~representativeness.~~ Representativeness is a qualitative parameter related to the degree to which the sample data represent the specific characteristics of concern. Procedures in sample collection will be implemented to assure representative samples, such as repeated measurements of the same parameter from the same waste stream in the same shipping container over several distinct sampling events. Any procedures or variations that may affect the collection or analysis of representative samples will be noted and the data qualified as appropriate.~~; and~~

- *Comparability:* ~~comparability.~~ Comparability is a qualitative parameter related to whether similar sample data can be prepared. To assure comparability, analytical results will be reported in appropriate units for comparison with other data (such as past studies or clean-up standards), and the standard collection and analytical procedures included in this WAP~~waste analysis plan~~ will be implemented. Any procedures or variations that may affect comparability will be noted, and the data will be qualified as appropriate.

4.7.2.5 Analytical Procedures

Specific QA/QC procedures to be used for sampling, chain-of-custody, calibration, analytical methods, reporting, internal QC, audits, and preventative maintenance will be included in the laboratory QA manual.

Laboratory procedures and methods to be used will contain all of the information presented in the EPA document, SW-846, for each method. The format for each method will be similar to that used in SW-846. If there is no appropriate SW-846 method ASTM or other approved methods will be employed. The laboratory procedures and methods also will include the following:

- *Scope:* ~~scope.~~ A description of the scope of applicability of the procedure.~~;~~

- *Principal:* ~~principal.~~ A brief description of the steps to be taken and/or the theory involved in the laboratory analysis.~~;~~

- *Interference:*~~interference.~~ A description of known interfering agents that would cause difficulty in the laboratory analysis.~~;~~

- *Apparatus:* ~~apparatus.~~ A listing or description of equipment required to perform the laboratory analysis.~~;~~

- *Reagents:* ~~reagents.~~ A listing of the reagents required, a description of the steps involved in preparing the reagents, and instructions on storage requirements and retention times.~~;~~

- *Procedures*~~procedures~~ *(instructions)*: ~~).~~ An enumeration of the sequence of activities to be followed. The topics include sample preparation or pretreatment, sample storage requirements, instrument set-up, standardization or calibration, sample analysis, calculations, and glassware-cleaning procedures. The procedure includes any precautions, explanation, or clarifications needed to properly perform the analysis. These include safety precautions, the frequency of standardization required, the acceptance criteria or procedures for determining the acceptability of standard curves, clarification or special techniques critical to the analysis, and the procedure the analyst uses to determine the reliability of sample results based on the standard curves.~~;~~

- *Quality*~~quality~~ *control requirements*: ~~.~~ A listing of the QC checks to be performed and the acceptance criteria used to evaluate the QC data.~~; and~~

- *Reference.*~~reference.~~ A listing of the publications from which the information was derived in preparing the laboratory method. All references pertain to these documents. As a rule, laboratory methods are derived from the following publications:
    - Standard Methods for the Examination of Water and Wastewater, American Public Health Association;
    - Annual Book of Standards, American Society for Testing and Materials;
    - Methods for Chemical Analysis of Water and Waste, US Environmental Protection Agency;
    - Test Methods for Evaluating Solid Waste, SW-846, US Environmental Protection Agency;
    - National Functional Guidelines for Organics Data Review;~~;~~ and
    - Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses.

  Editions used will be those currently specified in 40 CFR, as updated.

4.7.2.6 Laboratory Maintenance

The analytical laboratory will have in place a procedure that details the steps to be taken to calibrate and standardize instruments to ensure that analytical data produced are accurate. Records of all calibrations, preventative maintenance, and service calls will be readily available from the laboratory files. Calibration procedures will follow the method procedures outlined in the EPA document, SW-846, or the *Annual Book of ASTM Standards*.

A procurement procedure that identifies methods to be used to document and control the purchase of materials, parts, and services will be implemented by the laboratory and will be presented in the laboratory QA manual. The procedure will include identifying the quality of laboratory chemicals and equipment, management approval of procedure items, inspection of shipments for compliance with requirements, and isolation of nonconforming items to be returned to vendors. The quality of all equipment will conform to the requirements specified in the most current edition of the EPA document, *Handbook of Analytical Quality Control in*~~In~~ *Water and Wastewater Laboratories*, the Federal Register, or other regulatory agency publications. This procurement procedure will serve to ensure that spare parts routinely required will be readily available.

4.7.3 Requirements for Off-Site Laboratories

The Facility~~facility~~ will document that the following conditions are met for each off-site laboratory performing waste analyses for the Facility~~facility~~:

- the laboratory will not be the same laboratory that was used by the generator;
- the laboratory must be approved by the Facility~~facility~~;

- the laboratory must use the analytical methods identified in Section 4.5;
- if there is more than one analytical method for a specific test identified in Section 4.5, the laboratory must follow the guidance in Chapter Two of the current version of EPA document SW-846 to determine the appropriate analytical method; and
- the laboratory must follow the QA/QC requirements described in this WAP.

4.7.4 Laboratory Requirements for Foreign Generators

The Facility will ensure and document that laboratory ~~waste~~ analysis provided by foreign generators is performed by a laboratory accredited or certified for the appropriate hazardous waste field of testing (FOT) by an authority using the EPA's National Environmental Laboratory Accreditation Conference standards. ~~plan.~~

4.8 Waste Tracking

To identify and track the waste managed at the Facility~~facility~~, a Facility~~facility~~-specific number will be assigned to each waste stream and to each shipment within that waste stream. Each waste shipment will be tracked using a unique alphanumeric designation. This designation will identify the generator, a sequential number specific to the shipment, substance and source and the delivery date (or, in the case of site-generated waste, the date the waste entered the system). An example is presented below:

ABC-0001-043099

where ABC identifies the generator
0001 identifies the waste stream, source, and shipment
043099 is the date the waste was delivered~~.~~

The waste numbering system will assist in the tracking of waste as it moves through the Facility. ~~facility.~~ The number will be recorded on:

- all incoming paperwork from the generator;
- samples received from the generator;
- samples taken on-~~-~~site; and
- site-generated records.

The date will not be recorded until the waste actually arrives on-~~-~~site. This numbering system will allow the Facility~~facility~~ to track a specific waste with regard to ~~analyses conducted, necessary treatment, and~~ the final disposition of the waste. In addition, assigning a unique designation to each generator and a unique number to each waste stream from that generator will make possible determining the amount of waste from a given waste stream that has been received by the Facility. ~~facility.~~ Individual shipments from within the waste stream will receive an additional identifier to enable the Facility~~facility~~ to tie information back to the specific shipment as well as to the waste stream. The system will allow the Facility~~facility~~ to locate the current position of the waste at the Facility~~facility~~, including the location of the waste in the landfill.

Tracking waste in this manner will allow the Facility~~facility~~ to determine the efficiency and accuracy of a generator's profiling efforts and the rejection rate for incoming waste. This information will be used to assist Facility~~facility~~ operations in determining the rate of fingerprint analysis required for a given generator.

The Facility~~facility~~ number will designate waste generated on-~~-~~site. All other numbering and tracking will be the same for all waste managed at the Facility. ~~facility.~~ The tracking system will be maintained in the Facility~~facility~~ records as either hard copy or electronically (computer database).

4.9 Notification, Certification, and Recordkeeping

The facility will maintain a facility Operating Record in accordance with 40 CFR 264.73. The Operating Record will include:

- all analytical results;
- all chain-of-custody forms;
- generator notices of restricted wastes not meeting treatment standards or exceeding levels specified in RCRA Section 30049(d), including the information listed in 40 CFR 268.7(a)(1); and
- generator notices of restricted wastes meeting applicable treatment standards and prohibition levels, including the information in 40 CFR 268.7(a)(2).
- all final disposition records;
- all manifest and waste discrepancy resolution documentation; and
- all other information (e.g., notifications, certifications, waste analysis reports, waste movements) which will be maintained in the Operating Record as noted in this waste analysis plan.

As required in 40 CFR 268.7, the following records will be maintained at the facility for wastes generated on-site, and/or documentation of treating restricted wastes:

- where on-site generated wastes are characterized to determine compliance with LDR standards using only process knowledge, all data used to make any such determination. This data will be maintained by site personnel;
- where a representative sample of waste is analyzed to determine compliance with LDR standards, all waste analysis information. This data will be retained on-site in facility files; and
- all notifications and/or certifications submitted by waste generators. These records will be maintained until facility closure as required in 40 CFR 264.73.

In addition, relevant inspection forms and monitoring data will be maintained on file at the facility. Files will be maintained for a minimum of three years (for inspection records and LDR notification), or until approval of facility closure (for inventory records).

5. Procedures to Prevent Hazards

This section provides information on the prevention of hazards to both the public and the environment. Specific procedures for implementing those safeguards will be developed during the construction phase of the project and prior to Facility operations.

The engineered barriers for the mitigation of hazards discussed in this section are shown in design drawings contained in Permit Attachment L~~Volume III~~.

5.1 Security Procedures to Prevent Hazards

Security at the Facility will be provided by security guards, fences surrounding the Facility and warning signs. Each of these is described in the following sections.

5.1.1 Barrier and Means to Control Entrance

The Facility will be bounded by a barbed-wire fence. The active portion of the Facility (i.e. the processing area) will be bounded by an additional fence with two access gates located in the northern portion of the Facility. The northwest gate will remain locked at all times and will serve as a secondary or emergency entrance/exit. Access into the Facility will be controlled by means of the primary gate, located in the northeast corner of the Facility. The gate will be fitted with a cattle guard to prevent livestock from entering the Facility. A security guard post will be located at this entrance gate and will be attended 24 hours a day. The fence, gates, and guard will provide adequate access control and will prevent unwitting entry of persons or livestock to the active portion of the Facility.

Visitors will be required to sign a visitors log prior to movement in or around the Facility. Each visitor will be issued a security badge, which will be worn while the visitor is on-site. The badge will be worn on the visitor's outermost garment in a clearly visible location above the waist. The security guard will be responsible for ensuring that all visitors comply with these requirements. Visitors will be escorted unless other arrangements are made with Facility personnel.

5.1.2 Warning Signs

Warning signs stating "Danger - Unauthorized Personnel Keep Out" will be posted at the site entrance and every 50 feet along the perimeter fence. The signs will be posted in English and Spanish and will be legible from a distance of at least 25 feet. If ignitable wastes are stored or treated in the area, a "No Smoking" sign will also be posted.

5.2 Inspection Procedures

This section of the permit application provides written inspection guidelines and an inspection schedule for the Facility in accordance with 20.4.1 NMAC ~~4.1~~.

5.2.1 General Inspection Procedures

Facility personnel will conduct inspections of all equipment and structures as frequently as necessary to prevent, detect, or respond to environmental or human health hazards. Inspection records describing malfunctions, deteriorations, operator errors, and discharges that may cause or contribute to a release of hazardous waste constituents to the environment or that may be a threat to human health will be kept at the

Facility administration building for three years from the date of the inspection. Specific inspection procedures are outlined in Sections 5.2.2 through 5.2.10.

Personnel will receive general training about hazardous waste inspections as part of the Facility hazardous waste training program. Personnel responsible for inspecting particular equipment or areas of the Facility will receive classroom and/or on-the-job training in inspection procedures. Inspection procedures will be described in the operating manual, which will be located in the EC's office.

Facility guards will make rounds of the Facility at least once daily to detect any unauthorized entry to the Facility or any other abnormalities. The guards will not use inspection checklists, but they will notify the ~~Emergency Coordinator (~~EC~~)~~ and/or emergency response personnel of any spills or other emergencies. Requirements for the EC and/or emergency response personnel, subsequent to an inspection notification, are outlined in the Contingency Plan in Section 6.~~0.~~

5.2.1.1 Inspection Checklist

Inspection checklists and an inspection schedule have been developed to ensure that inspections occur at appropriate frequencies. An inspection schedule matrix is provided in Table 5-1. This matrix will be expanded, as necessary, to reflect new equipment or changes to existing equipment inspection frequencies.

Inspection frequencies will vary according to the type and age of the equipment, the frequency of its use, and its importance in preventing environmental incidents. The inspection frequencies provided in Table 5-1 show that inspections will occur frequently so that problems can be identified in time to correct them before harm is done to human health or the environment.

The inspection checklists will identify the name of the inspector, date and time of the inspection, frequency of inspection, specific items to be checked, any notations or observations of abnormalities, and the nature and date of any corrective actions taken. Checklists are provided in ~~Appendix I~~Attachment D, Inspection Procedures. ~~Volume II.~~ The inspection schedules will be kept in the EC's office.

When new or modified equipment is installed or used at the Facility, the inspection procedures, forms, and schedule will be revised to reflect these changes and submitted to NMED.

5.2.1.2 Remedial Action

Facility personnel or contract personnel will remedy any deterioration or malfunction of equipment or structures encountered during inspections. The remedy will be completed in sufficient time to ensure that the problem does not result in an environmental or human health hazard.

All repairs to permitted portions of the Facility will be made in accordance with the original construction specifications and ~~Construction Quality Assurance (~~CQA~~)~~ plan.

If a hazardous or potentially hazardous condition is identified, the EC, as specified in the Contingency Plan (Section 6.~~0~~), will be notified immediately to assess the situation and determine how to correct the situation and whether the Contingency Plan should be implemented.

5.2.2 Landfill Inspection Procedures

Landfill liners and the cover will be inspected during and immediately after installation in accordance with the CQA Plan, which is discussed in Section 2.5.2.3.

The landfill and associated equipment will be inspected weekly and after storms unless otherwise specified. Records of the inspections will be maintained in the operating record, which will be kept in the administration building.

If deterioration or any other abnormalities are noted during inspection of the landfill or associated components, the inspector's supervisor will be notified and will determine the appropriate course of action for correction. If the supervisor is not available, the EC will be summoned to make the determination.

The landfill will be inspected by properly-trained personnel weekly and after storms for such items as spills, leaks, odors, wind-blown particulate matter, any evidence of deterioration of the landfill itself, and any malfunction or improper operation of the run-on/run-off control systems. All inspections will be documented on the landfill inspection checklist, described in Section 5.2.1.1 and found in ~~Appendix I~~Attachment D1~~ (Volume II) of the application~~. Inspection checklists will be kept for at least 3 years, in accordance with 40 CFR 264.15(d).

During the active life and during closure of the landfill, the LCRS and LDRS will be checked daily for the presence of liquid. The amount of water in the system can be used to determine if the system is functioning properly. The system will either be inspected through the cleanout pipe, which is connected to the primary collection pipe and the sump riser pipe, or with magnehelic gages or other liquid detection devices, if they are installed. The leachate collection tank will be inspected in accordance with the procedures outlined in Section 5.2.5.

During the operational phase of the landfill, periodic checks will be made within the landfill to detect the presence of hazardous gases and volatile organics. Surveys of the active landfill surface area and the riser pipes with an ~~Organic Vapor Meter (~~OVM~~)~~ or comparable device will be performed quarterly to detect the presence of organic compounds.

If it is evident that particulate matter from the landfill is subject to dispersal by the wind, the active portion of the landfill will either be covered or managed to control the dispersal (see Section 2.5.1.7). Adding water to prevent wind erosion will be limited so that ponding in the landfill does not occur. If the dispersion is noted during an inspection, the landfill supervisor will notify the sprayer truck operator to rectify the situation.

The stormwater collection basin within the Phase 1A landfill and ~~holding unit~~ associated with the run-off/run-on control systems will be inspected following storm events to determine whether water~~to ensure that liquid~~ has ~~not accidentally~~ accumulated. Stormwater collected within the landfill that has the potential to have contacted waste will be managed by enhanced evaporation through recirculation on the landfill soil cover. The recirculation system is described in the Engineering Report in Permit Attachment L. The stormwater collection basin~~system~~ will be emptied as quickly as possible to ensure that the design capacity of the system is not exceeded. Details of the landfill stormwater control system are included in the Engineering Report (Permit Attachment L).

~~5.2.3 Evaporation Pond Inspection Procedures~~

~~Evaporation pond liners will be inspected during and immediately after construction and installation in accordance with the CQA Plan, which is discussed in Section 2.5.2.3.~~

~~While the evaporation pond is in operation, it will be inspected daily to detect any sudden drops in the level of the pond's contents and to measure the volume of and remove any liquid that has accumulated in the leachate collection and leak detection sumps. The daily inspections will also serve to ensure that there is no potential for overtopping by wind or wave action. Since all discharges into the pond will be monitored, visual inspections will be adequate.~~

~~Other inspection items, such as condition of berms, warning signs, and surrounding area, will be checked weekly and after storms. Weekly visual inspections will also be conducted to verify the integrity of the liners and associated systems. Visible portions of the leachate collection pipes and pump will be visually inspected weekly for deterioration. The concrete pad for tanker discharge will be visually inspected weekly for accumulation of liquids. The area around the pond will be inspected weekly for any signs of deterioration, leaks, erosion, etc. The evaporation pond berms will be inspected for any sign of abnormal deterioration, which may include excessive sloughing or the development of significant cracks. All of the above inspections will be used to assess the integrity of the surface impoundments.~~

~~An inspection checklist for the evaporation pond is provided in Appendix I, Volume II.~~

~~5.2.4 Container Storage Area Inspection Procedures~~

~~Weekly visual inspections of container storage areas (drum storage area and roll off storage area) will be performed to identify the status of warning signs, condition of containers and labels, availability and accessibility of spill control and PPE, and the adequacy of aisle space and access/egress routes. Containers will be inspected for any signs of excessive corrosion, buckles, dents, holes, other structural defects or deterioration, and over-pressurization. An inspection checklist for container areas is provided in Appendix I in Volume II.~~

~~If a container is found to be in poor condition, the inspector's supervisor will be notified, who will either arrange to transfer the hazardous waste to a new container, repair the existing container as specified by the manufacturer, or place the container in an overpack drum.~~

~~Containers used for storing liquids will be stored in a secondary containment area described in Section 2.2. These areas will be inspected weekly during the container storage area inspections. The inspections will focus on (1) the condition of sump pits and trenches to ensure that they are free of cracks or gaps and are sufficiently impervious to contain leaks, spills, and accumulated liquids until the collected material is detected and removed; (2) pump operation; and, (3) placement of containers to ensure that designed liquid flow paths are not obstructed. A record of the inspection will be maintained in the operating record, which will be kept in the administration building.~~

~~Spilled or leaked waste or accumulated precipitation that requires removal to prevent overflow of collection systems that is identified during inspection will be removed in a timely manner.~~

~~5.2.5 Tank Inspection Procedures~~

~~Tanks containing or treating waste will be inspected daily. Tanks containing waste include the liquid waste storage tanks and the leachate storage tanks for the landfill. These inspections will focus on the status of warning signs, the adequacy and availability of spill control and PPE, the adequacy of access routes, and the condition of the tanks, ancillary equipment, and monitoring and leak detection systems. The inspection will focus on (1) overfill control; (2) equipment condition to detect any signs of corrosion or releases of waste from the tanks or ancillary equipment; (3) data gathered from monitoring and leak detection equipment to ensure that the tank system is being operated in accordance with design specifications; and, (4) the Cathodic Protection Systems, as installed.~~

~~Secondary containment areas in which tanks are located will be inspected daily during the tank inspections. These inspections will focus on the condition of the containment surface to ensure that it is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, or accumulated liquids until the collected material is detected and removed. Inspection records will be maintained in the Facility operating record, which will be kept in the administration building. An inspection checklist for tanks is provided in Appendix I in Volume II.~~

~~5.2.6 Stabilization Unit Inspection Procedures~~

~~Inspection of the stabilization unit will be conducted according to the procedures specified in Section 5.2.5. The inspections will be conducted on days when the unit is operating and daily when waste is in storage. Additional inspection requirements are described in Section 2.4.6. Inspection records will be maintained in the administration building. The concrete vault area will be inspected monthly. If liquids are found they will be removed with a portable pump and transported to the liquid waste unit.~~

5.2.7 Security Equipment Inspection Procedures

Security inspections will be conducted daily and will include the following elements:

- visual inspection of the warning signs at all approaches to the Facility to ensure that the signs are present, legible, and securely attached to the fence;
- inspection of the Facility perimeter to ensure the integrity of the fence and gate by looking for signs of erosion of soil at the fence posts and corrosion or vandalism to the fence, fence posts, or locks;
- inspection and replacement, as necessary, of lights for the purpose of illuminating the Facility at night;
- inspection of structures for signs of erosion, tampering, or vandalism; and~~,~~
- records of inspections will be maintained in the administration building.

5.2.8 Safety and Emergency Response Equipment Inspection Procedures

Safety and emergency response equipment inspections will occur monthly. This category of equipment includes first aid supplies; respiratory protection equipment (other than personally issued respirators, which will be each employee's responsibility); protective clothing, including hard hats, gloves, and suits; fire extinguishers; eye wash stations; safety showers; empty 55-gallon drums; shovels; and spill cleanup and decontamination kits.

A monthly inventory of safety-related supplies and equipment will be performed to ensure that the items are available, in good condition, and at designated locations. Inadequate or missing items will be replaced or repaired.

Fire protection equipment, including fire extinguishers and fire hoses, will be inspected monthly and after each use to ensure that the equipment is capable of functioning properly and that access to the equipment is not blocked. Each fire extinguisher will be inspected to ensure that the seal around the handle is intact, that the pressure gauge indicates that the unit is adequately charged, and that an Underwriter's Laboratory listing label is attached to each unit. Building sprinkler systems will be inspected according to manufacturer specifications. Chemical fire-suppression systems will be checked to ensure that adequate quantities of the chemical and water exist. The fire-suppression vehicles will also be tuned up at least annually and inspected monthly. Records of inspections will be maintained in the administration building for each unit.

The public address (PA) system will be tested daily to ensure proper operation. In lieu of daily testing, the Facility may opt to broadcast music 24 hours a day, which ensures proper operation of the unit at all times.

Hand-held radios will be tested prior to use each day and periodically throughout the day. The units will be recharged after each shift to ensure that they are operating properly.

5.2.9 Loading and Unloading Area Inspection Procedures

Waste loading and unloading areas will be inspected daily when in use. The inspections will focus on ~~integrity of the containment structure and~~ safety-related issues that could lead to hazards or waste spills. Signs will be located at each loading and unloading area indicating that equipment or materials should not be left unattended as they could be obstructions for the loading and unloading operation.

On-site roadways and vehicle traffic areas will be inspected on a preventive maintenance order (PMO) schedule to ensure that potential safety hazards, such as road surface deterioration, are minimized or avoided. Records of inspections will be maintained in the administration building for each unit.

~~5.2.10 Truck Wash Area Inspection Procedures~~

~~The sump and sediment bins will be inspected weekly for the accumulation of sediment and liquids in the sump and will be removed to the wash water storage tank The wash water collected at the truck wash area will be sampled according to the Waste Analysis Plan, Section 4.6 and analyzed according to the Waste Analysis Plan, Section 4.5.6.~~

5.3 Preparedness and Prevention Procedures

Preparedness and prevention encompass a wide range of procedures, from communication to equipment to arrangements with local authorities. These procedures are discussed in the following sections.

5.3.1 Internal Communications

Internal communication will be established to meet the needs for each building and area at the Facility. Three forms of internal communication systems will be implemented: (1) a PA system will be used in the main buildings to alert employees of potential or actual emergencies; (2) in noisy, temporary buildings or remote areas of the Facility, hand-held two-way radios will be used to communicate emergencies; (3) an audible fire alarm will be located in the permanent buildings. The alarm will be used to alert employees of fires but may also be used for alerting them to other emergencies in the event that the two other systems described above are malfunctioning. Equipment tests will be conducted to assure that internal communication systems are functioning properly according to manufacturers' specifications.

5.3.2 External Communications

A telephone will be available for operations that occur inside the main buildings. For outdoor processing areas without a telephone nearby, hand-held two-way radios capable of summoning emergency assistance from local police departments, fire departments, and state or local emergency response teams will be available.

A map identifying the location of telephones at the Facility will be provided to ~~the~~ NMED prior to acceptance of waste at the Facility.

5.3.3 Emergency Equipment

Emergency response equipment at the Facility includes fire extinguishers and other fire control equipment, spill cleanup kits, and decontamination kits. Each processing area regulated storage unit will be equipped with fire control and spill response equipment. Equipment in the stabilization unit will be used for the tank storage area and roll-off storage area because of their close proximity. A detailed description of this equipment, including the content and type, is included in ~~Appendix M~~Attachment C1 ~~in Volume II~~ and is discussed in the Contingency Plan contained in Section 6.~~0.~~

A complete list of the contents and location of the various types of kits will be maintained in the EC's office at the Facility.

5.3.4 Water for Fire Control

Permanent buildings at the Facility will be equipped with automatic sprinkler systems and fire extinguishers, as required by the National Fire Protection Association (NFPA) code. The sprinkler systems will be designed according to NFPA guidelines. Water storage to fight fires outside of buildings and the landfill will meet minimum requirements of the New Mexico State Fire Marshal's Office and be transported by water truck(s). It is expected that landfill fires, in the unlikely event that they occur, will be extinguished with a dirt cover. A ready supply of dirt will be available at the excavation stockpile and landfill and general facility equipment (dozers, loaders and scrapers) will be available to load, haul and place dirt.

~~5.3.5 Required Aisle Space~~

~~The aisle between double rows of containers in the drum handling unit will be 30 inches wide, and roll-off containers will be placed 4 feet apart and 4 feet from the edge of the berm. Such spacing will allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in the event of an emergency. Drums will only be stacked one high.~~

5.3.6 Arrangements with Local Authorities

The Facility will make arrangements with local authorities as described in the Contingency Plan (see Section ~~Section~~ 6.~~0~~).

5.4 Preventive Procedures, Structures, and Equipment

To prevent accidents at the Facility, all individuals responsible for material and waste handling will receive classroom and on-the-job instruction in safety awareness, recognition of potential hazards in the work place, environmental procedures and policies, and fire prevention and control procedures.

Individuals who may come in contact with hazardous waste will receive Occupational Safety and Health Administration (OSHA) 40-hour training and annual 8-hour refresher courses. These individuals also will be trained in the operation of the equipment and vehicles they will be using to perform their duties.

Safety meetings will be conducted as necessary to discuss safety issues, fire prevention and control, good housekeeping and any problems relating to specific areas of the site.

5.4.1 Loading, Unloading, and Waste Transfer Operations

To prevent accidents during loading, unloading, and waste transfer, hazardous waste will be handled only by those individuals who have been properly trained in correct handling procedures and proper spill response procedures. The emergency brakes of transport vehicles will be engaged and the wheels chocked during all loading and unloading operations. Inspection of loading and unloading areas is discussed in Section 5.2.9.

Waste containers will always remain closed~~ during storage~~, except when it is necessary to add or remove waste (e.g. for sampling). This practice will minimize the potential for accidental releases of waste. ~~Waste containers will only be stacked one high, which will facilitate inspection, handling and storage.~~

Wastes will be transferred in approved vehicles over approved routes and the maximum capacity of the truck will not be exceeded. Ramps will be installed where necessary to enable fork lifts, dollies, or hand trucks to move into or out of secondary containment areas surrounded by berms or curbing.

~~Transferring waste from drums to tanks will be accomplished as expeditiously as possible to avoid having containers remain open for extended periods of time.~~

If ignitable wastes are handled, special precautions will be instituted, including the use of special non-sparking bung wrenches or other tools for opening drums or otherwise handling the waste containers, grounding waste containers during waste transfer, and other special handling requirements. These precautions, coupled with the procedures for management of ignitable waste contained in Section 2~~.0~~, will minimize the hazards associated with ignitable wastes.

5.4.2 Runoff~~-Off~~ and Run-On

~~Run-off and run-on for the major units are described in the following sections.~~

~~5.4.2.1 Tank Storage, Container Storage, and Treatment Areas~~

~~Run-off and run-on will be prevented in container and tank storage areas and the stabilization unit through exterior drainage systems located at the perimeters of these areas, outside of the containment systems. The layout of the perimeter drainage ditches is shown on Drawing 25.~~

~~All containment areas associated with tanks or containers will be sloped to remove accumulated liquids caused by spills, leaks, or precipitation (for outdoor units). Liquids that accumulate in any secondary containment area will be sampled to determine if the liquid is hazardous waste. If the liquid is hazardous, the waste will be pumped to a drum or tank and handled accordingly. If the liquid is not contaminated, it will be discharged to the storm drainage system.~~

~~Inspection of the run-off and run-on ditches for the above facilities will be made during weekly site inspections and after storms.~~

~~Inspection of the run-off and run-on ditches for the above facilities will be made during weekly site inspections and after storms.~~

~~5.4.2.2 The Landfill and Evaporation Pond~~

The landfill run-on control system will be capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 24-hour, 25-year storm. The run-on control system will consist of unlined ditches for diverting run-on from off-site around the landfill. Water from outside the landfill will be prevented from entering the active portion of the landfill by the waste processing corridor drainage ditch.

The run-off management system will be capable of collecting the water volume resulting from at least a 24-hour, 25-year storm. Run-off in the active portion of the landfill will be collected in the lined stormwater collection basin within the landfill and the LCRS. The run-on and run-off control system for the landfill is described in greater detail in Section 2.5.1.6.

~~The area surrounding the evaporation pond will be graded to carry stormwater run-off towards the drainage ditch to the south of the evaporation pond area. This ditch will ultimately empty into the site stormwater~~

~~detention pond. The perimeter of the evaporation pond is elevated to prevent stormwater run-on into the pond from surrounding areas.~~

Inspection of the run-off and run-on ditches ~~for the landfill and evaporation pond~~ will be made during weekly site inspections and after storms. Maintenance and repair of the ditches will be performed as necessary and in accordance with the Operations and Maintenance Manual (Permit Attachment N~~Volume II, Appendix O~~) and the Design Drawings (Permit Attachment L1~~Volume III~~).

5.4.3 Wind Dispersal Control System

The active portion of the landfill will either be covered or managed to control the wind dispersal. In general, dust control will be accomplished by spraying water on the active portion of the landfill and any road or area subject to wind dispersal. Adding water to prevent wind erosion will be limited so that ponding in the landfill does not occur. Additional detail about wind dispersal procedures can be found in Section 2.5.1.7.

5.4.4 Water Protection

There is an existing underground water line from a spring located approximately one mile east of the Facility in the Ogallala formation, which is used for domestic water supply. This water source, and any others in the Caprock area, will not be used for facility operations and will be protected through the following measures: (1) natural means because of its location; (2) the design of the landfill; (3) the type of waste that will be accepted at the Facility; and (4) the method of response to releases to soil. Each is discussed in more detail below.

Natural geologic and hydrologic conditions in the area include the following characteristics.

- The ~~the~~ Upper Dockum unit is unsaturated beneath the selected site.~~;~~
- The ~~the~~ Lower Dockum consists of a 600-foot thickness of homogeneous, lacustrine mudstone. This sequence of unsaturated, low permeability mudstones represents a geologic barrier to potential downward migration of contaminants from the landfill (see Section 3).~~.0); and,~~
- The ~~the~~ nearest surface water is the Pecos River, approximately 30 miles to the west of the Facility.

The landfill design includes removal of the 10-feet deep layer of alluvial material on the surface of the disposal site prior to construction of the cells, thus eliminating the possibility of hazardous constituents entering the alluvium and migrating away from the Facility.

Free liquid hazardous waste will be placed in the landfill only in accordance with 40 CFR 264.314(d). In addition, no non-hazardous liquid waste will be placed in the landfill. These limitations on the introduction of liquids into the landfill will minimize the generation of leachates and the potential for the migration of any hazardous constituents from the Facility.

Finally, any releases to the soil will be immediately cleaned up to prevent the spread of contamination. The Contingency Plan in Section 6~~.0~~ describes the equipment and personnel available to ensure prompt clean~~clean~~ up of any spill.

5.4.5 Mitigation of Effects of Equipment Failure and Power Outages

The Facility will use a ~~Preventive Maintenance Order (~~PMO~~)~~ schedule, based on manufacturer's recommendations for various pieces of equipment, to ensure proper operation of the equipment. In addition to the items replaced or changed as part of the PMO schedule, any item(s) found to be deficient during the PMO inspection will be replaced or repaired as soon as possible.

Spare parts critical to ensuring continuation of equipment and safety systems may be stored on-site to facilitate immediate repairs. Other items that require long ordering periods also may be stored on-site.

In the event of a power failure, at least one backup generator will be used for emergency backup power. The generator will be started within 30 minutes of a power failure.

On-the-job training will provide personnel with appropriate instruction in emergency response procedures so that proper actions will be taken in the event of equipment or power failure.

The emergency power system is described in Section 6.3.5.4 of the Contingency Plan.

5.4.6 Prevention of Undue Exposure of Personnel to Hazardous Waste

All employees will be trained in the safe operating practices to be used in handling hazardous wastes. All employees will wear steel-toed shoes and safety glasses while in processing or active areas of the landfill. In some cases, additional ~~Personal Protective Equipment (~~PPE~~)~~ will be required, such as hearing protection, respiratory protection, and protective clothing. Employees will be trained in, and responsible for, proper inspection and use of their respirator and proper use and care of PPE. If a defect is noted in any of the equipment, the employee will be responsible for replacing or repairing it prior to use, in accordance with the applicable training. As previously stated, PPE, other than respiratory protection, will be located at or near each permitted unit, along with spill response equipment.

Routine tasks will require some PPE, as outlined in the site Health and Safety (HAS) Plan. In many cases, these requirements will include safety glasses, steel-toed shoes, and hardhats. The site HAS plan will be prepared prior to commencement of hazardous waste operations. This plan will be kept at the Facility, but is not considered part of this permit application.

Out-of-the-ordinary hazardous waste activities will be evaluated by the site HAS officer or a member of an emergency response team prior to responding to the incident. After the type of contaminants present has been determined, the HAS officer or the EC will specify the respiratory protection and/or PPE requirements necessary to safely handle the incident. All respiratory protection devices will be maintained in compliance with OSHA requirements and will be issued only to qualified personnel who have received medical approval and training for the proper use of respiratory protection devices.

For emergencies that are beyond the scope of the Facility personnel training program, areas of the Facility or the entire Facility may be evacuated, at the direction of the EC. In such cases, professional emergency response personnel will be notified to respond to the emergency (see Section 6~~.0~~).

5.4.7 Special Requirements for Bulk and Containerized Liquids ~~Disposed in Landfills~~

As previously stated, bulk or non-containerized liquids will not be disposed of in the landfill. Containers holding free liquids will be placed in the landfill only if (1) all free-standing liquid has been removed by decanting or other methods, mixed with non-biodegradable sorbent, solidified so that free-standing liquid is no longer observed, or otherwise eliminated; (2) the container is very small; (3) the container is designed to hold free liquids for use other than storage (e.g., a battery); or (4) the container is a lab pack disposed of in accordance with 40 CFR 264.316.

In the case of number (1) above, prior to placement in the landfill, the absence of free liquids will be verified using a paint filter test. In addition, this waste will be analyzed for other parameters based upon the characterization of the waste before solidification. These requirements are a part of the Waste Analysis Plan presented in Section 4.~~0.~~

5.4.8 Special Requirements to Limit Releases to the Atmosphere

Operations at the Facility will be conducted to minimize the potential for releases to the atmosphere as required by 40 CFR 270.14(b)(8)(vi). This objective will be achieved by using a wind dispersal control system to limit or eliminate the dispersal of particulate matter from the landfill, roadways, and other areas of the Facility and by providing control equipment for operations that may produce air emission, if necessary. The dispersal of particulate matter from soil surfaces will be reduced by restricting traffic and applying small amounts of water spray to moisten the soil surface. ~~A structural containment building housing the stabilization unit will be equipped with pollution control systems to minimize the release of particulates to the atmosphere. The bins and stabilization building will be equipped with an exhausting ventilation system which will maintain a negative pressure inside the building. Slotted ducts located around the perimeter of each bin will provide supply and return air in a push-pull arrangement to remove dust during the waste receiving, mixing and load-out operations. During reagent delivery operations, the bin cover, which will also be connected to the exhaust system, will control dust. Dust will be removed from the exhaust air at the bag house located on the west side of the building. Collected dust will be processed in the stabilization unit.~~ Procedures will be developed to ensure that the landfill and associated activities are managed to prevent particulate releases. The Contingency Plan will specify the methods to prevent and control spills and emissions related to spills.

5.5 Precautions to Prevent Ignition or Reaction of Ignitable, Reactive, or Incompatible Wastes

Hazardous wastes will be handled only by properly trained Facility personnel. The Facility training program is outlined in Section 7.~~0.~~ Individuals will be instructed in identifying incompatible wastes, properly labeling them, and properly handling them. Proper handling includes segregation, avoidance of mixing the wastes, and carefully checking compatibility codes prior to the ~~storage or~~ disposal of any wastes. Personnel also will be specifically trained in the proper handling of ignitable and reactive wastes.

This approach will ensure the proper handling of ignitable and reactive waste and will prevent mixing of incompatible waste. In addition, personnel training and Facility operational procedures will be developed to (1) ensure that wastes are properly identified; (2) ensure that general Facility requirements for the management of ignitable, reactive, and incompatible wastes are adequate; and (3) ensure that ~~unit-specific~~ requirements for the management of these wastes are compatible with operations. The procedures for identifying these wastes are provided in Section 4.5 of the Waste Analysis Plan.

The local fire department or a qualified organization will inspect all of the permitted units on an annual basis to assure continued compliance with all applicable NFPA codes.

Ignitable and reactive waste handling are generally described in Section 5.5.1. More specific requirements for the landfill ~~and stabilization unit~~ are described in Section 5.5.2. Handling of incompatible waste is described in Section 5.5.3.

5.5.1 General Requirements

Precautions will be taken to avoid (1) accidental ignition or reaction of ignitable or reactive wastes; (2) reactions that generate extreme heat or pressure, fire or explosions, or violent reactions; (3) reactions that produce uncontrolled toxic or flammable fumes, dusts or gases, in quantities large enough to threaten human health and the environment; ~~(4) reactions that cause damage to the structural integrity of the container or the unit;~~ and (4~~5~~) any other reactions that threaten human health or the environment.

Ignitable or reactive wastes accepted at the Facility will be separated and protected from any sources of ignition or reaction, including open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks, spontaneous ignition, and radiant heat. All smoking will be confined to specifically designated areas when ignitable or reactive wastes are being handled. "No Smoking" signs will be conspicuously posted wherever there is a hazard from ignitable or reactive waste. Ignitable or reactive wastes will be located in the active portion of the Facility, which is more than 50 feet from the Facility property line.

5.5.2 Requirements for the Landfill

Ignitable or reactive wastes will not be placed in the landfill unless the waste has been treated and no longer meets the definition of ignitable or reactive waste under 40 CFR 261.21 or 261.23, or unless the general requirements outlined above for ignitable, reactive, or incompatible wastes are complied with. Additional information for the management of these wastes in the landfill is contained in Section 2.5.3.6.

5.5.3 Incompatible Waste Handling

Generator waste profile forms (see Permit Attachment F2~~Appendix H, Volume II~~) will provide Facility waste handlers with the necessary information to avoid mixing containers of incompatible wastes. Facility employees will be trained to recognize incompatible wastes and to prevent the mixing of such wastes. Incompatible wastes will not be placed in the same area of the landfill, but separated adequately to avoid all possibility of commingling in the landfill.

By the time any leachate generated from the landfill reaches the LCRS it will be sufficiently diluted, therefore, problems associated with incompatibles in the LCRS sump are not anticipated. Wastes will be solidified and stabilized prior to their placement into the landfill. These processes are performed to bind liquids and prevent leaching of any of the wastes' constituents. Therefore, any leachate generated within the landfill is not expected to contain significant levels of hazardous constituents. Due to the anticipated low concentrations of hazardous constituents in the leachate and the geographic separation of incompatible waste types, incompatibility problems within the landfill will be negligible.

~~Containers of incompatible wastes will be stored in separate containment areas to prevent the potential for mixing Incompatible wastes will be separated by the walkways and sloping floors towards the sumps that separate each cell. The drum handling unit will utilize seven separate cells for waste placement. Each cell is separated by a concrete berm/walkway and each bay has a separate sump. All incompatible wastes in drums will be stored in separate cells. These physical barriers along with defined operational procedures, will ensure that incompatible wastes will remain segregated. In addition, the design and operational procedures will ensure that incompatible materials will not be placed in the same container, nor will hazardous waste be placed in an unwashed container that previously held an incompatible waste (see Section 2.2.12).~~

6. Contingency Plan

The purpose of the Contingency Plan is to minimize potential hazards to human health and/or the environment in the event of a fire, explosion, or unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to the air, soil, or water. Should any of these unplanned events occur, the procedures in this Contingency Plan will be immediately implemented. When these procedures are followed, the possibility of additional occurrences, recurrences, or spread of the initial emergency in such a way as to require additional emergency response measures will be minimized.

This Contingency Plan was specifically developed for the Facility. A final Contingency Plan ~~contingency plan~~ will be provided to NMED and other response agencies 60 days prior to initiation of operations. The plan will be kept at the Facility, and controlled copies will be submitted to and updated at all police and fire departments, hospitals, and state and local emergency response organizations that may be called upon to provide emergency services. A list of these organizations is provided in ~~Appendix J~~Attachment C3, Coordinating Agreements. ~~of Volume II.~~ Initial site tours with all local emergency response organizations will be conducted to familiarize them with the facility prior to the start of operations.

The plan specifies Facility personnel who will be responsible for implementation of the plan. The plan also specifies the actions these individuals will take in the event of an emergency at the Facility. The plan includes ~~a~~ (1) a description of the Facility layout; (2) the location of possible hazards; (3) the location of emergency and decontamination equipment; (4) evacuation plans and routes; (5) agreements with local emergency personnel; and~~,~~ (6) an up-to-date list of names, addresses, and telephone numbers of Facility personnel qualified to act as EC.

6.1 General Responsibilities of the Emergency Coordinator

The Facility will train a minimum of five employees to serve as the EC for the Facility. Only one individual at a time will be designated as the primary (on-duty or on-call) EC. Others will be specified as alternate ECs. An updated~~A~~ list of personnel qualified as ECs (see Permit Attachment C2, Emergency Coordinators) will be provided to NMED~~in Appendix K in Volume II~~ prior to waste receipt. Individuals will be listed by name, address, and telephone number. The list will also indicate the order in which each will assume responsibility as ECs. In accordance with 40 CFR 264.52(d), which states, "For new facilities, this information must be supplied to the Regional Administrator at the time of certification, rather than at the time of permit application", the list will be provided to the director of the NMED or designee (NMED Director) prior to receipt of waste and will be kept current both at the Facility and with emergency response organizations.

An acting EC will be either physically at the Facility or on call 24 hours a day, 365 days a year. Each EC will have authority to commit resources needed to carry out the provisions of the Contingency Plan.

The EC will be responsible for implementing the Contingency Plan, coordinating all emergency response efforts, determining the extent of the emergency, assessing hazards to human health and the environment, and completing necessary reports associated with the incident. Each EC will be thoroughly familiar with (1) the Facility layout and operations; (2) all aspects of the Facility's Contingency Plan; (3) the location and characteristics of hazardous materials, hazardous waste, and waste handling activities at the Facility; (4) the location and operation of emergency response equipment; (5) evacuation plans and routes; and (6) the location of all Facility records.

After an emergency has been brought under control, the EC will assume responsibility for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that is generated as a result of the release, fire, or explosion at the Facility.

If the EC becomes injured or is otherwise unable to serve as EC during an emergency, a designated operations manager will assume the role of EC until an alternate EC is notified and arrives on the scene.

6.2 Circumstances Dictating Implementation of the Plan

The Contingency Plan must be immediately implemented under any of the following circumstances:

- a fire or explosion occurs resulting in the release of a hazardous waste or involving an active hazardous waste management unit;
- a spill, leak, or other release of hazardous waste or hazardous waste constituents to the air, soil, or surface water occurs that could threaten human health or the environment;
- an indoor spill, leak, or other release of hazardous waste occurs to a secondary containment area that is not removed within 24 hours; and/or
- a hazardous waste incident occurs resulting in an injury requiring more than basic first aid.

The plan will be implemented any time the EC believes that an event occurring at the Facility has the potential to adversely affect human health or the environment. The plan may also be implemented for other reasons at the discretion of the EC.

During the initial discovery and assessment phase of an incident, the EC will obtain information, including the type and quantity of released material and/or injuries that have occurred. At this time, the EC may consult with environmental specialists and other appropriate personnel to determine whether the incident warrants implementation of the ~~RCRA~~ Contingency Plan.

6.3 Implementation Procedures

Response procedures for emergencies often vary significantly, depending on the specific details of the incident. However, several response procedures are common to all incidents and include the following elements, which are further detailed in this section:

- discovery of incident and request for assistance from emergency response personnel;
- identification and characterization of released or suspected released material;
- assessment of hazard;
- off-site notification and evacuation criteria;
- response and control procedures;
- measures to prevent recurrence or spread; and
- storage and treatment of released hazardous waste.

6.3.1 Discovery of Incident and Request for Assistance from Emergency Response Personnel

The individual who first discovers an incident or emergency will quickly determine whether the situation is immediately life threatening or non-life threatening. The steps taken in each of these scenarios are briefly described below, although they are likely to vary based on occurrence.

6.3.1.a Life-Threatening Situations

All Facility employees will be instructed and trained on response to a life-threatening situation or life-threatening release of materials. Employees will first relocate to a safe area, if necessary, then immediately notify the EC and/or emergency response personnel as the situation warrants, using the methods described below.

Verbal—In some cases, verbal communication within a building or between buildings will be the fastest way to disseminate emergency information and/or evacuate the area of an emergency.

Telephone—Employees will be instructed to immediately relocate to a safe area, if necessary; appropriate emergency response personnel can be notified by dialing 911 (without first notifying the EC if a particular situation appears to be immediately life-threatening or serious). The ~~); the~~ EC must be immediately notified of the actions taken.

Fire-Pull Station—The fire-pull station may also be used to alert the fire department and Facility personnel of an emergency. Although this type of alarm does not allow verbal communication with the fire department, it does activate a local fire alarm bell at the Facility and a remote alarm signal at the fire department.

Facility personnel will be trained for initial response to on-site fires. When the alarm is activated, on-site personnel may use fire extinguishers or the application of soil and/or water to suppress fires, when appropriate. The Roswell Fire Department will respond to fires beyond the control of site personnel. Response time for the Roswell Fire Department is approximately 30-45 minutes.

Fire-pull stations will be located at the administration building and~~,~~ the entrance to the landfill. ~~, the drum handling unit, and the stabilization unit.~~ Other possible locations of fire-pull stations may be established.

Automatic Fire Detection/Sprinkler System—All permanent Facility buildings will be equipped with automatic fire detection/sprinkler systems, which, when activated, will transmit an alarm directly to the security gate guard shack and the Roswell Fire Department. The fire department will immediately respond to any alarms.

Public Address (PA) or Paging System—Each of the main buildings will be equipped with a PA or paging system, which will be used to inform employees of adverse conditions at the site and emergency response instructions.

Hand-Held Radios—Hand-held radios will be used to communicate with personnel who are out of range of voice communications, PA, or are working in areas with noise levels such that render the PA system inaudible in emergency situations.

During non-operational hours, the EC will be notified by pager, radio, cellular telephone, or regular telephone. The EC will be at the scene as soon as possible to direct and coordinate emergency response activities.

If the EC determines that additional assistance from an off-site agency or emergency response organization is needed or if immediate action is required to protect a local community population or to protect any visitors using the Mescalero Sands recreation complex and travelers at the rest stop on Highway 380 north of the Facility, the EC will contact the appropriate agencies or organizations. A list of these organizations is provided in Permit Attachment C3. ~~Appendix J in Volume II.~~ During response activities, two-way radios will be used for communication between responding groups and the EC.

6.3.1.b Non-Life Threatening Situations

Upon discovery of a non-life-threatening release of materials or other non-life-threatening but potentially serious emergency situation, all Facility employees will be instructed and trained to immediately notify the EC or their supervisor. The EC will evaluate the situation, notify appropriate personnel, and if necessary implement the Contingency Plan.

6.3.2 Identification and Characterization of Released or Suspected Released Material

After the emergency situation has been discovered and appropriate response personnel have been contacted for assistance, the EC will immediately obtain the following information by process knowledge (his own or that of another employee): (1) observation; (2) review of Facility records, including material safety data sheets (MSDSs) and manifests; and/or (3) chemical analysis of the material, if this becomes necessary. This information will determine the following:

- the character and amount of released waste;
- the exact source and extent of any released material;
- whether the release could move off-site; if it is determined that the release could move off-site, the EC must determine if any containment procedures have been implemented or whether such procedures should be implemented; and
- any injuries or potential injuries resulting from the incident.

All containers of waste and material at the Facility will be labeled. Therefore, the identification and characterization work generally will be accomplished through visual inspection and process knowledge. Manifests and lists of the waste and locations of waste being stored at the Facility prior to disposal or treatment will be maintained at the Facility. This information will be used in lieu of the visual inspection noted above in cases where the danger of entering the incident area is high or the container labels have been obscured as a result of the incident.

Copies of the MSDSs for raw materials used at the site will be located in the administration building, in the EC's office, and at appropriate operations locations throughout the site. The information in these documents will be used to prepare a course of action.

6.3.3 Assessment of Hazard

Concurrent with the waste identification and characterization phase of the emergency response, the EC will assess possible hazards to human health or the environment that may result from the emergency situation. Indirect and direct effects of the release, fire, or explosion will be considered during this assessment. Examples of direct and indirect effects include the impacts of any toxic, irritating, or asphyxiating gases that are generated or the effects of any hazardous surface water run-off from water or chemical agents used to control a fire.

During this phase of the emergency response, the EC will consider the following information to determine potential risk to human health or the environment:

- the location from which the material or waste is emanating;
- the weather patterns and wind direction at the time of the release; and

- the characteristics of the released material, including physical, reactive, and human or animal toxicity.

The EC may choose to obtain emergency response guidance by contacting one or more of the emergency response organizations listed in Permit Attachment C3~~Appendix J (Volume II)~~ or by utilizing various spill control reference textbooks and MSDSs located in the EC's office.

6.3.4 Off-~~-~~Site Notification and Evacuation Criteria

If the EC determines that a release, fire, or explosion has occurred at the Facility that poses an immediate threat to on-site or off-~~–~~site human health and/or the environment, the findings will be reported to appropriate response personnel as follows:

- Local ~~local~~ authorities will be immediately notified if an emergency incident at the Facility could affect local areas and if evacuation of these areas is necessary. The EC will be available to assist appropriate officials in deciding whether local areas should be evacuated (evacuation procedures ~~are provided in Appendix L, Volume II~~ and a site-~~-~~wide emergency evacuation plan are provided in Permit Attachment C4, *Evacuation Plans*~~is provided in Drawing L-1, Appendix L, Volume II~~).

- Local~~the local~~ authorities will be notified with the following information:
  - the name and telephone number of the reporter;
  - the name and address of the Facility;
  - the time and type of incident that occurred;
  - the name and quantity of material(s) involved, to the extent that this is known;
  - the extent of injuries, if any; and~~;~~
  - the possible hazards to human health or the environment.

Coordinating agreements will be signed with federal, state, and local emergency response organizations. The agencies with which the Facility will enter these agreements are listed in Permit Attachment C3. ~~Appendix J presented in Volume II.~~ The agreements outline the conditions under which the agencies will be contacted and the roles they will assume during various emergency scenarios at the Facility. The agreements establish the EC as the lead coordinator of all emergency response activities at the Facility. The details of these agreements will be located in the EC's~~EC's~~ office and with each of the participating organizations. The agreements will be considered controlled documents and will be kept current by updating all copies each time a change is made. This ensures a coordinated response to all emergency situations.

The EC may contact one or more of the agencies, such as police, fire departments, or hospitals, as listed in Attachment C3~~Appendix J (Volume II)~~, if additional assistance is needed at the site to protect community populations.

6.3.5 Response and Control Procedures

Following proper notification of agencies and/or evacuation of the Facility, the EC will initiate response and control procedures. This effort will involve the use of emergency equipment, which is listed in Permit Attachment C1, Emergency Equipment. ~~Appendix M in Volume II.~~ This list also includes equipment descriptions and locations.

Potential incidents for which response and control procedures are necessary will be grouped into three broad categories: (1) fires and/or explosions; (2) spills, leaks, or other releases; and (3) power failures. A brief discussion of emergency training requirements and the general procedures for handling each of these situations are described in the following sections.

Facility personnel and supervisors will receive safety training to enable them to respond to and handle various emergency situations that are not of a serious nature. In addition to this training, employees will participate in emergency response drills on a periodic basis. These drills will involve both internal responses and those response actions taken in conjunction with external emergency response personnel. Key personnel will be familiar with the use of emergency equipment and fire control structures available to prevent the spread of fires in their areas. To prevent recurrence of an incident, any faulty or defective monitoring equipment, valves, pumps, alarms, or other equipment will be repaired. If repair is not possible, the equipment will be replaced. The unit will not receive hazardous waste until the minimum required equipment for safe operation is fully functional.

Procedures for ensuring that incompatible wastes are not treated, stored, or located in areas where a spill has occurred are addressed in Section 6.3.7.

6.3.5.a Fire and/or Explosion Control Procedure

If a fire or explosion occurs at the Facility that may impact an active hazardous waste management unit or hazardous material storage area, the Contingency Plan will be immediately implemented, as outlined in Section 6.3. The EC will assess the situation and direct the emergency response effort. The EC will also be responsible for advising emergency response personnel of the hazards associated with released materials and other areas that should be protected from the effects of the incident.

In the event that a fire cannot be brought immediately under control and hazardous waste or material are located in the path of the fire or in an otherwise dangerous place, the waste or materials will be relocated to a safer area, if possible. If this is not possible, the material may be sprayed with an appropriate fire suppressant, at the direction of the EC or under the advisement of fire department personnel.

If an explosion is likely to occur, for example because a fire threatens to envelop ignitable waste, the EC may choose to evacuate the area, as described in the Evacuation Plan in Attachment C4~~Appendix L presented in Volume II~~. A site-~~-~~wide evacuation plan is presented in Drawing L-1 in the Evacuation Plan~~Appendix L, Volume II~~.

Facility employees will be trained and advised to stay in their work areas during emergency situations, unless they are in immediate danger, until they receive further direction via the PA system or other method of communication. If evacuation is necessary, the EC will communicate this via the PA system and by other means, as necessary, and all employees will assemble at the administration building. If anyone is unaccounted for, emergency response personnel will conduct searches.

After the affected areas have been evacuated, re-entry will be authorized by the EC only after the fire has been extinguished and when the emergency has been resolved.

Any equipment used during the incident will be checked for contamination and cleaned and/or replaced prior to resumption of plant operations in the affected area. Any solutions or materials used to decontaminate the equipment will be managed as RCRA-regulated waste.

6.3.5.b Spills, Leaks, or Other Releases Control Procedure

~~All areas in which liquids are stored, managed, or potentially encountered (including tanks, containers, or secondary containment areas) will be inspected regularly for leaks, spills, deterioration, or damage in order to~~

~~reduce the likelihood of an incident. However, on occasion, such incidents may still occur.~~ This section describes the procedures for responding to spills, leaks, or other releases to containment areas or to the environment.

If Facility employees observe a spill, leak, or other release, whether during a formal inspection or during routine work, they will be instructed to contact the EC immediately and describe the situation in as much detail as possible, giving the following information, at a minimum:

- the location;
- material composition;
- approximate quantity; and~~,~~
- estimated extent of the release.

Based on this information (and additional investigation by the EC as necessary), the EC will determine whether to evacuate the area and/or implement the Contingency Plan.

As previously stated, if the EC is not available and if the situation is serious or life threatening, employees will be instructed to dial 911 for emergency assistance. In a life threatening situation personnel may call 911 without first notifying the EC. The EC will then be notified of the employee's~~employee's~~ actions. Upon notification, the EC will conduct a visual inspection of the release and will then implement immediate containment measures.

6.3.5.b.i Releases to the Environment

The EC will implement, in addition to the applicable permit conditions of Permit Parts 9 and 10,~~**Releases Within Containment**~~

~~The EC will implement the following procedures for responding to leaks or spills from tank systems or containers into secondary containment areas that are not likely to reach the environment:~~

- ~~the tank system or secondary containment area will be removed from service and the flow of waste stopped;~~
- ~~the unit will be inspected to determine the apparent cause of the leak or spill;~~
- ~~all waste released to a secondary containment area will be removed from the secondary containment systems within 24 hours after detection of the leak, or as timely as possible, to prevent harm to human health and the environment;~~
- ~~leaking containers will be placed in an overpack drum or will have the contents transferred to another container; and,~~
- ~~affected tank systems will be repaired or replaced (if replaced, the old systems will be closed) prior to returning them to service. All released materials will be removed prior to returning the unit(s) to service. Extrusion repairs to geomembrane liners or metal welds to steel containers will be certified by a qualified registered professional engineer. This certification will be submitted to the NMED Secretary.~~

~~**Releases to the Environment**~~

~~The EC will implement~~ the following procedures for responding to leaks or spills from units that are likely to reach the environment:

- As~~as~~ previously stated, if uncontrolled releases of ignitable, corrosive, reactive, or toxic materials are involved in the incident, the affected area will be evacuated.~~;~~

- Response ~~response~~ personnel will be directed to the incident location to aid in preventing further migration of the leak or spill to soils or surface water, provided that this can be accomplished safely. This effort will involve the use of industrial absorbents, sorbent dams, or other similar materials. If the release is determined to be beyond the capabilities of Facility personnel, the EC will contact one of the emergency response organizations listed in Permit Attachment C3~~Appendix J (Volume II)~~ for assistance.~~;~~

- The~~the~~ EC will monitor the status of the incident and direct emergency response personnel until the emergency condition no longer exists.~~;~~

- When~~when~~ the incident has been brought under control, the EC will coordinate and instruct response personnel to begin cleanup and decontamination operations. These will involve containing and collecting any released material, including liquid releases, contaminated sorbent materials, visibly contaminated soils, and any other waste materials generated during cleanup or decontamination. These items will be removed and properly disposed of, generally by placing the wastes into DOT-approved containers (such as 55-gallon drums), sampling the waste or otherwise determining its constituents, and handling the waste accordingly. All liquids, including the originally released material and any liquids generated during cleanup (unless other circumstances or knowledge preclude this effort) will be pumped into drums and samples taken and analyzed to determine an appropriate course of action.~~;~~

- If~~if~~ soils or surface water are visibly affected, they will be removed until the contaminant concentration in the remaining soil or water is at or below appropriate levels for the contaminants of concern.~~;~~

- The~~the~~ EC will then use whatever means are necessary to determine if the released material is a hazardous substance as defined in 40 CFR 302. The EC will then determine whether the amount of released material is a reportable quantity. If the amount is a reportable quantity, the following steps will be taken:

  - ~~waste that could be released to the environment because of a leak in a tank system will be removed from the tank within 24 hours of the detection of the leak, or, if this is not possible (impracticability must be demonstrated to the NMED), it will be removed at the earliest practicable time. In such a case, as much waste as is necessary to prevent further releases to the environment will be removed from the tank system, enabling inspection and repair of the system;~~
  - the EC will report the release to ~~the~~ NMED ~~Director~~ within 24 hours of detection;
  - the National Response Center will be advised of the situation within 24 hours of the incident;
  - an internal report describing the situation and corrective measures necessary to prevent a recurrence will be prepared; and~~,~~
  - a written report will be filed with ~~the~~ NMED ~~Director~~ within 30 days of detection, as described in Section 6.4.2.~~, and~~

- If ~~if~~ the quantity of the spill or leak is less than or equal to 1 pound and is immediately contained and cleaned up or is less than a reportable quantity of material, a Facility employee will be assigned to report on the situation and determine what, if any, follow-up actions are necessary after cleanup.

~~6.3.5.~~3 Evaporation Pond Failure Control Procedure

~~The evaporation pond will be removed from service if the level of liquids in the pond suddenly drops and the drop cannot be attributed to known flowrate changes into or out of the pond or if they are exceeded. The major source of volume reduction from the pond is anticipated to result from evaporation. Liquid may also be pumped out of the pond, for example if a heavy rainfall event causes the water level to rise above the required freeboard elevation. Liquid levels in the evaporation pond will be monitored using a measuring staff gauged either in inches or in tenths of a foot. Daily evaporation losses will be compared to daily evaporation rates obtained from the nearest NOAA weather station. Currently this is the Bitter Lakes Wildlife Refuge station, as evaporation rates are not measured at the Roswell and Tatum stations. If liquid losses exceed daily evaporation losses and no other reasonable explanation is found, then the evaporation pond will be shut down and the authorities at NMED will be notified immediately.~~

~~When a pond must be removed from service, the following steps will be taken:~~

- ~~the flow of waste into the pond will be immediately shut off;~~
- ~~any surface leakage that has occurred will be contained;~~
- ~~the leak will be stopped as soon as possible;~~
- ~~any other necessary steps will be taken to stop or prevent a catastrophic failure of the unit; and,~~
- ~~in the event that the leak cannot be stopped by any other means, the pond will be emptied.~~

~~Notification will be made to the Chief of the Hazardous and Radioactive Materials Bureau. An oral report will be made within 24 hours. A written report will be submitted within 7 days. An unexplained drop in the level of the evaporation pond would qualify as a noncompliance that may endanger human health or the environment, and 40 CFR 270.30 (l)(6) requires 24-hour notification for such events.~~

~~If the evaporation pond is removed from service, it will not be put back into service until it is repaired. If the unit was removed from service as a result of a sudden drop in the liquid level, and the drop in the liquid level was caused by failure of the liner, then either a new liner (in compliance with 264.221H) must be installed, or the old liner must be repaired and certified by a qualified engineer that it meets the design specifications approved in the permit. If the pond is not to be repaired, or is not repairable, it will be closed in accordance with the provisions of 264.228 and the approved closure plan.~~

~~In the event that the evaporation pond is removed from service due to actual or imminent failure of any portion of the pond dike system, the evaporation pond will not be placed back in service until necessary repairs are completed and inspected, and the structural integrity of the dike is recertified by a New Mexico registered professional engineer. This recertification process will be done in accordance with 40 CFR 264.226(c) and 40 CFR 264.227(d)(1).~~

~~Several options are available to empty an evaporation pond. Due to the two-sided nature of the single evaporation pond, if a leak occurs in one side, liquid can be transferred to the other side while repairs are being made. Other options, if the leak is on both sides of the pond, include setting up temporary double-lined ponds, temporary double-lined bladders, temporary portable double-lined tanks, or using tanker trucks. These~~

~~short-term storage measures are intended only to allow storage capacity during a major pond repair effort. The wastes would be transferred into and out of the tanks using existing or temporary pumps.~~

~~GM commits to having onsite at all times all required equipment for the emergency storage capability to remove all contents from the evaporation pond. This will include available storage capacity in one side of the pond that is not leaking as well as in temporary storage units (bladders, tanks, or tanker trucks). This equipment will be located at the facility and will be owned by GM. Personnel who notice an impending impoundment failure will notify the Emergency Coordinator immediately following the observation.~~

~~The Emergency Coordinator will respond by immediately mobilizing an emergency response team from the maintenance department who will bring in double-liner bladders, tanker trucks, and heavy equipment, if necessary, to the evaporation pond site. The team will endeavor to identify the source of the failure. If it is concluded that the impoundment failure is resulting in a release of water to the ground surface, an interim containment dike will be constructed of soil materials adjacent to the pond. Downstream receiving stream users, groundwater users, and local government authorities will be immediately notified. Bladders, pumps, and tanker trucks will then be mobilized to recover water that is being impounded by the dike. If it is concluded that the impoundment failure is impacting groundwater with no evidence of surface expression, the team will implement immediate drawdown of the pond until the source of the failure is located or until all of the contents have been removed, whichever occurs first.~~

~~A program for conducting accelerated water quality monitoring will be immediately instituted by the Emergency Coordinator. Grab samples will be collected by the maintenance department from the surface stream monitoring points and groundwater monitoring well(s) and analyzed according to the facility's environmental monitoring plan. These results will be reported to the local authorities and NMED within 24 hours of receipt of results.~~

~~A corrective action plan will be developed by the maintenance department to repair the impoundment. The plan will include provisions for recovery and treatment of soils and released water. If a groundwater pump and treat program is required based on sample results to restore groundwater quality, this program will be designed and implemented by GM and approved by a New Mexico registered professional engineer and NMED prior to implementation.~~

~~A Personnel Decontamination Zone will be set-up near the evaporation pond. Field restoration of the evaporation pond will be conducted by maintenance department personnel who will be fitted with appropriate PPE.~~

~~Restoration activities including required construction quality assurance will be carried out under the supervision of the maintenance department supervisor. A New Mexico registered Professional Engineer will certify the completion of the pond repair. All environmental monitoring and remedial efforts will continue to be conducted until background water quality conditions are restored. All waters captured by containment dikes or tanker trucks will be placed back into the evaporation pond after restoration activities are completed and NMED's concurrence of successful completion of these activities.~~

~~Treatment and/or disposal of contaminated soils will be implemented by the maintenance department. The program for soil treatment/disposal will be developed by GM and approved by NMED prior to it implementation. Decontamination of all equipment used during these remedial activities will be conducted.~~

~~GM will report the results of these corrective action efforts and remedial progress to NMED on a regular basis until the evaporation pond is approved for operation or otherwise directed by NMED GM will report to local authorities and NMED when all background environmental conditions have been restored.~~

6.3.5.d Power or Equipment Failure Control Procedure

The Facility will be equipped with at least one backup generator for emergency power generation to critical equipment only, which may include the laboratory, stabilization unit and administrative equipment. The generators may also be used to power safety equipment, such as smoke detectors and tank emergency cut-off or bypass mechanisms. The details of this system will be made available as the Facility design is completed. This emergency system will be started within 30 minutes of a power failure.

Equipment that fails but does not result in an emergency incident, such as a fire or explosion, will be promptly repaired or replaced. If emergencies arise as a result of the equipment failure, they will be handled as described in previous sections.

~~In the event of a power failure at the facility affecting the stabilization building, the facility will implement a series of response actions until power is restored. Power is expected to be restored within 30 minutes from the emergency generator which will be installed at the facility. The response actions will address personnel evacuations and waste receiving cessation. The personnel will evacuate to a pre-designated assembly area as outlined by this Contingency Plan in Section 6.3.4. Several of these personnel will be tasked by the Emergency Coordinator to then leave the assembly area and visually monitor the stabilization building from a location specified by him and conduct air quality monitoring. The Emergency Coordinator will notify the Waste Receiving Department to cease the receipt of waste materials from the offsite generator and subsequent transfer of the material to the stabilization building. The Emergency Coordinator will monitor the duration of the power failure and will provide guidance to maintenance personnel who may need to approach the stabilization building to reset electrical systems regarding any chemical and physical hazards. The Emergency Coordinator may elect to request securing of waste containers or other vessels in the stabilization building if the power failure is expected to be prolonged. If this is the case, he will organize a team of stabilization building personnel to re-enter the building while donning appropriate PPE to inspect, then, if necessary, secure any containers or containment vessels to minimize environmental hazards.~~

6.3.6 Measures to Prevent Recurrence or Spread

During an emergency, the EC will take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste areas at the Facility. These measures will include the following, where applicable:

- stopping processes and operations in specific areas of the plant or the entire plant itself; shut-down procedures for processing operations will be maintained in the administration building as well as at specific operating locations;
- collecting and containing released waste as described in Section 6.3.5.2; and~~,~~
- removing or isolating containers from the emergency at hand, as described in Section 6.3.5.1; if a material cannot be moved because of danger associated with a fire, the material may be sprayed with an appropriate fire suppressant, as directed by the EC or authorized fire official.

If the Facility ceases operations because of an emergency, the EC or a designated individual will monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.

A preventive maintenance order schedule will be prepared to ensure that monitoring equipment, valves, pumps, alarms, and other equipment will be maintained in good working order. If any of the equipment is found to be faulty or defective, it will be repaired or replaced.

6.3.7 Storage and Treatment of Released Hazardous Waste

Concurrently or immediately after the emergency has been addressed and cleanup procedures have been completed, the EC will make arrangements for the containerization and storage, treatment, or disposal of any waste generated during the incident. The waste will be assumed to be RCRA-regulated until process knowledge or sampling and analysis can be used to determine the actual nature of the waste. Sampling and analysis will be accomplished in accordance with the Waste Analysis Plan in Section 4.0. The material will be placed in DOT-approved containers and stored as RCRA-regulated waste ~~in the drum-handling unit or roll-off container area~~ until a determination is made. If the waste is determined to be RCRA-regulated, it will be labeled and stored accordingly until it is ~~treated or~~ disposed of in accordance with applicable RCRA regulations and permit conditions.

If the waste generated during the cleanup is determined to be incompatible with other wastes stored or treated at the Facility, the incompatible waste will be labeled as such and physically separated from other incompatible waste. In addition, existing waste at the Facility that may be incompatible with the waste generated during cleanup will not be ~~treated, stored, or~~ disposed of until cleanup activities are completed and the cleanup waste is safely containerized and segregated from the existing waste.

6.3.8 Equipment and Personnel Decontamination

A personnel decontamination zone (PDZ) will be set up a safe distance away from the material release area by a team designated the EC. ~~Emergency Coordinator.~~ The PDZ's~~PDZ's~~ location relative to the release area will be determined by the EC. ~~Emergency Coordinator.~~ The PDZ will be comprised of a support zone, contamination reduction zone, and exclusion zone.

The PDZ will be set up to sequentially decontaminate equipment and personnel. The first level of decontamination will involve equipment or personnel containing the highest level of contamination. Final equipment and personnel decontamination will be verified by visual inspection. The decontamination procedure within the PDZ will generally comprise progressing through the contamination reduction zone and corridor followed by redress of personnel. The Contamination Reduction Corridor will be designed to control access into and out of the exclusion zone and will confine responding personnel to a limited area.

Also included in the Contamination Reduction Corridor will be the decontamination of monitoring devices and waste samples. Non-reusable items such as latex gloves, Tyvek suits and duct tape, and respirators will be properly collected and disposed of at an approved facility. Decontamination of equipment, monitoring devices, and waste samples is presented below in Section 6.3.8.2, Equipment Decontamination. Decontamination efforts regarding personnel will be recorded including personnel identification, emergency response function, and date and time of day entering and leaving the PDZ. The PDZ will be decommissioned when the emergency has been addressed and cleanup measures have been completed.

Sampling equipment including waste sample collection hardware, personal protective equipment, and monitoring devices will be decontaminated in the Contamination Reduction Corridor prior to returning these items to their respective storage locations at the facility. Decontamination will involve scrubbing each item with a biodegradable detergent solution followed by thorough rinsing with de-ionized water. This process will be repeated at least one time. Additional scrubbing/rinsing will be performed depending on the extent of contamination. The PDZ supervisor will conduct all recordkeeping with regard to decontamination efforts. He will note equipment, waste sample containers, and monitoring devices that were decontaminated. He will also note the number of detergent scrubbing/rinsing steps that were conducted. The PDZ supervisor will verify that all equipment, sample containers, and monitoring devices have been properly decontaminated prior to these items being returned to their respective storage areas for reuse. This verification will be based on a visual inspection of each item prior to its leaving the PDZ. All wastewater that was generated and collected during operation of the PDZ will be properly treated and/or disposed of as directed by the EC~~Emergency Coordinator~~.

6.4 Post-Implementation Procedures

Following implementation of the Contingency Plan and resolution of the incident, all emergency equipment used during the effort will be made ready for future use. Necessary reports will be prepared and filed at the Facility and with regulatory agencies. These post-implementation procedures are detailed in the following sections.

6.4.1 Post-Emergency Equipment Maintenance

All emergency equipment listed in Permit Attachment C1~~Appendix M (Volume II) of this Contingency Plan~~ will be cleaned, repaired, or replaced so that it is fit to use before plant operations in the affected area are resumed. If the equipment cannot be adequately cleaned, it will be disposed of as hazardous waste. If it cannot be repaired and is not contaminated, it will be disposed of as non-hazardous waste.

Documentation of post-emergency equipment maintenance will be provided to NMED prior to resumption of operations in the affected area of the plant.

6.4.2 Required Reports and Notification

During and after certain emergency situations, as described in previous sections of this plan, specific types of reports or notification will be required. The EC will determine when~~,~~ or if~~,~~ off~~-~~site notification and reporting are required for certain scenarios. The various reporting and notification requirements are mentioned in the appropriate sections of the Contingency Plan but are detailed here for purposes of clarity.

After the plan has been implemented, if the EC determines that the Facility has had a release, fire, or explosion that could threaten human health or the environment outside the Facility, the EC must immediately notify either the government official designated as the on-scene coordinator for the geographical area or the National Response Center. The report must include the following information: (1) the name and telephone number of the reporter; (2) the time and type of incident; (3) the name and quantity of material(s) involved, to the extent that this information is known; (4) the extent of injuries, if any; and (5) the possible hazards to human health, or the environment~~,~~ outside the Facility.

If the EC determines that evacuation of local areas may be advisable, appropriate local authorities will be immediately notified. The EC must be available to help appropriate officials decide whether local areas should be evacuated.

Any release to the environment which threatens human health or the environment must be reported to the NMED Director within 24 hours of detection. If the release is reported pursuant to 40 CFR Part 302, that report will satisfy this requirement. Any release involving a reportable quantity of a hazardous waste as defined in 40 CFR 302.4 will be reported to the National Response Center within 24 hours.

Within 24 hours of implementing the Contingency Plan, the EC must notify NMED. The owner or operator must note in the operating record the time, date, and details of any incident that requires implementation of the Contingency Plan.

As required by 40 CFR 264.56(j), within 15 days of the incident, the EC must submit to the NMED Director a written report on the incident. The report must include the following information: (1) the name, address, and telephone number of the owner or operator; (2) the name, address, and telephone number of the Facility;

(3) the date, time, and type of incident; (4) the source and cause of any release to the environment; (5) the name and quantity of material(s) involved; (6) actions taken to mitigate damage due to the release; (7) the extent of injuries, if any; (8) an assessment of actual or potential hazards to human health or the environment, where this is applicable; and (9) the estimated quantity and disposition of recovered material that resulted from the incident.

Within 30 days of detection of a release to the environment, a report containing the following information will be submitted to the NMED Director: (1) the likely route of migration of the release; (2) the characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate); (3) the results of any monitoring or sampling conducted in connection with the release, if available (if sampling or monitoring data relating to the release are not available within 30 days, these data must be submitted to the NMED Director as soon as they become available); (4) the proximity of the incident to downgradient drinking water, surface water, and populated areas; and (5) a ~~) a~~ description of response actions that were taken or are planned.

The NMED Secretary~~Director~~ and state and local authorities will be notified when the Facility is in compliance with 40 ~~40~~ CFR 264.56(h), which states that no waste that is incompatible with the released material can be treated, stored, or disposed of until cleanup procedures are completed, and all equipment must be fit for its intended use prior to resuming operations.

6.5 Documents to be Maintained On-Site~~site~~ as Part of the Permit

Following the resolution of emergencies, various documents must be prepared and maintained on-site as part of the operating record. These documents are discussed in previous sections of this plan and are summarized below.

Copies of the Facility- and building-specific evacuation plans will be maintained in the administration building and at each location for which evacuation plans will be prepared. These documents will be submitted to the NMED within 30 days of the effective date of this permit.

An up-to-date list of all satellite and 90-day accumulation areas, if any are utilized at the Facility, will be maintained at the Facility and provided to the NMED inspectors upon request. Prior to accepting waste at a satellite or 90-~~-~~day accumulation area for the first time, NMED will be provided with a description and location map.

A list of authorized ECs and their home telephone numbers will be maintained in the administration building, in all other buildings and emergency stations at the site, and in all controlled copies of the Contingency Plan.

A list of coordinating agreements that outline the situations and criteria under which outside help is needed will be maintained in the administration building and in all controlled copies of the Contingency Plan. This list will include the role of each emergency response authority in an emergency.

Coordinating Agreements will be put in place with local, state, and federal agencies for responding to emergency incidents that may occur at the Facility. The Facility will formalize~~formali7e~~ Coordinating Agreements with those organizations listed in Permit Attachment C3~~Appendix J (see Volume II)~~ no later than 60 days prior to receipt of first waste.

A current evacuation plan will be maintained in the EC's~~EC's~~ office. Permit Attachment C4~~Appendix L presented in Volume II~~ provides a general Evacuation Plan for the Facility. The Facility will finalize this Evacuation Plan with details of building-specific evacuations after the Facility design has received final approval from NMED. It is proposed that the Facility will submit the criteria for determining when site evacuations are necessary within 30 days of the effective date of the permit and that final evacuation plans and procedures be submitted following final NMED approval of the Facility design.

A current version of the emergency and spill response equipment list presented in Permit Attachment C1~~Appendix M (Volume II)~~ will be maintained in the EC's~~EC's~~ office and in each of the controlled copies of the Contingency Plan.

The operating record for the facility will be updated with the time, date, and details of any incidents that require implementation of the Contingency Plan.

6.6 Amendment of Contingency Plan

If the Contingency Plan is implemented, the circumstances under which it was implemented will be thoroughly reviewed to investigate the following:

- why the incident occurred and the cause for the occurrence;
- what measures were taken to prevent a recurrence; and~~,~~
- what measures will be taken to reduce the risk of having a similar occurrence in the future.

The Contingency Plan itself will be reviewed by the EC and/or the Facility owner and immediately amended, if necessary, whenever any of the following events occur:

- the Facility permit is revised;
- the plan fails in an emergency;
- changes occur to the Facility design, construction, operation, maintenance, or other circumstance that materially increase the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or that change the response necessary in an emergency;
- the list of ECs changes; or~~,~~
- the list of emergency equipment changes.

Because the Contingency Plan is a controlled document, any changes will be made in the following manner: (1)~~)~~ inaccurate or out-of-date pages will be directly replaced with new pages containing the modified or additional information; (2) the corrected pages will be issued to all agencies and organizations that have controlled copies of the plan; and~~,~~ (3) old pages will be removed from copies of the plan and discarded. These steps will ensure that each organization has a current version of the plan.

7. Personnel Training

The personnel training program for the Facility will be developed in accordance with 40 CFR 264.16 as adopted by the State of New Mexico in the New Mexico Hazardous Waste Management Regulations, Part V. This plan documents training procedures to be used by the Facility for all new employees and refresher training for experienced workers to ensure that all employees perform their work in full compliance with 40 CFR 264.16.

As illustrated in Figure 7-1, personnel will be divided into three categories for the purposes of the RCRA training: Facility personnel, visitors, and off-site emergency response personnel. Facility personnel will be further categorized based on whether or not they will handle hazardous waste. Personnel will receive training appropriate to their specific job responsibilities. All Facility personnel will be required to complete classroom training within six months of employment and annually according to the requirements of the CFR 264.16. Employees who will handle hazardous waste and supervisors of employees who will handle hazardous waste will be required to complete on-the-job training (OJT) and OSHA 40-hour training and annual refreshers. Employees assigned to the Facility will not be allowed to work without direct supervision until completing the training program relevant to the positions in which they are employed. New personnel will be required to complete their training program as soon as practicable, but no later than six months, following their effective date of employment at the Facility.

Section 7.1 describes job titles, qualifications, and duties; Section 7.2 describes training content and frequency; and Section 7.3 describes record keeping procedures.

7.1 Job Titles and Duties

To facilitate safe and effective Facility operation, the training program is designed to provide training commensurate with job responsibilities. A list of qualifications, duties~~dunes~~, and special training required for appropriate personnel will be developed and maintained on-site prior to commencement of operations. This section includes a description of the qualifications and responsibilities of the RCRA training officer, the EC, waste handlers, the site security officer, laboratory specialists, and maintenance personnel. Although other categories of personnel may work at the site, these six categories include key personnel with respect to ensuring safety and compliance and therefore are included in this section. It is important to note that one person may fulfill the responsibilities of more than one of the job categories outlined below.

7.1.1 RCRA Training Officer

The RCRA training officer will be responsible for developing and implementing a RCRA training program that is in compliance with 40 CFR 264.16, Personnel Training.

The RCRA training officer will possess the following qualifications:

- a four-year science or engineering degree or sufficient experience in hazardous waste management to oversee the training program;
- working knowledge of the New Mexico Hazardous Waste Act and the New Mexico Hazardous Waste Management Regulations;
- knowledge of site-specific hazardous waste management procedures;
- a thorough understanding of the purpose of the Contingency Plan and emergency procedures and the ability to implement them; and

- 40-hour OSHA and annual refresher training.

The RCRA training officer will have the following responsibilities:

- developing and implementing the RCRA training program, including classroom training development and revision;
- establishing course curricula;
- conducting training;
- maintaining and updating, as needed, a list of all employees requiring training; this list will provide a personalized training history for each employee, which includes job title, training schedule, course attendance, and test results;
- reviewing any new job classifications to determine if ~~on-the-job-training (~~OJT~~)~~ is required (supervisors may also request that employees receive OJT);
- scheduling training;
- ensuring that all personnel with RCRA responsibilities are trained as soon as practicable following the effective date in a position and are annually updated; and~~,~~
- conducting an annual review to determine which personnel require OJT.

7.1.2 Emergency Coordinator

The EC will coordinate all emergency response activities and will have the authority to commit the resources necessary to implement the Contingency Plan contained in Section 6.0. The Facility will appoint a primary EC as well as secondary ECs to ensure that someone is always available to serve as the EC. The secondary ECs must meet the same qualifications and responsibilities, outlined below, as the primary coordinator.

The EC will possess the following qualifications:

- a four-year science or engineering degree or sufficient experience in hazardous waste management and emergency response to coordinate all aspects of emergency response;
- working knowledge of the New Mexico Hazardous Waste Act and the New Mexico Hazardous Waste Regulations;
- familiarity with all aspects of the Contingency Plan and emergency procedures, all operations and activities at the Facility, the location and characteristics of waste handled, the location of records within the Facility, and the Facility layout prior to acting as EC; and~~,~~
- 40-hour OSHA training, annual refreshers, and OSHA supervisor training.

The EC will have the following responsibilities:

- either being on the Facility premises or being available to respond to an emergency by reaching the Facility within a short period of time;
- notifying all appropriate Facility personnel upon awareness of an emergency situation;
- notifying all appropriate state or local agencies with designated response roles;
- identifying the character, exact source, amount, and extent of any released materials;

- assessing possible hazards to human health and the environment that may result from a release, fire, or explosion;
- notifying local authorities if a release, fire, or explosion has occurred that could threaten human health or the environment;
- notifying the National Response Center if a release, fire, or explosion occurs that could threaten human health or the environment;
- taking all reasonable measures during an emergency to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the Facility;
- if appropriate, when the Facility ceases operations in response to a release, fire, or explosion, monitoring for leaks, pressure build-up, gas generation, or ruptures in equipment;
- providing for the treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion at the Facility;
- ensuring that no waste that may be incompatible with the released material is treated, stored, or disposed until cleanup procedures are completed and that emergency equipment is cleaned and fit for its intended use prior to resumption of operations;
- notifying NMED and appropriate local authorities before operations are resumed;
- noting in the operating record the time, date, and details of any incident that requires implementing the Contingency Plan; and~~,~~
- submitting a written report to the NMED within 15 days of implementing the Contingency Plan.

7.1.3 Waste Handlers

Waste handlers will perform sampling, screening, unloading, transfer, ~~storage,~~ and loading of material.

The waste handlers will possess the following qualifications:

- high school diploma or equivalent; and~~,~~
- two years of experience in hazardous waste operations.

The waste handlers will have the following responsibilities:

- verifying waste received;
- testing emergency equipment;
- inspecting Facility and emergency equipment;
- managing containers in such a way as to prevent leaks, spills, and ruptures;
- inspecting ~~container storage areas, tanks, the evaporation pond, and~~ the landfill;
- inspecting roll-off containers and drums for cracks or holes;~~.~~
- repair of defects on roll-off containers and drums;~~.~~
- inspection of non-regulated but potential SWMU units;
- maintaining run-off management system, control wind dispersal, and ensuring~~ensure~~ compliance with other operational requirements specific to the RCRA permit;
- assisting in maintaining the operating record; and~~,~~

- preparing biennial reports, unmanifested waste reports, and other reports as necessary.

7.1.4 Site Security Officers

The site security officers will control access to the Facility, ensure site security, and possess high school diplomas or equivalent.

The site security officers will have the following responsibilities:

- controlling entry, at all times, through gates or other entrances to the active portion of the Facility;
- ensuring site security;
- inspecting the perimeter fence to prevent unknowing entry and prevent the unauthorized entry of persons or livestock onto the active portion of the Facility; and~~,~~
- initially locating and then maintaining warning signs that indicate "Danger - Unauthorized Personnel Keep Out" in both English and Spanish, which will be posted on the perimeter fence and will be legible from a distance of 25 feet.

7.1.5 Laboratory Specialist

The laboratory specialist will help to assure that wastes received at the Facility are consistent with waste profiles supplied by generators.

The laboratory specialist will possess the following qualifications:

- a four-year science degree or sufficient experience to adequately perform acceptance testing;
- working knowledge of the New Mexico Hazardous Waste Act and the New Mexico Hazardous Waste Regulations; and~~,~~
- familiarity with the Waste Analysis Plan and waste analysis practices and procedures.

The laboratory specialist will have the following responsibilities:

- developing sampling, characterization, and testing procedures for waste received and generated at the Facility;
- directing or performing sampling, characterization, and testing for the Facility;
- determining if waste is acceptable for ~~treatment, storage, and~~ disposal according to waste profile information submitted by the generator;
- determining if the initial and annual full chemical analysis and fingerprint analysis confirm generator information provided on the waste profile and manifest; and~~,~~
- implementing the laboratory QA/QC program.

7.1.6 Maintenance Personnel

Maintenance personnel will maintain all equipment, buildings, roads and ditches.

Maintenance personnel will possess the following qualifications:

- high school diploma or equivalent; and~~,~~
- two years experience in an industrial setting.

Maintenance personnel will have the following responsibilities:

- developing maintenance procedures; and~~,~~
- performing maintenance-type activities, including repairs, preventive maintenance, and corrective actions associated with RCRA inspections.

7.2 Training Content and Frequency

Section 7.2.1 describes the training program for Facility personnel, Section 7.2.2 describes training for visitors, and Section 7.2.3 describes training for off-~~-~~site emergency response organizations.

7.2.1 Training Program for Facility Personnel

All new employees will be required to successfully complete the training program related to their position. Training programs will include RCRA classroom training, job-~~-~~specific training, OSHA 40-~~-~~hour training, and annual refresher training for all three programs. OJT and OSHA 40-hour training sessions will be required only for those personnel who will handle hazardous waste and the supervisors of personnel who will handle hazardous waste. Employees will not be permitted to assume unsupervised job duties until successful completion of all the required elements of their training program. As soon as practicable following a new employee's hire date, successful completion of the training program specific to his or her position must be accomplished, and certification of the completion will be recorded and kept on file by the RCRA training officer.

7.2.1.1 Classroom Training

The initial classroom training will consist of at least one 8-hour session. Annual refresher training will consist of at least one 4-hour session. The outline of the annual refresher is the same as the outline for the initial classroom training; however, the refresher training will be an abbreviated version of the initial training at an accelerated pace. The RCRA classroom training will include the following goals:

- developing a basic understanding of the regulatory requirements for a treatment, storage, and disposal facility;
- promoting understanding of policies and procedures necessary to protect human health and the environment;
- ensuring proper management of hazardous waste; and ~~;~~
- educating employees regarding response to emergencies.

The outline for the RCRA training class will consist of the following elements:

- an introduction to RCRA, including a general description of RCRA and Hazardous and Solid Waste Amendments (HSWA); the definition of hazardous waste; waste generator requirements; ~~treatment, storage, and~~ disposal requirements; and labeling, inspection, record keeping, and reporting requirements;
- requirements associated with the RCRA permit for the Facility;
- Facility-specific waste management, including general procedures for receipt and handling of waste from off-~~-~~site as well as management of waste generated on-site;

- decontamination procedures;
- emergency procedures, including response to fires, explosions, and releases, and shutdown of operations;
- emergency equipment location and use;
- emergency systems, such as the communication and alarm systems and the fire suppression system~~sys tern~~;
- Contingency Plan;
- evacuation plan;
- waste minimization;
- occupational health and safety, including items such as personal protective clothing and equipment, general industrial safety, and employee right~~Right~~-to-know~~Know~~ (the Hazard Communication Standard);
- transportation of hazardous waste, including marking, labeling, placarding, loading, use of shipping papers, record keeping, and other DOT requirements; and~~;~~
- maintenance of documentation.

Facility tours and audio-visual aids in conjunction with lectures and procedure manuals will be utilized in the classroom training. A written test will be administered at the completion of classroom training. A grade of 80 percent or better will be required to demonstrate mastery of the course material. The course curriculum will be reviewed at least annually by the RCRA training officer to ensure that it is current and appropriate.

7.2.1.2 Job-Specific Training

The RCRA classroom training will be supplemented with job-specific training tailored to each employee's actual job responsibilities. Job-specific training may include additional classroom training and/or OJT. All employees who handle hazardous waste and supervisors of personnel who handle hazardous waste will be required to complete OJT. The purpose of OJT is not to demonstrate to personnel how to perform their duties, but rather to demonstrate how to perform their duties safely and in compliance with RCRA. OJT will be conducted in the work area by the line supervisor or foreman subsequent to classroom training. The length and complexity of the OJT will vary according to the employee's responsibilities. These minimum OJT sessions will be documented by both the employee and the supervisor by signing and dating a form. The form will also indicate the length of time spent on OJT training. The signed forms will be maintained as part of the Operating Record as discussed in Section 7.3.

A checklist developed by the work area supervisor will be used for job-specific training. Prior to initial use of the checklist, it must be reviewed and approved by the RCRA training officer. All employees performing similar duties will have consistent job-specific training. The job-specific training checklist will be reviewed at least annually to ensure that it is current and appropriate for the subject job classification.

The job-specific training checklist will include the following elements:

- information about procedures relevant to the individual's~~individual's~~ position, where these procedures are located, and which personnel have the authority to implement the procedures,~~;~~ key operating parameters, and waste feed cut-off systems;
- location and use of communications or alarm systems;
- response to releases;
- emergency and routine shutdown of operations;

- Facility Contingency Plan and emergency procedures;
- evacuation procedures and location of emergency exits;
- response to leaks, spills, and overflows;
- Waste Analysis Plan procedures; and;
- inspection and maintenance procedures.

Based on the checklist, Gandy Marley, Inc. (GMI) will develop a training outline specifically for each job-specific training program. The training programs specific to incident response positions, laboratory positions, waste handling positions, maintenance positions, emergency coordinators and site security officers are discussed below.

Incident Response Personnel

Specific classroom training and OJT for on-site individuals involved in incident response will focus on the emergency response equipment present at the facility. The training will address the use, maintenance, operation, purpose and limitations of the following specific equipment:

- fire-specific control equipment,
- personal protective equipment (PPE),
- spill control and decontamination equipment,
- emergency equipment,
- monitoring and communications equipment,
- shutdown operations,
- safety equipment,
- lock out/tag out program, and
- continuous air monitors.

Laboratory Personnel

Specific classroom training and OJT elements for laboratory personnel involved in analysis of hazardous waste will include:

- waste tracking procedures and profile forms,
- laboratory waste acceptance procedures,
- laboratory recordkeeping,
- waste pre-acceptance,
- waste discrepancy and rejection procedures,
- operation of on-site laboratory,
- proper analytical methods,
- laboratory quality assurance and quality control,
- laboratory safety and waste handling within the laboratory,
- laboratory and environmental monitoring equipment calibration,
- basic chemical concepts, and

- toxicology overview and exposure pathways.

Waste Handlers and Maintenance Personnel

Specific classroom training and OJT elements received by waste handlers and maintenance personnel will include:

- proper field sampling and testing procedures (waste handlers only),
- heavy equipment operations,
- waste handling precautions including chemical and physical hazards associated with each waste that will be handled on-site,
- drum and roll-off container handling,
- safety equipment,
- basic chemical concepts,
- hand and power tool safety and operation (maintenance personnel only),
- lock out/tag out procedures,
- waste compatibility issues,
- ~~waste segregation procedures in storage and during treatment,~~
- ~~storage area operations,~~
- ~~waste treatment selection procedures,~~
- waste tracking procedures and profile forms, and
- sampling recordkeeping procedure.~~, and~~
- ~~treatment data form procedure.~~

Emergency Coordinator

Specific classroom training and OJT elements for emergency coordinators will include:

- site emergency communications procedures,
- federal, state, and local agency emergency and all-clear notification procedures,
- qualitative and quantitative assessment of released materials,
- human health and environmental hazard recognition,
- release containment procedures,
- Facility~~facility~~-wide fire, explosion, and leak detection procedures during emergency responses and normal operations,
- procedures for recovering, treating, storing, and disposing of recovered waste, soil, organic liquid, and water resulting from an emergency response,
- emergency equipment decontamination and reuse procedures,
- emergency response recordkeeping plan, and
- written reporting requirements to the agencies.

Site Security Officers

Specific classroom training and OJT elements for site security officers will include:

- procedures for controlling entry to the facility,
- maintaining overall facility security including perimeter fence inspections, and
- maintenance of all warning signs.

7.2.1.3 OSHA 40-Hour Training

All personnel who handle hazardous waste and the supervisors of personnel who handle hazardous waste will complete OSHA 40-hour training as required by 29 CFR 1910.120. It is anticipated that, at least initially, the OSHA 40-hour training will be provided by an outside vendor. Personnel who have documentation of course completion for the 40-hour and refresher training will not be required to retake the 40-hour training.

All personnel who handle hazardous waste and the supervisors of personnel who handle hazardous waste will complete OSHA 40-hour training as required by 29 CFR 1910.120. It is anticipated that, at least initially, the OSHA 40-hour training will be provided by an outside vendor. Personnel who have documentation of course completion for the 40-hour and refresher training will not be required to retake the 40-hour training.

7.2.2 Training for Visitors

Visitors who are expected to be in the Facility for only a short period of time and who will not be handling hazardous waste will be provided a short briefing on basic emergency procedures such as decontamination, emergency signals and alarms, and evacuation routes. Visitors will not be allowed on-site unless they are escorted by Facility personnel or unless other arrangements have been made with Facility personnel. The briefing will include the following information:

- what hazards that may be encountered at the Facility;
- how emergencies are signaled or announced, how help is summoned , what information is to be given, and to whom the information is given;
- where to report during an emergency;
- how to safely evacuate from the Facility;
- what standard operating procedures for visitors are;
- where check-in/check out locations are; and
- what safety equipment is required.

7.2.3 Training for Off-Site Emergency Response Organizations

Training will be established for off-site emergency response organizations through agreements with local agencies and contracts with vendors. This training will include, as appropriate, the following:

- site layout and site-specific hazards;
- the Contingency Plan;
- Facility emergency procedures;

- Facility decontamination procedures; and,
- appropriate response techniques.

7.3 Record Keeping

In accordance with 40 CFR 264.16, records regarding job title, job description, training, and other appropriate documentation will be kept by the RCRA training officer.

7.3.1 Job Titles, Descriptions, and Duties

Job titles will be designated for each position at the Facility related to hazardous waste management and the name of each employee filling each job._ Job descriptions will detail job duties and responsibilities for that position. _The description will include the skills, education, and qualifications required for each position. _A written description for each position will be maintained to determine the types and amounts of both introductory and continuing training to be given to each employee at the Facility.

7.3.2 Training Documentation

Records that document RCRA classroom training and OJT given to and completed by Facility personnel will be kept by the RCRA training officer._ Training records on current employees will be kept until closure of the Facility. _Training records on former employees will be kept for at least three years from the date the employee last worked at the Facility.

7.3.3 Other Documentation

Other documentation to be maintained at the Facility, includes the following:

- documentation of the annual review of the curriculum for RCRA classroom training;
- documentation of the annual review of the OJT checklists; and,
- RCRA classroom training test results.

8. Closure and Post-Closure of Permitted Units

This closure plan describes specific activities required for closure of the ~~drum handling unit, roll-off storage area, stabilization unit and associated liquid waste receiving and storage unit, evaporation pond, and~~ landfill, in compliance with RCRA closure requirements. ~~It is currently planned that all of these units will be cleaned closed with the exception of the landfill.~~ The closure activities are designed to minimize the need for further maintenance and any potential impacts to human health and the environment. Closure activities are described in Section 8.1. A post-closure care plan for the landfill is included in Section 8.2. Section 8.3 presents the closure performance standard; and Section 8.4 discusses the closure schedule. Closure certification and modifications are discussed in Sections 8.5 and 8.6, respectively. Closure and post-closure cost estimates are discussed in Section 8.7 and compliance with financial assurance requirements is discussed in Section 8.8.

8.1 Closure Activities

At the end of the active life of the Facility, the landfill~~all units~~ and all structures of the Facility will be closed and dismantled in compliance with 40 CFR 264, Subpart G. Any solid hazardous waste and debris will be placed in the landfill, and non-hazardous waste will be sent off site for reuse, recycle, or disposal in compliance with 40 ~~40~~ CFR 264, Subpart G. Liquids generated during closure (decontamination solutions and ~~,~~ leachates~~, and evaporation pond liquid~~) will be treated off-site. ~~onsite (stabilization unit) unless it is determined that shipment offsite for treatment is more cost effective.~~ The landfill will be capped with a final cover, and post-closure care will be initiated for the landfill. These closure activities are described in detail in the following sections. ~~The unit-specific closure descriptions are presented in the order in which the units are anticipated to be closed.~~

An off-site laboratory will be used for analysis of hazardous waste and soil samples at closure. The off-site laboratory will be an EPA-approved laboratory with an internal QA/QC program and specific procedures for each analytical method. All laboratory samples will be analyzed for the hazardous constituents specified in 40 ~~40~~ CFR Part 261, Appendix VIII and all other constituents considered by NMED to be a threat to human health and the environment.

Prior to the commencement of closure activities, GMI will notify the Secretary of NMED at least 60 days prior to the date GMI expects to begin closure. ~~of the units.~~ The schedule for closure is described in more detail in Section 8.4.

~~8.1.1 Drum Handling Unit~~

~~The following steps will be necessary to complete closure of the drum handling unit:~~

- ~~removal of remaining waste and other material in the storage area;~~
- ~~decontamination of equipment in the area;~~
- ~~sampling of any areas or equipment suspected, based on visual observations, of being contaminated;~~
- ~~dismantling of the building structure;~~
- ~~dismantling of the concrete floor and secondary containment; and,~~
- ~~sampling of soil beneath the floor to determine if contamination is present.~~

~~8.1.1.1 Removal of Inventory~~

~~Closure of the drum handling unit will commence with removal of any inventory or other materials stored in the area according to standard procedures. Remaining inventory will be removed within 90 days after receipt of the final volume of hazardous wastes at the unit. For the purposes of this plan, GMI will arrange for all waste remaining in inventory to either be disposed of directly in the landfill, treated at the onsite treatment unit prior to disposal in the landfill, or returned to the generator if either of the previous two options are not available. If required, the hazardous materials could be returned to the generator utilizing the same method of transportation that was used to deliver the material to the site (e.g., end dump trucks).~~

~~Closure cost estimates and waste volumes for disposal are based on the worst-case scenario of all wastes requiring stabilization at the onsite treatment unit prior to landfilling. In the case of the drum handling unit, it is assumed that all 1,120 drums contain sludge that must be stabilized. For these calculations, the maximum inventory of the drum handling unit at the time of closure is assumed to be the maximum permitted capacity of the unit.~~

~~8.1.1.2 Decontamination of Equipment and Dismantling of Building Structure~~

~~Equipment in the area, such as drum-moving equipment, that may have contacted hazardous waste will either be decontaminated or disposed of as hazardous waste. Large equipment, such as the fork trucks, will be decontaminated. Disposal as waste will be the preferred option only for items, such as wood pallets, that are difficult to decontaminate.~~

~~The building structure is not anticipated to be contaminated with hazardous waste; however, it will be cleaned and rinsed prior to, or during, dismantling. The dismantled building structure will either be reused elsewhere or recycled as scrap metal.~~

~~A high-pressure detergent wash and water rinse will be used to clean off all visible residues. Cleaning will continue until sampling and analysis of the wash water indicates that contaminants have been removed. The use of wash water will be limited to minimize the amount of waste generated. Wash water use will be limited by using only the necessary amount to decontaminate the facility and equipment. All decontamination solutions will be collected in containers or portable tanks. The decontamination solutions will either be treated onsite or trucked to an approved off site facility for treatment. The expected volume of decontamination solutions that will be generated during closure of the drum handling unit is included in the liquid waste amounts shown in Table 8-1.~~

~~Clean closure of the building will be ensured by the development and implementation of a sampling and analysis plan (SAP). The plan will be provided to the New Mexico Environment Department for approval 90 days prior to implementation. At a minimum, it will specify the following aspects of the sampling and analysis activities:~~

- ~~1.0 Sampling Program~~
    - ~~1.1 Sampling Locations~~
    - ~~1.2 Sample Matrix~~
    - ~~1.3 Sample Containers, Type and Size~~
    - ~~1.4 Sampling Tools~~
    - ~~1.5 Sample Management~~
    - ~~1.6 Sample Management~~

~~2.0 Analytical Methods~~

- ~~2.1 Analytes for Analysis~~
- ~~2.2 Analysis Procedures (Specified SW-846 Methods)~~

~~3.0 Quality Assurance~~

- ~~3.1 Organization~~
- ~~3.2 Sample Management~~
- ~~3.3 Analytical System~~
  - ~~3.3.1 Instrument Maintenance~~
  - ~~3.3.2 Instrument Calibration~~
  - ~~3.3.3 Personnel Training~~
  - ~~3.3.4 Reagents and Standards~~
  - ~~3.3.5 Corrective Actions~~
- ~~3.4 Data Quality Objectives~~
- ~~3.5 Performance and System Audits~~

~~4.0 Data Management~~

- ~~4.1 Data Collection~~
- ~~4.2 Data Reduction~~
- ~~4.3 Data Reporting~~

~~The sampling and analysis plan will specify the use of equipment, methods, and techniques current at the time the plan is prepared. Applicable provisions of the then-current version of SW-846 (or other applicable standard reference then in effect) will be specified. Applicable reporting requirements will also be specified, as appropriate.~~

~~8.1.1.3 Dismantling of Concrete Floor and Secondary Containment~~

~~Secondary containment for the drum handling unit will be provided by a geomembrane lined trench and collection sump system. Drums will be stored on a coated concrete floor that drains to the trench and sump system. Because the concrete will be coated, decontamination at closure is proposed so that the concrete will be broken up and disposed of as non-hazardous debris. The liner and collection sump system will be removed at closure but will not be decontaminated. Since this material will be considered a hazardous waste, upon certification of compliance with LDR requirements, it will be disposed of in the landfill. The expected volume of solid hazardous waste that will be generated during closure is provided in Table 8-1.~~

~~8.1.1.4 Soil Sampling~~

~~After removal of the building, any contaminated soils will be removed for disposal and the area resampled until the sampling and analyses indicate that the area meets the performance standard provided in Section 8.3. Sampling will be performed in the vicinity of the loading dock and in open areas. Individual samples will be collected at a frequency equivalent to one per every 2,000 square feet (i.e. one sample to be taken at the center of each 2,000 square foot grid).~~

~~Contaminated soils will be disposed of in accordance with the regulations applicable to the contaminant of concern. If the landfill portion of the Facility is still operational and the contaminated soil meets the waste~~

~~acceptance criteria for the landfill it will be landfilled at GMI. If the GMI landfill cannot accept the waste it will be manifested and shipped to an appropriately licensed disposal facility.~~

~~In addition, seven samples will be collected from specific locations that correspond to all of the floor drain sumps (see Drawings 37, 38 and 39 in Volume III). Eight additional samples will be collected in the dock area and samples will be collected at 20 foot intervals beneath the drainage trenches. Sample results will be compared against the closure performance standard presented in Section 8.3.~~

~~Any contaminated soils will be removed for disposal and the area resampled until the sampling and analyses indicate that the area meets the performance standard provided in Section 8.3. Contaminated soils will be disposed of in accordance with the regulations applicable to the contaminant of concern. If the landfill portion of the Facility is still operational and the contaminated soil meets the waste acceptance criteria for the landfill it will be landfilled at GME. If the GMI landfill cannot accept the waste it will be manifested and shipped to an appropriately licensed disposal facility.~~

~~8.1.2 Evaporation Pond~~

~~The primary steps required to complete closure of the evaporation pond are the following:~~

- ~~removal of remaining liquid waste;~~
- ~~removal and solidification of sludge;~~
- ~~removal and disposal of liner and leachate collection system;~~
- ~~sampling of soil beneath the unit to determine if contamination is present; and~~
- ~~filling and revegetating the area.~~

~~8.1.2.1 Removal of Liquid Waste~~

~~The liquid in the evaporation pond will be allowed to evaporate naturally. At the beginning of closure of the evaporation pond, no further waste will be accepted into the pond. The water balance for the site indicates that there is a net loss of approximately 80 inches of water per year (90 inches of evaporation minus 10 inches of precipitation). The liquid in the evaporation pond has an approximate depth of 9 feet, and it is assumed that at closure there will be 2 feet of sludge in the bottom of the pond, leaving 7 feet of liquid (84 inches). Therefore, approximately 1 year is projected to be adequate time to evaporate all the liquid in the pond, assuming it is full to capacity at the time closure is initiated.~~

~~8.1.2.2 Removal and Solidification of Sludge~~

~~Following evaporation of the pond liquid, the sludge will be removed from the bottom with trash pumps or hand excavation equipment. Removal operations will continue until visual examination shows that all sludge has been removed. The removed sludge will be solidified in the treatment unit. The stabilized waste will be placed in roll-off containers and cured in accordance with the provisions of the Waste Analysis Plan in Section 4.0 prior to disposal in the landfill. The expected volume of sludge that will be removed and disposed in the landfill is shown in Table 8-1. This information is based on an estimated sludge depth of 2 feet at the sump.~~

~~8.1.2.3 Removal and Disposal of Liner and Leachate Collection System~~

~~The pond liner and leachate collection system will be dismantled and removed as hazardous debris. Prior to removal, the liner will be washed to remove the visible contaminants. The method of treatment is consistent~~

~~with debris treatment technologies as defined in 40 CFR 268.7(d). Upon certification of compliance with the LDR debris treatment requirements, as required by 20 NMAC 4.1.800 incorporating 40 CFR 268.45, the waste will be disposed in the landfill. The expected volume of solid hazardous waste and debris that will be generated during closure is provided in Table 8-1.~~

~~The vadose zone monitoring wells associated with the evaporation pond will be left functional to continue monitoring the landfill, as specified in Section 3.0.~~

~~8.1.2.4 Soil Sampling~~

~~After removal of all waste, the evaporation pond liners, and the leachate collection system, soil samples will be collected and analyzed for a facility proposed subset of the constituents defined in Section 8.1 of the permit application and approved by NMED Individual samples will be collected at a frequency equivalent to one per 2,000 square feet over the entire Surface Impoundment area (i.e. one sample to be taken at the center of each 2,000 square foot grid). In addition, a sample will be obtained from each leachate collection sump and beneath the tanker pad fill lines at the influent location and at 10-foot intervals beneath the transfer piping. Samples also will be collected adjacent to each side of the concrete containment pad. Sample results will be compared against the closure performance standard presented in Section 8.3.~~

~~Contaminated soils will be removed for disposal and the area resampled until the sampling and analyses indicate that the area meets the performance standard provided in Section 8.3. Contaminated soils will be disposed of in accordance with the regulations applicable to the contaminant of concern. If the landfill portion of the Facility is still operational and the contaminated soil meets the waste acceptance criteria for the landfill it will be landfilled at GMT. If the GMT landfill cannot accept the waste it will be manifested and shipped to an appropriately licensed disposal facility.~~

~~8.1.2.5 Filling and Revegetating~~

~~The final step in closing the Surface Impoundment will be filling the depression with clean soil to the approximate original grade and revegetating the disturbed areas. The Surface Impoundment will be graded to ensure that the direction of surface water runoff is not towards the landfill units. A seed mixture appropriate for the area will be applied and the site will be watered as necessary to promote germination.~~

~~8.1.3 Liquid Waste Receiving and Storage Unit~~

~~The following steps will occur during closure of the liquid waste receiving and storage unit associated with the stabilization unit:~~

- ~~removal and treatment of tank contents;~~
- ~~dismantling and removal of tanks, ancillary equipment, and concrete containment area; and,~~
- ~~sampling of soil beneath the unit to determine if contamination is present.~~

~~8.1.3.1 Removal of Inventory~~

~~Closure of the liquid waste receiving and storage unit will commence with removal of any inventory in the tanks according to standard procedures. The major steps of inventory removal, equipment decontamination, primary and secondary containment removal, and soil sampling will be identical to these described in Section 8.1.1.1. Remaining inventory will be removed within 90 days after receipt of the final volume of hazardous wastes in the tanks. All wastes remaining in inventory can be treated at the onsite stabilization unit prior to disposal in the landfill. Closure cost estimates and waste volumes for disposal were based on the~~

~~worst-case scenario of all four tanks being full to capacity at the start of closure. The maximum possible inventory for each tank at the time closure is initiated is equal to the permitted capacity of the tanks.~~

~~8.1.3.2 Dismantling of Tanks, Equipment, and Concrete Secondary Containment Area~~

~~The tanks and ancillary equipment will be dismantled and disposed in the landfill after certification of compliance with LDR debris treatment requirements under 40 CFR 268.45, as required by 20 NMAC 4.1.800 incorporating 40 CFR 268.7 d). The piping system used to transfer waste from the tanks to tankers will be considered part of the tanks and will be drained and dismantled as part of the tank closure. After removal of the tanks, the concrete containment will be washed and broken up for disposal as hazardous debris. Upon certification of compliance with the LDR debris treatment requirements, as required by 40 CFR 268.7(d), any hazardous materials will be disposed in the landfill. The expected volume of solid hazardous waste that will be generated during closure is provided in Table 8-1.~~

~~8.1.3.3 Soil Sampling~~

~~After removal of the tanks and containment, soil samples will be collected and analyzed for a facility proposed subset of the constituents defined in Section 8.1 of the permit application and approved by NMED Due to the limited footprint area of the liquid waste storage area, sampling will not be based on a per area basis. Rather, it is proposed that one sample be obtained beneath each sump in the concrete base for the liquid waste storage units, beneath each tank after demolition, and adjacent to each side of each tank pad. In addition, samples will be obtained at locations where visual or field screening evidence of contamination is present. Sample results will be compared against the closure performance standard presented in Section 8.3.~~

~~8.1.4 Stabilization Unit~~

~~The primary steps required to complete closure of the stabilization unit are the following:~~

- ~~removal of remaining waste inventory;~~
- ~~decontamination and removal of equipment and building structure;~~
- ~~dismantling of the tanks and secondary containment area; and,~~
- ~~sampling of soil beneath the floor to determine if contamination is present.~~

~~8.1.4.1 Removal of Inventory~~

~~Closure of the stabilization unit will commence with removal of any inventory remaining in the tanks according to standard procedures. The major steps of inventory removal equipment primary and secondary containment removal, and soil sampling will be identical to those described in Section 8.1.1.1. Remaining inventory will be stabilized and removed within 90 days after receipt of the final volume of hazardous wastes at the unit. The stabilized waste will be placed in roll-off containers and cured in accordance with the provisions of the Waste Analysis Plan in Section 4.0 prior to disposal in the landfill. The maximum possible inventory for the tanks, at the time closure is initiated, is equal to the working capacity of the unit (approximately one-third full) because adequate space must remain for addition of reagents and for mixing.~~

~~8.1.4.2 Decontamination of Equipment and Dismantling of Building Structure~~

~~Equipment in the area, such as waste mixing equipment or other ancillary equipment that may have contacted hazardous waste, will either be decontaminated and certified as clean or disposed of as hazardous debris. The building structure (roof and walls) is not expected to be contaminated with hazardous waste; however, the building will be decontaminated prior to dismantling. The building structure will be dismantled after cleaning~~

~~and will either be reused or recycled as scrap metal. Building components and associated reagent silos that did not contact hazardous waste will be dismantled and removed from the site. The equipment and building will be subject to the requirements of the closure sampling and analysis plan.~~

~~A high-pressure detergent wash and water rinse will be used to clean off all visible residue. The use of wash water will be limited to minimize the amount of waste generated. All decontamination solutions will be collected in containers or portable tanks. The decontamination solutions will be trucked to an approved off site facility for treatment. The expected volume of decontamination solutions that may be generated during closure of the stabilization unit is included in the liquid waste amounts shown in Table 8-1.~~

~~8.1.4.3 Dismantling of Tanks, Ancillary Equipment, Piping and Secondary Containment Area~~

~~The tanks, ancillary equipment, piping, concrete, and secondary containment system will be dismantled and removed as hazardous debris. Upon certification of compliance with the LDR requirements, the waste will be disposed in the landfill. The expected volume of solid hazardous waste that will be generated during closure is provided in Table 8-1.~~

~~8.1.4.4 Soil Sampling~~

~~After removal of the stabilization unit structure, tanks, piping, the bag house, and the containment system, soil samples will be collected and analyzed for RCRA characteristic properties and the constituents defined in Section 8.1 paragraph 2 of this permit application. Individual samples will be collected at locations specified by NMED at closure and at a frequency of one sample per 2,000 square feet in the entire stabilization unit area (i.e. one sample to be taken at the center of each 2,000 square foot grid). Sample results will be compared against the closure performance standard presented in Section 8.3.~~

~~8.1.5 Roll-off Storage Area~~

~~Closure of the roll-off storage area will be identical to closure of the drum handling unit, except that the roll-off storage area does not have a structure associated with it. The major steps of inventory removal, equipment decontamination, primary and secondary containment removal, and soil sampling will be identical to those described for the drum handling unit in Section 8.1. Details of the sampling and analysis program will be specified in a sampling and analysis plan providing information similar to that to be developed for the drum handling unit (see Sections 8.1.1.2, 8.1.1.3 and 8.1.1.4). Sample results will be compared against the closure performance standard presented in Section 8.3.~~

~~Estimated waste volumes for closure of the roll-off storage area are included in Table 8-1.~~

8.1.6 Landfill

This Part B Permit Application only includes the Phase 1A~~IA~~ portion of the landfill. Therefore, this Closure Plan only addresses Phase 1A. ~~IA.~~ If future expansions are required, they will be addressed in future permit modifications and will include revised closure plans.

At closure of the landfill, a final cover will be constructed with a permeability that is less than or equal to the permeability of the bottom liner. The final cover will consist of a three-layer cap design consisting of a vegetative cover, a geocomposite drainage layer, and a geomembrane and GCL barrier layer over a prepared subgrade, as described in Section 3.1.5. ~~of Volume III.~~ The final cover will meet the following requirements:

- The ~~the~~ vegetative cover will have a minimum thickness of 2.5 feet and final upper slopes of between 3 and 5 percent after settlement and subsidence of the waste. Native grasses will be planted.~~;~~

- The ~~the~~ drainage layer will have a transmissivity of greater than or equal to 2.2 x 10^{-4} square meters ~~squared~~ per second (m^2/s) and consist of an ~~a~~ HDPE geonet sandwiched between two geotextile layers (generally referred to as a geocomposite) and will be designed to allow lateral flow and discharge of liquids.~~;~~

- The ~~the~~ bottom layer will consist of a ~~an~~ 60-mil~~.~~ HDPE geomembrane layer and GCL with permeability of less than or equal to 5 x 10^{-9} cm/s~~centimeters per second~~ underlain by 6 inches of prepared subgrade and 1.5 feet of protective soil.~~; and,~~

- The ~~the~~ cover will be designed to function with minimum maintenance, including minimal erosion. The vegetative cover will be designed with a surface drainage system capable of conducting run-off across the cap without forming rills and gullies.

In addition, remaining water ~~and sediments~~ in the contaminated water basin (as shown on ~~in~~ Drawing 10, Filling Plan - Phase 1A), if the water cannot be eliminated through evaporation) will be removed, tested, and disposed of appropriately. Then, the contaminated water basin will be filled with soil and the cover will be constructed across this area. This will ensure that all lined areas of the landfill will be covered.

Prior to closure of the landfill, an assessment will be made of the landfill waste gas generating potential. This will be made from the quarterly landfill gas monitoring data that will be collected over the life of the landfill. Following closure, if it is concluded that gas generation may result in gas buildups beneath the barrier layer of the cover or releases that exceed regulatory air quality standards, then provisions will be made to collect and monitor gas generation and release during the post-closure period. If this occurs, the best available technology available will be implemented into the construction of the cover system. In this case, the NMED Secretary~~secretary~~ will be informed and shall approve a monitoring plan and any changes in the construction of the cover system.

Any leachate from the landfill will be pumped from the primary and secondary collection systems and, if detected, from the vadose zone monitoring sumps throughout the closure period and will continue throughout post-closure care. The leachate will be collected, sampled, and managed as hazardous waste, as appropriate. The leachate will be collected at a frequency appropriate to the rate at which it collects in the sump. As indicated in Permit Attachment P, Post-Closure Care~~Table 8-2~~, the collection sump will be inspected monthly until the sump remains dry for six months. Thereafter, the sump will be inspected semi-annually. Details of the leachate sampling and analysis program will be specified in a sampling and analysis plan.

After the landfill cap is completed, soil samples will be collected from outside the perimeter of the landfill cap to determine if any soil contamination is present. The sampling locations will primarily correspond to the transportation corridor used by waste hauling trucks during the active life of the landfill. In addition, samples will be collected at the landfill stormwater retention basin and within ditches directing flow to the basin.

It is proposed that individual samples be obtained along the haul roads at 100-foot intervals and at locations where visible staining is observed. Because the stormwater detention basin (Drawing 25, Surface Water Control Features) is lined with geomembrane, individual samples will be collected from there and its~~it's~~ associated drainage ditches at a frequency equivalent to 1~~one~~ per 40,000 square feet over the entire area (i.e., one sample to be taken at the center of each 40,000-square-foot grid). However, if the liner in the stormwater runoff basin is observed to be damaged, additional sampling may be required. Sample results will be compared against the closure performance standards presented in Section 8.3. If any contaminated materials are identified they will be excavated and removed to the landfill prior to placement of the final cover.

No later than the submission of the certification of closure of the landfill in compliance with 40 CFR §264.115, the Facility will submit to the local zoning authority and to the NMED, a survey plat indicating the location and dimensions of the landfill with respect to permanently surveyed benchmarks in compliance with 40 CFR §264.116. This plat will be prepared and certified by a professional land surveyor. The survey plat will contain a prominent note that asserts the Facility's obligation to restrict disturbance of the hazardous waste disposal unit. The Facility will also record a notation on the deed to the Facility property in compliance with 40 CFR §264.119(b)(1), to notify any potential purchasers of the property that (1) the land has been used to manage hazardous wastes; (2) use of the land is restricted to activities that will not disturb integrity of the final cover system or monitoring system during the post-closure care period; and (3) the survey plat and record of waste disposal have been submitted to the local zoning authority and to ~~the~~ NMED.

A record of the type, location, and quantity of hazardous wastes disposed of within the disposal unit will be submitted to the local zoning authority and to the NMED no later than 60 days after certification of closure of the landfill in compliance with 40 CFR §264.119(a).

The vadose zone monitoring wells will be sampled and analyzed in accordance with the procedures that are presented in Section 3 of the permit application. The frequency of sampling and parameters to be tested are outlined in Section 3.

8.1.7 Closure of Non-Waste Management Units

Other areas within the facility boundary which have the potential to become SWMUs~~Solid Waste Management Units~~ during the operational life of the facility will be closed in accordance with the requirements of the closure sampling and analysis plan. Those non-waste management units~~ having structures or liners~~, such as the maintenance shop~~truck wash~~ and stormwater detention~~the storm water collection~~ basin ~~(Drawing 10)~~ will be sampled to verify the absence of contamination prior to closure and removal. If the non-waste management units' structures or liners show contamination~~contaminated~~ they will be managed in accordance with the requirements of this closure plan. If contamination is not present they will be disposed of as solid waste.

After removal of the structures, other appurtenances, and liner the areas will be contoured and revegetated as necessary.

8.2 Post-Closure Activities

Post-closure care involves long-term maintenance, monitoring, and reporting of activities that are carried out after closure is completed. Post-closure care is anticipated to be needed only for the landfill after closure. ~~However, if clean closure cannot be certified for any unit components or secondary containment areas associated with the drum handling unit, liquid waste storage area, stabilization unit, evaporation pond, or roll-off storage area, then those closure activities that have been completed will be certified and a permit modification request will be submitted to NMED to include post-closure activities for those portions of the units that do not meet the closure performance standard.~~

The post-closure care period for the landfill will begin after completion of closure activities and continue for an anticipated 30 years. Inspection, maintenance, and repair activities to be conducted during post-closure are described in the following sections. The schedule for performing inspections is shown in Table 8-1~~2~~, Post-Closure Inspection Schedule.

8.2.1 Security Systems

As shown in Facility Drawing Number 4, the Facility perimeter fence encloses the entire 480 -acres of the Facility.- The fence and warning signs mounted on the fence will be inspected and maintained throughout the post-closure period. Monthly inspections will include checking the condition of fencing, locks, gates, and warning signs. Any signs of unauthorized entry will be reported to the local sheriff's office and NMED. Routine maintenance will be performed based on inspection findings to repair or replace damaged or deteriorating items.

8.2.2 Landfill Final Cover

The integrity and effectiveness of the landfill final cover will be maintained, including making necessary repairs to correct the effects of settling, erosion, water damage, animal damage, or other events.- The landfill cover will be inspected quarterly. -Inspections will include checking for signs of cracking, subsidence, ponding water, erosion, burrowing animals, or deep-rooted vegetation. Repairs will be scheduled in a timely manner upon noting deficiencies in order to ensure that the final cover maintains its effectiveness.

General maintenance will include the following activities:

- fertilizing the vegetation periodically;
- re-establishing damaged or sparse vegetative cover, including seeding and fertilizing;
- conducting erosion damage repair, including soil excavation, transport and placement, seeding and fertilizing;
- regrading as needed to overcome the effects of subsidence or to repair areas where ponding is occurring; and~~;~~
- providing rodent control as needed, including trapping and relocating animals and repairing damage caused by burrowing.

Soil for erosion repair and regrading will be excavated from unused on-site areas ~~onsite~~ and transported to the cap area for use in maintenance activities.

8.2.3 Perimeter Diversion Ditch

The perimeter diversion ditch (as shown in Permit Attachment L1 on Drawings 22 and 25) will be inspected and maintained throughout the post-closure period to ensure its designed functions to divert precipitation and run-on from the landfill area are met. Inspections will be conducted quarterly and will include checking for accumulated sediments and debris, and signs of erosion. Repairs will be scheduled in a timely manner, upon deficiencies being noted, to ensure that the diversion ditch maintains its effectiveness.

General maintenance activities will include diversion ditch cleaning to remove accumulated sediments and debris, and regrading, as needed, to repair the effects of erosion.

8.2.4 Leachate Management System

8.2.4.1 Leachate Collection System

The leachate collection system will be operated when necessary to ensure leachate depth over the liner does not exceed 30 centimeters (cm) (1 foot) until the completion of post-closure care. Leachate pumps will be operated at least quarterly. The site log will be kept on-site or at a location approved by the NMED

Secretary. The volume of leachate pumped will be recorded in a site log. After records indicate that the sump has remained dry for six months, the frequency of inspection and operation of the sump pumps will be changed to semi-annually. Any leachate collected will be pumped to an above-ground storage tank.

The leachate collection system will be inspected quarterly or semi-annually as described in the preceding paragraph. Pumps will be inspected for proper operation. The riser pipes, grout seals, and other visible above-ground portions of the system will be inspected for integrity. The level of liquid in the sumps will be measured prior to pumping out accumulated leachate.

Routine maintenance will be conducted to ensure that the leachate collection system remains operable. Locking caps and standpipe grouting will be repaired or replaced as necessary. Accumulated sediments or sand in the standpipes will be removed as necessary to enable the system to function properly. Based on the amount of leachate collected over time, a determination will be made about the integrity of the collection system. If a system is suspected of being clogged, an assessment by a New Mexico registered professional engineer will be made. All repairs will be made according to the New Mexico registered professional engineer's assessment and upon approval by NMED.

8.2.4.2 Management of Leachate

During the post-closure care period, leachate pumped from the collection system will be temporarily stored in an above-ground tank. The leachate will be sampled and managed at an off-site facility as hazardous waste, as appropriate. Details of the leachate sampling and analysis program will be specified in a sampling and analysis plan.

8.2.4.3 Leak Detection System

During the post-closure care period, the leak detection system beneath the landfill primary liner will initially be monitored and inspected quarterly to ensure that it is operating correctly and that any leachate that has migrated through the primary liner is collected and removed. As with the primary leachate system, the volume of leachate pumped from the secondary leak detection system will be recorded in a site log. After records indicate that the sump has remained dry for six months, the frequency of inspection and operation of the leak detection system will be changed to semi-annually.

Inspections and maintenance will be equivalent to those described for the leachate collection system (see Section 8.2.4.1).

8.2.5 Vadose Zone Monitoring System

The VZMS~~vadose zone monitoring system~~ will be maintained and monitored throughout the post-closure care period. The following sections outline the post-closure monitoring plan for this system. The VZMS~~vadose zone monitoring system~~ is described in Permit Attachment I, Vadose Zone Monitoring System Work Plan,~~Section 3~~ and consists of a vadose zone sump in the landfill and vadose zone monitoring well network. ~~wells along the eastside of the facility.~~

8.2.5.1 Sampling and Analysis

Vadose zone monitoring will be conducted semi-annually to test for the presence of contaminants in the unsaturated sediments hosting the landfill. Sampling procedures and analytical parameters will be defined according to the Vadose Zone Monitoring System Work Plan (Permit Attachment I~~Volume II, Appendix N~~) and will follow the same guidelines used during the active life of the Facility.

8.2.5.2 Inspection and Maintenance

The visible above-ground portions of the vadose zone monitoring system will be inspected semiannually for integrity. Routine maintenance will be conducted to ensure that the vadose zone monitoring system remains in operable condition. System equipment will be repaired or replaced as necessary.

8.2.6 Recordkeeping

A post-closure Facility record will be maintained. This record will include the dates and times of inspections, inspection findings, name of inspector, volumes of leachate pumped, disposition of leachate, sampling results of leachate and vadose zone samples, and dates and nature of any corrective actions taken.

8.2.7 Certification of Post-Closure

Within 60 days after completion of the established post-closure care period for the Facility, the permittee will submit to NMED a certification that the post-closure operations were performed in accordance with the approved post-closure plan in compliance with 40 CFR 264.120. The certification will be signed by the permittee and an independent New Mexico registered professional engineer.

8.2.8 Amendment of Plan

The permittee will submit a permit modification request for changes to the post-closure plan if changes in operating plans or Facility design, or events that occur during the active life of the Facility, affect the approved post-closure plan. The owner or operator may also request a modification to the post-closure plan at any time during the active life of the Facility or during the post-closure care period. Permit modification requests will be submitted at least 60 days prior to a proposed change in Facility design, or no later than 60 days after an unexpected event which affects the post-closure plan.

If clean closure cannot be certified for any non-waste management unit components~~ or secondary containment areas associated with the drum handling unit, tank storage area, stabilization unit, evaporation pond, or roll- off storage area~~, then the post-closure care permit will be amended to include those portions of the units that do not meet the closure performance standard. The post-closure care plan amendments will be submitted to NMED no later than 90 days after the owner or operator determines that the non-~~hazardous~~ waste management unit must be closed as a regulated unit~~landfill~~.

8.2.9 Facility Post-Closure Contact

During the post-closure care period, the Facility contact organization will be the following:

Gandy Marley, Inc.
P.O. Box 1658
Roswell~~1109 East Broadway~~
~~Tatum~~, New Mexico 88202~~88267~~
(575) 347-0434

~~(505) 398-4960~~

8.3 Closure Performance Standard

The RCRA closure performance standard (40 CFR 264.111) specifies that hazardous waste facilities are to be closed in such a way as to minimize the need for further maintenance at the Facility and protect human health and the environment by controlling, minimizing, or eliminating potential releases of hazardous waste to the environment. The Facility will meet~~adopt~~ a clean-closure performance standard for all non-waste management units except the landfill and will not impact any environmental media in excess of agency-approved background~~established exposure~~ levels or pose a threat to human health or the environment.

~~The Facility-specific clean-closure performance standard for the drum handling unit, roll-off storage area, tank storage area, stabilization unit, and evaporation pond is based on sampling soil from beneath the units.~~ The landfill will not be clean-closed; therefore, the Facility-specific, clean-closure performance standard is not applicable.

Indicator parameters will be selected and approved by NMED ~~for each unit~~ at closure. These parameters will be representative of the wastes disposed of~~stored and/or treated in that unit~~ during the Facility~~its~~ operating life. The waste information used to make these selections will be based upon the Facility operating record. For soil, analytical results that show that these concentrations of contaminants of concern are within a statistically significant range relative to clean background soil as determined by NMED will constitute demonstration of clean closure. Clean background samples will be obtained from the alluvium unit and from the Upper and Lower Dockum units from each of the vadose zone monitoring well borings, for a total of six background samples per stratigraphic unit. If the alluvium is not present at a specific vadose zone monitoring well boring location, a surface sample from the southern portion of the site shall be substituted for the sample. Each sample will be submitted to an analytical laboratory for chemical analysis of ~~priority pollutant~~ metals listed in 40 CFR 264, Appendix VIII, using EPA SW-846 analytical methods or equivalent methods approved by NMED.

~~8.4 Closure Schedule~~

~~Closure of all units at the Facility will be initiated when the landfill nears its final capacity because the other units exist only to support landfill disposal activities. In other words, the drum handling unit, roll-off storage area, liquid waste receiving and storage unit, stabilization unit, and evaporation pond will not continue to operate after the landfill has reached capacity and is no longer in use. Closure is expected to begin when the landfill is nearing final capacity, allowing enough capacity in the landfill to dispose of all solid wastes generated on site during closure activities. Expected waste volumes that will be generated during closure are shown in Table 8-1.~~

~~At the time of final Facility closure, the drum-handling unit will be closed first, as wastes from this area may need to be processed through the stabilization unit prior to disposal onsite. Concurrent with the closure of the drum-handling unit, the evaporation pond closure will begin because sludge from the pond must also be treated in the stabilization unit. After closure of the evaporation pond begins, the leachate from the landfill will be collected in tanks and shipped off site for proper disposal at a permitted facility. Following closure of the drum-handling unit and during evaporation of the liquid in the ponds, the liquid waste receiving and storage unit will be closed. After the pond sludge has been removed and treated, the stabilization unit will be closed, and last the roll-off storage area will be closed. The landfill cover will be constructed when all closure wastes have been placed in the landfill.~~

~~Notification will be provided to the NMED in writing at least 60 days prior to beginning closure of a hazardous waste management unit or of the entire Facility. Closure of the drum handling unit, liquid waste receiving and storage unit, stabilization unit, and roll-off storage area will proceed sequentially, and each closure will be completed within 180 days.~~

~~The closure regulations allow a period of 180 days from receipt of the final volume of waste at each unit for closure activities to begin, [per 40 CFR Section 264.113(6)(1)] The closure period can be extended with approval from NMED and if the owner or operator complies with 40 CFR §264.113(d).~~

8.5 Certification of Closure

Within 60 days of completion of closure~~ of each unit, and within 60 days of completion of final Facility closure~~, the Facility will submit to NMED~~,~~ a certification that the~~each~~ hazardous waste management unit has been closed in accordance with the approved closure plan in compliance with 40 CFR §264.115. The closure certification ~~for each unit~~ will be signed by the owner/operator and by an independent New Mexico registered professional engineer.~~ Post-closure will also be certified at the end of the 30-year post-closure care period in compliance with 40 CFR §264.120.~~

8.6 Modifications to the Closure Plan

After this closure plan is approved, it will be amended whenever it is affected by changes in operating plans or Facility design. While conducting partial or final closure activities, unexpected events may be identified that also require amendment of the approved closure plan. Requests for modification will be made within 30 ~~30~~ days of identifying an event that justifies plan modification.

8.7 Closure Cost Estimate~~s~~

The closure costs are described in the following sections.

8.7.1 Closure Costs

A landfill closure cost estimate is provided in Permit Attachment O2. The original landfill closure cost estimate included in the March 2002 Triassic Park Waste Disposal Facility permit was ~~Table 8-3 summarizes the closure cost estimates for the drum handling unit, roll-off storage area, liquid waste receiving and storage unit, stabilization unit, evaporation pond, and landfill closure. These estimates are~~ based on 2000 dollars. The landfill closure cost estimate presented in this permit modification has been updated to account for inflation using the change in the Consumer Price Index (CPI) between 2000 and 2011 (U.S. Department of Labor CPI, 2011). Using the CPI, the 2011 costs are 32 percent higher than those from 2000. After the Facility is constructed and operations begin, the landfill closure cost estimate will be updated annually as required in 40 CFR Part 264.142(b).

Table 8-2 summarizes the closure cost estimate. The landfill closure cost estimate is~~These estimates are~~ based on costs for closure when the Facility is ~~each unit is~~ at maximum capacity, which is the point in the Facility's active life when the extent and manner of its operation would make closure the most expensive. As required in 40 CFR Part 264.142(a)(2), landfill closure cost estimate is~~cost estimates are~~ based on the costs of hiring a third party to close the Facility. ~~Costs for onsite disposal are used in this cost estimate because Facility closure will be scheduled when sufficient landfill capacity remains to handle closure wastes. The maximum volume of waste that the Facility is projected to generate through closure activities is shown in Table 8-1.~~

8.7.2 Post-Closure Costs

Table 8-3~~4, Landfill Post-Closure Cost Estimate,~~ summarizes the post-closure cost estimate for the landfill. The costs include 30 years of monitoring and maintenance activities, as described in Section 8.2 and Permit Attachment P, Post-Closure Care. The original post-closure cost estimate included in the March 2002 Triassic Park Waste Disposal Facility permit~~. These~~ estimates are was based on 2000 dollars. The post-closure cost estimate presented in this permit renewal application has been updated to account for inflation using the change in the Consumer Price Index (CPI) between 2000 and 2011 (U.S. Department of Labor CPI, 2011). Using the CPI, the 2011 costs are 32 percent higher than those from 2000. All 2000 costs were increased by 32 percent for purposes of this analysis. After the Facility is constructed and operations begin, the post-closure cost estimate will be updated annually as required in 40 CFR Part 264.144(b).

8.8 Financial Assurance

The treatment, storage and disposal facility standards found in 40 CFR 264 require facilities to establish and maintain financial assurance for three areas prior to operation. 40 CFR 264.143 defines the standards for financial assurance for closure, 40 CFR 264.145 defines the standards for post- closure care, and 40 CFR 264.147 defines the liability requirements for coverage of accidental occurrences. The financial instruments selected to provide coverage for these three requirements must be implemented and submitted to the NMED at least 60 days prior to the initial receipt of waste.

8.8.1 Financial Assurance for Closure

40 CFR 264.143 defines the standards for financial assurance for closure. The financial instrument selected to provide coverage for this requirement must be implemented and submitted to the NMED at least 60 days prior to the initial receipt of waste.

Upon receipt of the final permit for the Facility, GMI will evaluate and select one of the financial instruments defined in 40 CFR 264.143 to provide financial assurance for the closure of the Facility. Selection of one of the following six financial instruments will consider the effectiveness and economics of the particular options. The instruments defined in the regulations are:

- ~~1.~~ Financial test and corporate guarantee for closure
- ~~2.~~ Closure trust fund
- ~~3.~~ Surety bond guaranteeing payment into a closure trust fund
- ~~4.~~ Surety bond guaranteeing performance of closure
- ~~5.~~ Closure letter of credit
- ~~6.~~ Closure insurance

The appropriate instrument will be selected, implemented, and submitted a minimum of 60 days prior to the initial receipt of waste as required by 40 CFR 264, Subpart H~~the regulations defined in this subpart~~.

8.8.2 Financial Assurance for Post-Closure Care

Similar to the financial assurance requirements for closure activities, the Facility is required to provide assurances for the post-closure care of the Facility. Upon receipt of the final permit, and 60 days prior to the initial receipt of waste, the owner/operators will provide the appropriate financial instrument to fulfill this requirement. Selection of the instrument to be used will be based upon economic and performance considerations. The financial instruments allowed by this subpart of the regulations are listed in Section 8.8.1.

8.8.3 Liability Requirements

As stated in 40 CFR 264.147, an owner or operator of a hazardous waste treatment, storage, or disposal facility must demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden accidental occurrences which arise from the operation of the facility. This section of the regulations requires that the owner/operator of such a facility provide the administrator one of the following instruments at least 60 days prior to the initial receipt of waste:~~;~~

1. Liability insurance
2. Financial test
3. Letter of credit
4. Surety bond
5. Trust fund
6. Combination of the above

GMI will submit required documentation demonstrating financial assurance to meet the liability requirements at least 60 days prior to receiving the first hazardous waste at the Facility. The financial assurance mechanism will comply with requirements in 40 CFR Part 264.147.

9. Waste Management

The purpose of this section is to describe the Facility Waste Minimization (WM)/ Pollution Prevention (P2) Program, which will be an organized, comprehensive, and continuous effort to systematically reduce waste generation during the life of the Facility. As such, the program will be ever-changing and expanding to incorporate new or more effective WM/P2 opportunities as they are developed. The level of detail in this description of the WM/P2 Program is commensurate with the level of detail currently available with respect to day-to-day operation of the Facility.

The Facility is committed to the prevention of all forms of pollution and the minimization of all wastes generated at its hazardous waste landfill. Source reduction of waste is the company's highest waste minimization priority, followed by recycling and reuse.

For an industrial facility, such as the Facility, a Waste Minimization Program is an important link to providing increased protection of public health, employee health, and the environment. As part of its WM/P2 Program, the Facility will develop a detailed WM/P2 Program Plan as soon as the intricate details of Facility operation are more clearly defined.

It is anticipated that only insignificant amounts of waste will be generated from site operations. Leachate and wastewater may be generated from the wastes placed in the landfill and from precipitation events. Other wastes that may be generated include waste oils and other maintenance wastes, office wastes, soil and debris from spills, personal protective equipment, excess chemicals, and freon. Not all of these wastes are expected to be hazardous. All site-generated waste will be stored, treated, recycled, reused, and/or disposed of in accordance with applicable regulations. Waste minimization/pollution prevention efforts will be focused on all forms of waste, not just those wastes defined as hazardous in the New Mexico Hazardous Waste Management Regulations.

Waste minimization focuses on reducing the amounts and toxicity of waste materials generated from any process or other plant activity and on reusing, recycling, or reclaiming waste materials for future use and benefit. It should be noted that the terms waste minimization and pollution prevention will be used somewhat interchangeably throughout this section. However, the terms have distinctly different meanings, as defined below:

Waste Minimization

Waste minimization is the reduction, to the extent feasible, of the amounts and toxicity of waste materials after they are generated from any process or other activity. Primary waste minimization techniques include reuse, recycling, or reclamation of waste materials for future use and benefit.

Pollution Prevention

Pollution prevention is the use of any process, practice, or procedure to prevent the generation of waste. Examples of primary pollution prevention techniques include material substitutions (e.g., nonhazardous materials used in place of hazardous materials), process changes, and procedural improvements.

9.1 Brief History of WM/P2 in the United States

Current trends in environmental policy and regulation indicate a move from pollution control to pollution prevention and waste minimization in the private sector. Throughout the 1980s, the United States became increasingly aware of the environmental damage and restoration costs associated with past improper disposal of hazardous wastes. In the 1984 HSWA to RCRA, Congress declared that it is:

> . . . the national policy of the United States that; wherever feasible, the generation of hazardous waste is to be reduced or eliminated as expeditiously as possible. Waste that is nevertheless generated should be treated, stored, or disposed of so as to minimize present and future threat to human health and the environment. From HSWA, Congress clearly intended a hierarchy of actions for managing the nation's waste problems, with priority given to reduction or elimination of waste over treatment, storage, and deposal of waste after it has been generated.

The Pollution Prevention Act of 1990 expanded this concept to include all forms of environmental pollution. This statute calls pollution prevention a "National Objective" and establishes a hierarchy of environmental protection priorities as national policy. The order of priority is summarized as follows:

1. Reduction or elimination of waste prior to generation (source reduction) is the best option.
2. Recycling and reuse of waste that is generated is the second best option in cases when pollution cannot be prevented.
3. Treatment (reclamation or toxicity reduction) of waste that is generated is the next best option in cases where feasible prevention and recycling opportunities are not available or possible.
4. Disposal of generated waste is the least desirable option.

9.2 Purpose and Objectives of the Facility WM/P2 Program

The purpose of this section is to describe the Facility WM/P2 Program. This Program will establish the strategic framework for integrating waste minimization and pollution prevention into all Facility activities. The objectives of the Program are the following:

- raising employee awareness about the reasons for and benefits of a WM/P2 Program and instilling a desire to minimize waste at the lowest organizational levels possible;
- describing planned initiatives that support and promote WM/P2 through various training opportunities, including recycling, reuse, and recovery programs, and good housekeeping practices;
- adapting and implementing existing technologies as rapidly as possible to reduce waste generation at the source and to recycle waste products; and~~;~~
- reducing all forms and categories of waste to the lowest extent practical.

9.3 Benefits of the Facility WM/P2 Program

The Facility WM/P2 Program, like all effective waste minimization programs, will yield numerous benefits and advantages, which are either tangible or intangible. Some of these benefits are listed below:

- reduced waste management costs, including labor and disposal costs;
- reduced regulatory compliance costs, including inspection costs and possible fines;
- reduced raw material costs;
- reduced potential for releases of hazardous chemicals and wastes;
- increased worker safety; and~~;~~
- reduced civil and criminal liabilities under environmental laws.

9.4 Elements and Goals of the Facility WM/P2 Program

As previously mentioned, the Facility will continue to expand and refine its WM/P2 Program during the life of the Facility. The elements of the Program include those methods commonly used to form the baseline, or starting point, for effective WM/P2 Programs. The elements and goals of the Program are listed below as action-items to be completed during the initial phases of Facility operations. Such listings are standard practice in the industry since many of the elements, waste generation levels for example, cannot be determined until after the Facility begins operation. The personnel tasked with oversight of this program will also oversee the planning, development, and implementation of the WM/P2 reduction methods and activities outlined below.

- Develop~~develop~~ and establish a written policy statement that describes why the WM/P2 Program is being implemented, how it will be implemented, and who will implement it. The policy statement will be issued from the highest level of management. The policy will be provided to each employee at the start of employment and will be reviewed during RCRA training and annual refresher training.~~;~~
- Assign~~assign~~ Facility personnel to oversee, plan, develop, and implement the elements of the WM/P2 Program.~~;~~
- Establish ~~establish~~ support for the program at all levels in the company.~~;~~
- Determine~~determine~~ a waste generation baseline at the site and establish a tracking method and waste minimization goals.~~;~~
- Establish~~establish~~ a procurement control program to ensure the purchase of environmentally friendly materials and products while preventing the procurement of prohibited items from the site; the Facility will endeavor to reduce or eliminate the use of hazardous materials from its operations.~~;~~
- Establish~~minimize the quantities of virgin products and raw materials allowed such as sorbents and other materials used in the stabilization process into the landfill. The Facility will endeavor to utilize other wastes (e.g., fly ash) in the stabilization process rather than virgin materials;~~
- ~~establish~~ reuse, recycling, recovery, and conservation programs to minimize the volume of generated waste requiring disposal or treatment; examples of such programs include paper, aluminum cans, cardboard, scrap metals, oil, batteries, and surplus materials and chemicals.~~;~~
- Establish~~establish~~ good-housekeeping practices that promote WM/P2; an example of this type of practice is the requirement to remove packaging materials from chemicals, products, and equipment before they are introduced into the disposal area or contamination-control areas to avoid cross contamination.~~;~~
- Establish~~establish~~ a WM/P2 awareness program and train employees, as appropriate.~~;~~
- Prepare~~prepare~~ a WM/P2 plan and update it annually or as appropriate.~~;~~
- Perform~~perform~~ an assessment of waste minimization/pollution prevention opportunities; an example of this type of opportunity is: installation of air conditioning refrigerant reclamation systems.~~; and,~~
- Determine~~determine~~ the feasibility of implementing the WM/P2 projects and proceed as appropriate with project implementation.

9.5 Proposed Elements of the Facility WM/P2 Program Plan

The Facility will establish a WM/P2 Program Plan when operational details of the Facility, such as the chemical and equipment procurement processes and the actual level of waste generation, are determined. The WM/P2 plan will include the following elements, as appropriate:

- the written policy statement for WM/P2;
- a description of the roles and responsibilities of Facility personnel with respect to WM/P2 and a brief description of how Facility groups will work together to reduce waste generation and energy consumption;
- a plan or method for publicizing and gaining support for the program and communicating the successes and failures of waste minimization efforts (i.e., employee awareness program);
- a description of how employees will be informed about WM/P2 requirements and expectations (possibly within the context of other Facility training courses);
- a description of waste-generating processes, including a clear definition of the types and quantities of materials generated from each process;
- a description of recycling, reclamation, treatment, and disposal programs used by the Facility and the types of wastes and materials that are included in these programs;
- descriptions of other WM/P2 programs and initiatives;
- reporting requirements;
- a description of WM/P2 goals for the Facility;
- a description of the Facility's chemical and material procurement process;
- a review of the costs of waste management and disposal, both on-site and at other facilities;
- criteria for prioritizing candidate WM/P2 processes, activities, and waste streams for future implementation; and~~,~~
- an evaluation of the effectiveness of the WM/P2 Program and activities.

10. Corrective Action

It is unlikely that releases of hazardous waste or hazardous waste constituents have occurred on the site of the proposed Facility. This is based on an evaluation of (1) the site history; (2) reconnaissance of the site conducted as part of site characterization activities; and (3) a records review, which are described in the following paragraphs.

The current property owner is GMI, who~~Marley Ranches Inc. Marley Ranches~~ has owned the property since 2000. The prior owner was Marley Ranches Inc., who owned the property since 1967 and ~~has~~ used it primarily for grazing of livestock. ~~The previous owner, owned the property for two generations. Under the previous owner the property was used primarily for grazing of livestock.~~

The primary site characterization activities included drilling programs conducted in July 1993, September 1993, and July 1994. Supplemental investigations were also carried out in July 1995 and August 1999. Reconnaissance of the site was conducted as part of the site characterization activities and no evidence found of hazardous waste releases or hazardous constituents.

New Mexico Oil Control Division records were reviewed. An intermittent land use in the area is exploratory drilling for oil and gas wells. The record review indicated that there are no abandoned wells within the proposed Facility boundary, and the nearest production well is approximately 3 miles from the proposed site. In addition, aerial photographs of the site were reviewed. The review did not provide any indication of releases or structures or activities that could be a source of releases.

The NMED~~New Mexico Environment Department~~ conducted a RCRA Facility Assessment (RFA) in 1995. An RFA Report was prepared in September 1995. The RFA report identified several potential future SWMUs, including:

- ~~the drum handling unit;~~
- ~~roll-off storage area;~~
- ~~the liquid waste receiving and storage unit;~~
- ~~the stabilization unit;~~
- ~~the evaporation pond;~~
- the landfill;
- ~~the truck wash unit;~~
- the maintenance shop;
- the chemical laboratory;
- the stormwater detention~~retention~~ basin;
- the untarping, sampling, and weigh scales area;
- the truck staging area;
- ~~the future debris encapsulation unit;~~
- ~~the future waste processing area;~~

- all roads, including those leading to the Facility;
- the clay processing area; and~~,~~
- the dust control/clay processing water basin.

No releases have occurred at these areas of concern because the structures do not exist and no Facility activities have occurred. The corrective action requirements, as specified in 40 CFR 264 Subpart F and the requirements specified in the corrective action module of the permit will not be implemented unless evidence of a release from a waste management unit is identified in the course of future groundwater or vadose zone monitoring, field investigation, environmental audits, or other means.

The Facility will respond to any emergency in accordance with the Contingency Plan provided in Section 6~~.0~~, including notification and reporting. Specifically, any release which threatens human health or the environment must be reported to NMED within 24 hours of its detection, and any time the Contingency Plan is implemented. However, in some cases, such as small amounts of materials being released from SWMUs into contained buildings or onto impervious surfaces that are immediately cleaned up, a release from a SWMU will not trigger reporting under the Contingency Plan.

All releases and response actions will be documented in the Facility operating record. Corrective action in response to any release will be implemented in accordance with the corrective action module of the permit.

11. 40 CFR 264 Subpart AA, BB & CC Regulations

This section provides a brief summary of the air requirements, as presented in 40 CFR 264 subpart AA and BB. In addition, this section provides a brief summary of other regulations which may be applicable to the Facility.

11.1 40 CFR 264 Subpart AA – Air Emissions for Progress Units

The Facility will not be subject to the 40 CFR 264 Subpart AA regulations because the Facility will not utilize distillation, fractionation, thin-film evaporation, solvent extraction, air or steam stripping operations.

11.2 40 CFR 264 Subpart BB – Air Emission Standards for Equipment Leaks

No~~Because~~ wastes with organic concentrations greater than 10 percent by weight shall~~will not~~ be ~~accepted for storage in the liquid waste storage unit, treated in the evaporation pond, treated in the stabilization unit, stored in containers, or~~ placed in the landfill. Units in compliance with this provision ~~these units~~ will not be subject to 40 CFR 264 Subpart BB regulations. Equipment~~Therefore, equipment~~ such as pumps, compressors, pressure relief devices, sampling equipment, connecting system, and valves shall ~~will~~ not contain or contact hazardous wastes with organic concentrations of 10 percent or greater by weight.

~~11.3 40 CFR 264 Subpart CC — Air Emissions Standards for Tanks, Surface Impoundments and Containers~~

~~The Facility will not be subject to the Subpart CC requirements for tanks and evaporation ponds because these units will not be used to manage wastes containing volatile organic concentrations greater than 500 parts per million by weight (ppmw).~~

~~Drums and roll-off containers may hold hazardous waste that contains greater than 500 ppmw volatile organic compounds. These wastes will be stored in containers with appropriate covers (see Section 11.3.2).~~

~~11.3.1 Waste Determination~~

~~A waste determination will only be conducted for each waste stream to be placed in a unit that is exempt from the Subpart CC requirements for air emission controls (e.g. the evaporation pond). The waste determination shall be made at the point of waste origination. In general, the Facility will use generator-supplied information (manifests, shipping papers, certification notices etc.) prepared in accordance with 40 CFR 264.1083 to make this determination, however, the Facility may choose to test a representative sample of the waste. For waste to be placed in units that comply with Subpart CC requirements for air emission controls, no formal waste determination is required.~~

~~11.3.2 Applicability to Containers~~

~~There are two types of containers expected to be used at the Facility to store wastes: (1) drums and (2) roll-off containers. These containers may hold hazardous waste that contains greater than 500 ppmw volatile organic compounds. These drums and roll-off containers stored at the Facility will have covers and meet DOT requirements for packaging of hazardous waste for transport under 49 CFR 178. Potential air pollution, from containers that hold hazardous waste with greater than 500 ppmw volatile organic compounds, will be controlled in accordance with the standards specified in CFR 264.1086(d).~~

~~11.3.3 Applicability to the Evaporation Pond~~

~~The Facility will not accept waste to be placed in the evaporation pond that contains greater than 500 ppmw volatile organics. Therefore, the evaporation pond is exempt from air emission control requirements specified in Subpart CC.~~

~~11.3.4 Applicability to Tanks~~

~~The waste storage tanks will not be subject to the Subpart CC requirements for inspection, monitoring, and emission controls because this unit will not be used to manage wastes containing volatile organic concentrations greater than 500 parts per million by weight (ppmw)~~

~~11.3.5 Applicability to the Stabilization Process~~

~~The concentration of volatile organics in the waste to be stabilized will be limited to less than 500 ppmw. Final design documentation will be included as part of the operating record for the Facility.~~

~~11.3.6 Inspection and Monitoring~~

~~A written plan and schedule will be developed and implemented to perform all inspection and monitoring in accordance with 40 CFR 264.1088(b).~~

~~11.3.7 Recordkeeping and Reporting~~

~~Recordkeeping and reporting will be conducted in accordance with 40 CFR 264.1089 and 264.1090, respectively.~~

~~11.3.7.1 Recordkeeping~~

~~The following records will be kept:~~

- ~~waste determinations;~~
- ~~inspection and monitoring results;~~
- ~~design specifications for closed vent systems and control devices;~~
- ~~control device exceedances and corrective action; and,~~
- ~~leak repair information.~~

~~11.3.7.2 Reporting~~

~~If the Facility becomes aware that an exempt unit has received hazardous waste containing greater than 500 ppmw volatile organic compounds, the regulatory agency will be notified within 15 days. In accordance with 40 CFR 270.30, if continuous emission monitoring is used at the exempt unit holding hazardous waste with greater than 500 ppmw volatile organic compounds a semi-annual report will be provided that indicates each time the unit is operated in non-compliance over a 24 hour (or more) period of time. This report will not be provided if the unit remains in compliance during the entire 6- month reporting period.~~

11.4 Other Applicable Regulations

There are a number of other federal regulations which will apply to the Facility. Once the Facility has received a final permit and the configuration and operational aspects are finalized (it is possible that some minor changes to the Facility configuration and operation will occur as a result of the final permit) other regulations will be evaluated. Some of the regulations that will be evaluated are:

- National Pollution Discharge ~~and~~ Elimination System;
- Clean Water Act;
- Clean Air Act; and
- Occupational Safety and Health Administration regulations.

The regulations listed above will be evaluated for their applicability to the Facility. In addition to these federal regulations, the Facility will evaluate numerous state, county, and local regulations. GMI~~GMT~~ will ensure that the Facility is designed, constructed, and operated in compliance with all applicable regulations.

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Permit Revisions

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PERMIT PART 1

GENERAL PERMIT CONDITIONS

HIGHLIGHTS

This Part sets forth the standards and conditions that every owner/operator of a hazardous waste storage, treatment, and/or disposal facility (TSDF) is required to meet, in order to manage, store, and dispose hazardous waste in a manner protective of human health and the environment under the New Mexico Hazardous Waste Act (the HWA) and the Resource Conservation and Recovery Act (RCRA).

1.1 EFFECT OF PERMIT

The Secretary of the New Mexico Environment Department ~~–~~(the Secretary) issues this permit to Gandy Marley, Inc., the owner and operator of the Triassic Park Waste Disposal Facility (Environmental Protection Agency (EPA) I.D. No. NM0001002484). This Permit authorizes Gandy Marley (the Permittee) to ~~treat, store, and~~ dispose of off-site hazardous waste at the Triassic Park Waste Disposal Facility (the Facility), and establishes the general and specific standards for these activities, pursuant to the New Mexico Hazardous Waste Act, NMSA 1978, 74-4-1 to 74-4-14 (Repl. Pamp. 2000) and the New Mexico Hazardous Waste Management Regulations, 20.4.1. NMAC.

Compliance with this Permit during its term shall constitute compliance, for purposes of enforcement, with Subtitle C of RCRA, and/or the HWA, and/or their implementing regulations. Compliance with this Permit shall not constitute a defense to any order issued or any action brought under Sections 74-4-10.E, 74-4-10.1, or 74-4-13 of the HWA; Sections 3008(a), 3013, 7002(a)(1)(B), or 7003 of RCRA; the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. 9601 et seq.; or any other law providing for protection of public health or the environment. This Permit does not convey any property rights or any exclusive privilege, nor authorize any injury to persons or property, any invasion of other private rights, or any infringement of State or local laws or regulations. [20.4.1.900 NMAC (incorporating 40 CFR 270.4(a) and 270.30(g))]n

1.2 PERMIT ACTIONS

1.2.1 Term of Permit

This Permit shall be effective for a fixed term not to exceed ten years from the effective date of issuance as specified in the Permit certificate. [20.4.1.900 NMAC (incorporating 40 CFR 270.50(a))]

1.2.2 Permit Renewal

The Permittee may request a renewal of this Permit by submitting an application for a new Permit at least 180 calendar days before the expiration date of this Permit. In reviewing any application for a Permit renewal, the Secretary shall consider improvements in the state of control and measurement technology and changes in applicable regulations. [20.4.1.900 NMAC (incorporating 40 CFR 270.10(h) and 270.30(b))]

1.2.3 Permit Modification, Suspension, and Revocation

This Permit may be modified, suspended, and/or revoked for cause as specified at Section 74-4-4.2 of the HWA and 20.4.1.900 NMAC (incorporating 40 CFR 270.41, 270.42, and 270.43). The filing of a request by the Permittee for a Permit modification, suspension, or revocation, or the notification of planned changes or anticipated noncompliance, shall not stay any Permit Condition. [20.4.1.900 NMAC (incorporating 40 CFR 270.41)]

1.2.4 Transfer of Permit

The Permittee shall not transfer this Permit to any person except after providing notice to the Secretary and receiving approval from the Secretary for this action. The prospective new owner or operator shall file a disclosure statement with the Secretary prior to the transfer as required by Section 74-4-4.7 of the HWA and 20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(3)). The Secretary may require modification or revocation and reissuance of this Permit in accordance with 20.4.1.900 and 20.4.1.901 NMAC (incorporating 40 CFR 270.40(b) and 270.41(b)(2)).

Before transferring ownership or operation of the Facility during its active life or post-closure care period, the Permittee shall notify the new owner or operator in writing of the requirements of 20.4.1.900 NMAC (incorporating 40 CFR Part 270). [20.4.1.500 NMAC (incorporating 40 CFR 264.12(c))]

1.2.5 Permit Review

The Secretary shall review this Permit no later than five years after the effective date of the Permit, and shall modify the Permit as necessary, pursuant to Section 74-4-4.2 of the HWA and 20.4.1.900 NMAC (incorporating 40 CFR 270.41 and 270.50(d)). Such modification shall not extend the effective term of the Permit as specified at Permit Condition 1.2.1.

1.3 SEVERABILITY

The provisions of this Permit are severable, and if any provision of this Permit or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby. [40 CFR 124.16(a)(1) and (a)(2)]

1.4 DEFINITIONS

If, subsequent to the issuance of this Permit, federal or State regulations are promulgated which redefine any of the terms defined below, the Secretary may, at his or her discretion, apply the new definition to this Permit by modifying the Permit. [20.4.1.900 NMAC (incorporating 40 CFR 270.41(a)(3))]

For purposes of this Permit, terms used herein shall have the same meanings as those in the HWA, RCRA, and their implementing regulations unless this Permit specifically provides otherwise. Where a term is not defined in the HWA, RCRA, pursuant regulations, EPA guidelines or publications, or this Permit, the meaning associated with such a term is defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

- *Action leakage rate (ALR)* means the maximum design flow rate that a leak detection system can remove without the fluid head on the bottom liner exceeding one foot. [20.4.1.500 NMAC (incorporating 40 CFR 264.222(a) and 264.302(a))]

- *Area of Concern (AOC)* means any area may have a release of hazardous waste or hazardous constituents, which is not from a solid waste management unit and is suspected or determined by the Secretary to pose a threat to human health or the environment.

- *Debris* means solid material exceeding a 60 millimeter particle size that is intended for disposal and that is: a manufactured object; or plant or animal matter; or natural geologic material. However, the following materials are not debris: any material for which a specific treatment standard is provided in 20.4.1.800 NMAC (incorporating 40 CFR 268, Subpart D), namely, lead acid batteries, cadmium batteries, and radioactive lead solids; process residuals such as smelter slag and residues from the treatment of waste, wastewater, sludges, or air emission residues; and intact containers of hazardous waste that are not ruptured and that retain at least 75 percent of their original volume. A mixture of debris that has not been treated to the standards provided by 20.4.1.800 NMAC (incorporating 40 CFR 268.45) and other material is subject to regulation as debris if the mixture is comprised primarily of debris, by volume, based on visual inspection. [20.4.1.800 NMAC (incorporating 40 CFR 268.2(g))]

- ~~*Evaporation pond* for purposes of this Permit means the Surface Impoundment at the Triassic Park Waste Disposal Facility.~~

- *Facility* for purposes of this Permit means the Triassic Park Waste Disposal Facility, including all contiguous land, and structures, other appurtenances, and improvements on the land used for the management of hazardous waste.

- *Free liquids* means liquids that readily separate from the solid portion of a waste under ambient temperature and pressure. [20.4.1.100 NMAC (incorporating 40 CFR 260.10]

- *Hazardous constituent or constituents* means those constituents listed at 20.4.1.200 NMAC (incorporating 40 CFR 261, Appendix VIII). [20.4.1.800 NMAC (incorporating 40 CFR 268.2(b)]

- *Hazardous waste* means any hazardous waste identified at 20.4.1.200 NMAC (incorporating 40 CFR 261.3).

- *HWA* means the New Mexico Hazardous Waste Act, NMSA 1978, 74-4-1 to 74-4-14, the state statute governing hazardous waste management.

- ~~*In light liquid service* (in light material service) means that the piece of equipment contains or contacts a waste stream where the vapor pressure of one or more of the organic components in the stream is greater than 0.3 kilopascals (kPa) at 20° C, the total concentration of the pure organic components having a vapor pressure greater than 0.3 kPa at 20° C is equal to or greater than 20 percent by weight, and the fluid is a liquid at operating conditions. [20.4.1.500 NMAC (incorporating 40 CFR 264.1031)]~~

- *Land Disposal Restrictions* (*LDR*) means the restrictions on the land disposal of hazardous waste in section 3004(b) through (m) of RCRA, 42 U.S.C. § 6924(b) through (m), and the NMAC 20.4.1.800 (incorporating 40 C.F.R. part 268).

- *Leachate* means any liquid, including any suspended components in the liquid that has percolated through or drained from hazardous waste. [20.4.1.100 NMAC (incorporating 40 CFR 260.10)]

- *Leak detection system (LDS)* means a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary containment structure. Such a system must employ operational controls (e.g., daily visual inspections for releases into the secondary containment system of aboveground tanks) or consist of an interstitial monitoring device designed to detect continuously and automatically the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure. [20.4.1.100 NMAC (incorporating 40 CFR 260.10)]

- ~~*Nonwastewaters* mean wastes that do not meet the criteria for wastewaters provided at 20.4.1.500~~

~~NMAC (incorporating 40 CFR 268.2(f)).~~
~~[20.4.1.800 NMAC (incorporating 40 CFR 268.2(d))]~~

- *Permittee* means Gandy Marley, Inc., 1109 East Broadway, P.O. Box 1658, Roswell, 88202~~827, Tatum~~, Chaves County, New Mexico 88202~~67~~.

- *Permitted unit* means any unit treating, storing or disposing of hazardous wastes and required to have a permit. [20.4.1.900 NMAC (incorporating 40 CFR 270.1(c))]

- *RCRA* means the federal Resource Conservation and Recovery Act, 42 U.S.C. 6901 to 6992k, the federal statute governing hazardous waste management.

- *Regulated unit* means a surface impoundment, waste pile, land treatment unit, or landfill that receives hazardous waste after July 26, 1982. Regulated units must undergo monitoring for the purposes of detecting, characterizing and responding to releases to the uppermost aquifer. [20.4.1.500 NMAC (incorporating 40 CFR 264.90(a)(2))]

- *Release* means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of any hazardous waste or hazardous constituent into the environment, including the abandonment or discarding of barrels, containers, and other closed receptacles containing a hazardous waste or hazardous constituent. [61 FR 19442]

- *Remediation waste* means all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris which contain listed hazardous wastes, or which themselves exhibit a hazardous waste characteristic, that are managed for the purpose of implementing corrective action requirements in compliance with RCRA, Sections 3004(v) and 3005(c)(3), and 20.4.1.500 NMAC (incorporating 40 CFR 264.101).

- *Secretary* means the Secretary of the New Mexico Environment Department or his or her designee. [20.4.1.101.B.8 NMAC]

- *Soil* means unconsolidated earth material composing the superficial geologic strata (material overlying bedrock), consisting of clay, silt, sand, or gravel size particles as classified by the U.S. Natural Resources Conservation Service, or a mixture of such materials with liquids, sludges or solids which is inseparable by simple mechanical removal processes and is made up primarily of soil by volume based on visual inspection. Any deliberate mixing of prohibited hazardous waste with soil that changes its treatment classification (i.e., from waste to contaminated soil) is not allowed under the dilution prohibition of 20.4.1.800 NMAC (incorporating 40 CFR 268.3). [20.4.1.800 NMAC (incorporating 40 CFR 268.2(k))]

- *Solid Waste Management Unit (SWMU)* means any discernable unit at which solid wastes have been placed at any time, and from which the Secretary determines there may be a risk of a release of hazardous constituents, irrespective of whether the unit was intended for the management of solid or hazardous wastes. Placement of solid waste includes one time and accidental events that were not remediated, as well as any unit or area at which solid waste has been routinely and systematically placed.

- *Underlying hazardous constituent (UHC)* means any constituent listed in 20.4.1.800 NMAC (incorporating 40 CFR 268.48, Table UTS - Universal Treatment Standards), except fluoride, selenium, sulfides, vanadium, and zinc, which can reasonably be expected to be present at the point of generation of the hazardous waste at a concentration above the constituent-specific UTS treatment standards. [20.4.1.800 NMAC (incorporating 40 CFR 268.2(i))]

- *Unit* means, but is not limited to, for purposes of this Permit, ~~any hazardous waste container~~

~~area, tank storage area, tank treatment area, surface impoundment, or~~ a landfill.

- *Vadose zone* means the geologic profile extending from the ground surface to the upper surface of the uppermost water-bearing formation and includes localized areas of saturation such as perched water and capillary fringe regions. [20.9.1.105.CH NMAC]

- ~~*Wastewaters* means wastes that contain less than one percent by weight total organic carbon (TOC) and less than one percent by weight total suspended solids (TSS). [20.4.1.800 NMAC (incorporating 40 CFR 268.2(f))]~~

1.5 DUTIES AND REQUIREMENTS

1.5.1 Duty to Comply

The Permittee shall comply with all conditions in this Permit, except to the extent and for the duration such noncompliance is authorized in an Emergency Permit, as specified at 20.4.1.900 NMAC (incorporating 40 CFR 270.61). Any Permit noncompliance, except under the terms of an Emergency Permit, constitutes a violation of the HWA and/or RCRA and may subject the Permittee, its successors and assigns, officers, directors, employees, parents, or subsidiaries, to an administrative or civil enforcement action, including civil penalties and injunctive relief under Sections 74-4-10 or 74-4-10.1 of the HWA, or Sections 3008(a) and (g) or 7002(a)(1)(A) of RCRA; to Permit modification, suspension, or revocation, or denial of a Permit application or modification request under Section 74-4-4.2 of the HWA; to citizen suit under Section 7002(a) of RCRA; to criminal fines or imprisonment under Section 74-4-11 of the HWA, or Sections 3008(d), (e), or (f) of RCRA; or to a combination of the foregoing. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(a))]

1.5.2 Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Permit. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(c))]

1.5.3 Continuation of Expiring Permit

If the Permittee has submitted a timely and complete application for renewal of this Permit in accordance with Permit Condition 1.2.2 and 20.4.1.900 NMAC (incorporating 40 CFR 270.10 and 270.13 through 270.27), and, through no fault of the Permittee, the Secretary has not issued a new Permit on or before the expiration date of this Permit, the terms and conditions of this Permit remain in effect until the effective date of the Secretary's issuance or denial of the new Permit. [20.4.1.900 NMAC (incorporating 40 CFR 270.51)]

1.5.4 Duty to Mitigate

In the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize releases of hazardous waste or hazardous constituents to the environment, and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(d))]

1.5.5 Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all units and systems of ~~treatment and~~ control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(e))] This provision requires the operation of back-up or auxiliary units or similar systems only when necessary to achieve compliance with the conditions of this Permit.

1.5.6 Duty to Provide Information

The Permittee shall furnish to the Secretary, within a reasonable time as specified by the Secretary, any relevant information which the Secretary may request to determine whether cause exists for modifying, suspending, or revoking this Permit, to determine compliance with this Permit, to determine whether corrective action may be necessary, or otherwise to enforce the provisions of the HWA or RCRA. [NMSA 74-4-4.3; 20.4.1.500 NMAC (incorporating 40 CFR 264.74(a))]

The Permittee shall also furnish to the Secretary, upon request, copies of records required to be kept by this Permit. [NMSA 74-4-4.3; 20.4.1.900 NMAC (incorporating 40 CFR 270.30(h))]

Permit Condition 1.5.6 shall not be construed to limit, in any manner, the Secretary's authority under Section 74-4-4.3 of the HWA, Section 3007(a) of RCRA, or other applicable laws.

1.5.7 Disclosure Statement

If any information required to be included in the disclosure statement provided by the Permittee to comply with Section 74-4-4.7 of the HWA changes, or if any information is added after filing the statement, the Permittee shall provide that information to the Secretary within 30 calendar days after the change or addition. Failure to provide such information in a timely manner may constitute the basis for the revocation of this Permit.

1.5.8 Inspection and Entry

The Permittee shall allow the Secretary, or his or her authorized representatives, upon the presentation of credentials and other documents as may be required by law, the following entry and inspection authority, as required by NMSA 47-4-4.3 and 20.4.1.900 NMAC (incorporating 40 CFR 270.30(i)):

1.5.8.a Entrance to Premises

To enter at reasonable times into the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

1.5.8.b Access to Records

To have access to and copy, at reasonable times, any records that shall be kept under the conditions of this Permit;

1.5.8.c Inspection

To inspect at reasonable times any units, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

1.5.8.d Sampling

To sample or monitor at reasonable times, for the purposes of assuring Permit compliance, determining the need for corrective action, or as otherwise authorized by the HWA or RCRA, any substances or parameters, including wastes, soil, and groundwater, at any location.

Permit Condition 1.5.8 shall not be construed to limit, in any manner, the Secretary's authority under Section 74-4-4.3 of the HWA, Section 3007(a) of RCRA, or other applicable laws.

1.5.9 Reporting Requirements

1.5.9.a Reporting Planned Changes

The Permittee shall give notice to the Secretary, as soon as possible, of any planned physical alterations or additions to the Facility. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(1))]

1.5.9.b Reporting Anticipated Noncompliance

The Permittee shall give advance written notice to the Secretary of any planned physical changes to the Facility or any permitted activities that may result in noncompliance with Permit requirements. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(2))]

1.5.9.c Certification of Construction or Modification

The Permittee shall not accept hazardous waste at the Facility, or, if the Facility is being modified, the Permittee shall not accept~~, treat, store,~~ or dispose of hazardous waste in the modified portion of the Facility, until the following conditions have been satisfied:

1.5.9.c.i Submittal of Construction Certification and As-Built Specifications

The Permittee has submitted to the Secretary, by certified mail, hand delivery, or special delivery service, a letter signed by the Permittee and an independent professional engineer registered in New Mexico stating that the Facility has been constructed or modified as required by this Permit, in accordance with Permit Condition 1.10; and

1.5.9.c.ii Inspection by the Secretary

The Secretary has inspected the newly constructed Facility or the modified portion of the Facility and:

- finds it is in compliance with the conditions of this Permit; or
- has waived the inspection; or,
- within 15 calendar days from the date of submission of the letter required under Permit Condition 1.5.9.c.i, has not notified the Permittee of his or her intent to inspect. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(2))]

1.5.9.d Twenty-Four Hour and Subsequent Reporting

1.5.9.d.i Oral Report

As required by 20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(6)), within 24 hours from the time the Permittee becomes aware of any noncompliance that may endanger human health or the environment, the Permittee shall report orally to the Secretary the following:

- information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies; and
- any information of a release or discharge of hazardous waste, or of a fire or explosion from the Facility, which could threaten the environment or human health outside the Facility.

1.5.9.d.ii Description of Occurrence

The description of the occurrence and its cause shall include, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(6)(ii)):

- name, address, and telephone number of the Permittee;
- name, address, and telephone number of the Facility;

- date, time, and type of incident;
- name and quantity of materials involved;
- the extent of injuries, if any;
- an assessment of actual or potential hazards to the environment and human health outside the Facility, where this is applicable; and
- the estimated quantity and disposition of recovered material that resulted from the incident.

1.5.9.d.iii Written Submission

The Permittee shall provide a written submission within five calendar days from the time the Permittee becomes aware of the noncompliance. The written submission shall contain, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(6)(iii)):

- a description of the noncompliance and its cause;
- the period(s) of the noncompliance, including exact date(s) and time(s), and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and
- steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

The Secretary may extend the time for submission of a written report to 15 days.

1.5.9.e Contingency Plan Implementation

If Permit Attachment C, *Contingency Plan*, is implemented, the Permittee shall comply with the reporting requirements of Permit Condition 2.11.6 and 20.4.1.500 NMAC (incorporating 40 CFR 264.56(j)).

1.5.9.f Other Noncompliance

The Permittee shall report to the Secretary all other instances of noncompliance not otherwise required to be reported in Permit Condition 1.5.9 in the Quarterly Report required at Permit Condition 2.12.2.b. The report shall contain the information listed at Permit Condition 1.5.9.d. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(10))]

1.5.9.g Other Information

Whenever the Permittee becomes aware that the Permittee failed to submit any relevant facts in the Permit Application, or submitted incorrect information in the Permit Application or in any report to the Secretary, the Permittee shall promptly submit such facts or information in writing to the Secretary. [20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(11))]

1.5.10 Obligation for Corrective Action

Corrective action required pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.101) shall continue under this Permit for any period necessary to comply with the requirements specified at Parts 9 and 10 of this Permit.

1.6 SIGNATORY REQUIREMENT

The Permittee shall sign and certify all applications or reports submitted to or requested by the Secretary, or required by this Permit, in accordance with and using the certification language specified in 20.4.1.900 NMAC (incorporating 40 CFR 270.11 and 270.30(k)).

1.7 REPORTS AND NOTIFICATIONS SUBMITTED TO THE SECRETARY

The Permittee shall submit two copies of all reports and notifications required by this Permit by certified mail, hand delivery, or special delivery service. Submissions shall be sent to:

Chief, Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East Building 1
Santa Fe, New Mexico 87505-6303

Telephone Number: 505/428-2512
Facsimile Number: 505/428-2567

1.8 CONFIDENTIAL INFORMATION

The Permittee may claim confidentiality for any information submitted to or requested by the Secretary or required by this Permit to the extent authorized by Section 74-4-4.3(D) of the HWA and 20.4.1.900 NMAC (incorporating 40 CFR 270.12).

1.9 DOCUMENTS TO BE MAINTAINED AT THE FACILITY

1.9.1 Documents to be Maintained until Completion of Closure

The Permittee shall maintain at the Facility, until final completion of closure as specified at Permit Part 8 has been approved by the Secretary, the following documents and all current amendments, revisions, and modifications to these documents:

- Permit Attachment B, *Procedures to Prevent Hazards* (Permit Condition 2.10)
- Permit Attachments C, *Contingency Plan*, including summary reports and details of all incidents that require implementation of the Contingency Plan; C1, *Emergency Equipment*; C2, *Emergency Coordinators*; C3, *Cooperating Local* Authorities; and C4, *Evacuation Plans*. [20.4.1.500 NMAC (incorporating 40 CFR 264.53(a)) and Permit Condition 2.11.2]
- Permit Attachments D, *Inspection Procedures*; and D1, *Inspection Schedules and Checklists*. [20.4.1.500 NMAC (incorporating 40 CFR 264.15(b)(2)) and Permit Condition 2.7]
- Permit Attachment E, *Personnel Training*, and personnel training documents and records. [20.4.1.500 NMAC (incorporating 40 CFR 264.16(d) and (e)) and Permit Condition 2.8]
- Permit Attachments F, *Waste Analysis Plan*; F1, *Rationale for Analytical Parameter Selection*; F2, *Waste Profile Form*; and F3, *Chain-of-Custody Form*. [20.4.1.500 NMAC (incorporating 40 CFR 264.13(b)) and Permit Condition 2.5.1]
- The Operating Record. [20.4.1.500 NMAC (incorporating 40 CFR 264.73) and Permit Condition 2.12.1.a]
- Permit Attachment J, *Action Leakage Rate and Response Action Plan*. (Permit Condition 2.10.7)

- Permit Attachment N, *Operations and Maintenance Plan*. (Permit Condition 2.10.8)

- Permit Attachments O, *Closure Plan*; O1, *Compliance Schedules for Closure*; and O2, *Financial Assurance for Closure*. (Permit Conditions 8.1.1 and 8.3.1(d))

1.9.2 Documents to be Maintained until Completion of Post-Closure Care

The Permittee shall maintain at the Facility or other appropriate location approved by the Secretary, until completion of post-closure care as specified at Permit Part 8 has been approved by the Secretary, the following documents and all amendments, revisions, and modifications to these documents:

- Permit Attachments P, *Post-Closure Care Plan*; and P1, *Financial Assurance for Post-Closure Care*. (Permit Conditions 8.2.1 and 8.3.1.d)

1.10 COMPLIANCE SCHEDULE

The Permittee shall submit documents, plans, certifications, and as-built specifications under this Permit to the Secretary for approval in accordance with the schedule provided in Table 1-1, *Compliance Schedule*, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.33). Written notification of compliance or noncompliance with any item identified in the schedule shall be submitted according to the schedule date. Submittal of a required item according to the schedule constitutes notification of compliance.

All plans and schedules required to be submitted by the conditions of this Permit are, upon approval of the Secretary, incorporated into this Schedule of Compliance by reference and become an enforceable part of this Permit. Any noncompliance with such approved plans shall be termed noncompliance with this Permit. Extension of the due dates for submittals may be granted by the Secretary in accordance with 20.4.1.900 NMAC (incorporating 40 CFR 270.41 and/or 270.42).

TABLE 1-1

COMPLIANCE SCHEDULE

PERMIT CONDITION	DOCUMENT/INFORMATION	DUE DATE
1.5.9.c.i	Submittal of Construction Certification and As-Built Specifications	30 days prior to first receipt of waste
2.10.6	Notification of Agreements with Local Authorities	30 days prior to first receipt of waste
2.11.5	Updated Contingency Plan	15 days prior to first receipt of waste
2.11.5.a	List of Emergency Coordinators	15 days prior to first receipt of waste
2.11.5.c	Evacuation Plan	15 days prior to first receipt of waste
2.18.1.b	Documentation of Liability Coverage for Sudden Accidental Occurrences	60 days prior to first receipt of waste
2.18.2.b	Documentation of Liability Coverage for Nonsudden Accidental Occurrences	60 days prior to first receipt of waste
~~4.7.3.a~~	~~Tank Installation Certification~~	~~30 days prior to first receipt of waste~~
~~5.7.3.a~~	~~Surface Impoundment CQA Certification~~	~~30 days prior to the first receipt of waste~~
7.2.1	Vadose Zone Monitoring Wells	Prior to the first receipt of waste

10.2	Facility Corrective Action Work Plan	Within 180 days of the effective date of this Permit
10.3.2.a	Background Soil Concentrations Work Plan	30 calendar days prior to the first receipt of waste

PERMIT PART 2

GENERAL FACILITY CONDITIONS

HIGHLIGHTS

This Part contains the standards and conditions covering general Facility requirements for the Triassic Park Waste Disposal Facility (the Facility). The Facility is located on approximately 480 acres in Chaves County, New Mexico, T11S, R31E, Sections 17 and 18. By road, it is approximately 43 miles east of Roswell and 36 miles west of Tatum.

The Facility is a commercial Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste ~~treatment, storage, and~~ disposal operation. The Facility is permitted to ~~store hazardous waste in the Drum Handling Unit, the Roll-Off Container Storage Unit, and the Liquid Waste Storage Tanks; treat hazardous waste by evaporation in the Surface Impoundment and by solidification in the Stabilization Bins; and~~ dispose of hazardous waste in the Landfill. Permit Conditions for ~~these~~ this permitted unit~~s~~ ~~are~~ is contained at Permit Part~~s 3 through~~ ~~6~~6 . Other units at the Facility are operated as 90-day generator storage units or satellite accumulation points. These units are not permitted under this Permit but are regulated under RCRA. These units are identified at Permit Part 10, Table 10-1.

Permit Conditions for vadose zone monitoring in lieu of ground water monitoring are contained at Permit Part 7. Conditions for closure of the Facility and for post-closure care for the Landfill are contained at Permit Part 8. Permit Parts 9 and 10 contain conditions for corrective action.

General information regarding the Facility and Facility operations is contained at Permit Attachments A, *General Facility Description and Process Information*; L, *Engineering Report*, Section 2.1, *General Facility Design Elements*; and L1, *Engineering Drawings*. The Facility layout is provided at Permit Attachment L1, Drawing No. 4.

Hazardous wastes which may be ~~managed, treated, stored, and~~ disposed by the Permittee at this Facility are listed at Permit Part 2, Table 2-1, *Permitted Hazardous Wastes*, by U.S. Environmental Protection Agency (EPA) Hazardous Waste Number as identified at 20.4.1.200 NMAC (incorporating 40 CFR 261, Subparts C and D). The Facility may also manage certain polychlorinated biphenyl (PCB)-contaminated wastes.

2.1 CONSTRUCTION AND OPERATION

The Permittee shall construct, maintain, and operate the Facility as specified at Permit Attachments A, Section 2.0, ~~*Treatment, Storage, and*~~ *Disposal*; L; L1; L2, *Specifications for the Landfill*~~*, Surface Impoundment and*~~ *and Associated Facilities Liner and Cover System Construction*; M, *Construction Quality Assurance Plan for the Landfill*~~*, Surface Impoundment and*~~ *and Associated Facilities Construction*; and N, *Operations and Maintenance Plan*; and as required by 20.4.1 NMAC (incorporating 40 CFR 260 through 273) and this Permit. The Permittee shall follow the specifications contained at Permit Attachments ~~L; L1;~~ L2; and M; for construction of ~~the Surface Impoundment and~~ the Landfill, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.19) and this Permit. The Permittee shall ensure that the construction, maintenance, and operation of the Facility minimizes the possibility of a fire, explosion, or any unplanned, sudden, or nonsudden release of hazardous waste to air, soil, ground water, or surface water which could threaten human health or the environment, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.31).

2.2 RUN-ON/RUNOFF CONTROLS

The Permittee shall construct the Stormwater Detention Basin and Facility run-on diversion ditches and runoff collection ditches as specified at Permit Attachments L, Section 2.1.4, *Facility Storm Water Control*; and L1.

2.3 PERMITTED AND PROHIBITED WASTE SOURCES

2.3.1 Hazardous Waste from Sources Located Outside of the United States

The Permittee shall accept hazardous waste from a generator of hazardous waste located outside of the United States of America (i.e., foreign waste) in accordance with Permit Condition 2.3.2, *Hazardous Waste from an Off-site Source,* Permit Condition 2.5.3.e, Waste Acceptance from Foreign Generators, and shall notify both the Regional Administrator of the U.S. Environmental Protection Agency and the Secretary in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.12(a)(1).

2.3.2 Hazardous Waste from an Off-Site Source

The Permittee shall accept hazardous waste from off-site sources [i.e., generators of hazardous waste located within the United States of America, but outside the boundary of the Facility, as defined at 20.4.1.900 NMAC (incorporating 40 CFR 270.2)], in accordance with Permit Attachment F, *Waste Analysis Plan*, Sections 4.3, *Pre-Acceptance Procedures for Off-Site Waste*, and 4.4, *Procedures for Incoming Waste Acceptance*.

2.3.3 Hazardous Waste Generated at the Facility

The Permittee shall manage hazardous waste generated at the Facility in accordance with Permit Attachments A, Section 2.0; F, Section 4.5.6, *Waste Analysis Requirements for Waste Generated On-Site*; and L; and this Permit.

2.4 PERMITTED AND PROHIBITED WASTE

2.4.1 Permitted Waste

2.4.1.a Permit Application, Part A

The Permittee shall accept only ~~the~~ LDR hazardous wastes at the Landfill ~~-~~ identified at Permit Attachment K, *Permit Application - Part A*; and listed at Table 2-1 of this Permit Part.

2.4.1.b Other Permitted Waste

2.4.1.b.i Certain PCB-Contaminated Liquids

~~The Permittee may accept non-ignitable liquids containing PCBs in concentrations of less than 50 parts per million (ppm) in accordance with 20.4.1.800 NMAC (incorporating 40 CFR 268.5(h)(2)(vi) and 268.50(f)).~~

2.4.1.b.ii Certain PCB-Contaminated Soils

The Permittee may accept soils containing PCBs in concentrations of less than 50 ppm.

2.4.1.b.iii Bulk PCB-Contaminated Remediation waste

The Permittee may accept bulk PCB-contaminated remediation waste subject to concentration limits described in Part Condition 2.4.1.b.ii. PCB-contaminated remediation waste includes, but is not limited to, the following non-liquid PCB-contaminated remediation wastes: soil, sediments, dredged materials, muds, PCB sewage sludge, and industrial sludge. (40 CFR 761.61(a)(4)(i) and 761.3)

2.4.1.c Acceptance of Waste on an Emergency Basis

The Permittee may accept hazardous waste that is not identified at Permit Conditions 2.4.1.a or 2.4.1.b or that is prohibited at Permit Condition 2.4.2 only if the waste has been approved for receipt by the Secretary on an emergency basis and the Facility has obtained an Emergency Permit in accordance with Permit Condition 1.5.1 and as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.61).

2.4.2 Prohibited Waste Streams

2.4.2.a General Prohibition

The Permittee is prohibited from accepting or ~~accepting, storing, treating, or~~ disposing the following wastes at the Facility: the wastes not listed in Permit Attachment K, *Permit Application – Part A*; and the wastes specified at Permit Attachment F, Section 4.1.2, *Prohibited Waste*.

Wastes prohibited from acceptance at the Facility include, but are not limited to:

- **certain hazardous debris.** – Hazardous debris means debris that contains a hazardous waste listed in 20.4.1.200 NMAC (incorporating 40 CFR 261, Subpart D), or that exhibits a characteristic of hazardous waste identified in 20.4.1.200 NMAC (incorporating 40 CFR, 261 Subpart C). The Permittee shall not accept hazardous debris that does not meet the LDR treatment standards;

- **certain lab packs.** – Lab packs which contain wastes [identified at 20.4.1.800 NMAC (incorporating 40 CFR 268, Appendix IV)] excluded from lab packs under the alternative treatment standards contained at 20.4.1.800 NMAC (incorporating 40 CFR 268.42(c));

- ~~**certain liquids containing PCBs.** – Ignitable liquids containing PCBs or liquids with PCB concentrations greater than or equal to 50 ppm;~~

- **certain soils containing PCBs.** – Soils with PCB concentrations greater than or equal to 50 ppm, except for those soils (and other solids) defined as bulk PCB-contaminated remediation waste;

- **compressed gases.** – Gases stored at pressures higher than atmospheric;

- **dioxin-contaminated waste.** – Dioxin-containing wastes listed at 20.4.1.800 NMAC (incorporating 40 CFR 268.31) (i.e., wastes with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, F027, and F028);

- **explosives.** - Any substance or article, including a device, which is designed to function by explosion (i.e., an extremely rapid release of gas and heat) or which, by chemical reaction within itself, is able to function in a similar manner even if not designed to function by explosion;

- **infectious waste.** - Infectious waste, defined at 20.9.1.105.AL NMAC (Oct. 1995), means a limited class of substances that carry a probable risk of transmitting disease to humans, including but not limited to:

  (1) microbiological laboratory wastes, including cultures and stocks of infectious agents from clinical research and industrial laboratories, and disposable culture dishes and devices used to transfer, inoculate and mix cultures;

  (2) pathological wastes, including human or animal tissues, organs, and body parts, removed during surgery, autopsy, or biopsy;

  (3) disposable equipment, instruments, utensils, and other disposable materials which require special precautions because of contamination by highly contagious diseases;

  (4) human blood and blood products, including waste blood, blood serum, and plasma;

(5) used sharps, including hypodermic needles, syringes, scalpel blades, Pasteur pipettes and broken glass; and

(6) contaminated animal carcasses, body parts, and bedding, especially those intentionally exposed to pathogens in research, in the production of biologicals or the "in vitro" testing of pharmaceuticals;

- **medical wastes.** – Medical wastes include infectious/biologic/pathogenic solid waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals;

- **radioactive/nuclear wastes.** - Radioactive/ nuclear wastes mean naturally-occurring radioactive materials (NORM) defined in 20.3.1.14 NMAC; or other naturally-occurring materials which contain radioactivity concentrations, as specified at Permit Attachment F1, *Rationale for Analytical Parameter Selection*, above the concentration levels regulated under 20.3.1.14 NMAC; or materials regulated under the Atomic Energy Act of 1954, as amended (including source, special nuclear materials, and byproduct materials as defined in 10 CFR 1003);

- **uncharacterized wastes.** – Uncharacterized wastes cannot be accepted at the Facility except by special provision and direction from the Secretary (e.g., emergency clean-up operations) under an Emergency Permit, or until full characterization has been performed.

2.4.2.b Prohibited Waste at Specific Units

~~**2.4.2.b.i 40 CFR, Subparts BB and CC**~~

~~The Permittee is prohibited from managing, treating, storing, or disposing of hazardous wastes subject to the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subparts BB and CC), in the Liquid Waste Storage Tank Area, the Stabilization Building, and the Surface Impoundment.~~

~~The Permittee is prohibited from storing hazardous wastes subject to the Container Level 3 standards contained at 20.4.1.500 NMAC (incorporating 40 CFR 264.1086(e)) in the Container Storage Areas.~~

2.4.2.b.i Land Disposal Restrictions

The Permittee is prohibited from ~~treating or~~ disposing any hazardous waste in ~~the Surface Impoundment or~~ the Landfill ~~respectively~~ that does not meet the Land Disposal Restrictions (LDR) treatment standards contained at 20.4.1.800 NMAC (incorporating 40 CFR Part 268).

2.5 WASTE ANALYSIS PLAN

2.5.1 General Waste Analysis Requirements

The Permittee shall keep a copy of Permit Attachments F; F1; F2, *Waste Profile Form*; and F3, *Chain-of-Custody Form*; at the Facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.13), until the completion of closure has been approved by the Secretary.

The Permittee shall follow the waste analysis procedures required by 20.4.1.500 NMAC (incorporating 40 CFR 264.13) and 20.4.1.800 NMAC (incorporating 40 CFR 268.7), and specified at Permit Attachment F. The Permittee shall use analytical methods contained at Permit Attachment F; or methods contained in *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods* (EPA Publication SW-846, latest edition). Alternative SW-846 methods may be approved by the Secretary through permit modification under 20.4.1.900 NMAC (incorporating 40 CFR 270.42).

At a minimum, the Permittee shall maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations.

2.5.2 Specific Waste Analysis Requirements

The Permittee shall perform the following waste analyses as presented at Permit Attachment F, Section 4.5, *Waste Analysis*:

- pre-shipment characterization of a representative sample from each waste stream prior to shipment as described at Permit Condition 2.5.2.a;

- fingerprint analysis of a select portion of waste upon arrival and continued fingerprint analysis of waste as specified at Permit Condition 2.5.2.b;

- annual re-analysis as specified at Permit Condition 2.5.2.c;

- additional analysis as specified at Permit Condition 2.5.2.d; and

- characterization of waste generated on-site as specified at Permit Condition 2.5.2.e.

Analytical parameters for each waste analysis requirement are specified at Permit Conditions 2.5.2.a through 2.5.2.e and shall be selected, as applicable, to meet waste characterization requirements, and to ensure compliance with LDR treatment standards and with regulations and operational limits as specified at Permit Attachment F.

The Permittee shall use analytical methods contained at Permit Attachment F, Tables 4-1 through 4-3; or in EPA publication SW-846. If the Permittee wishes to use an alternative method, the Permittee shall demonstrate to the Secretary that such alternative method is equivalent to the approved method contained in Permit Attachment F or EPA publication SW-846.

2.5.2.a Representative Sample Analysis

Following Permittee approval of the Waste Profile Form and associated characterization information and prior to initial acceptance of a waste stream, the Permittee shall obtain a representative waste stream sample from the generator for each waste stream. The Permittee shall submit the representative sample to a qualified laboratory other than that used by the generator for analysis as described at Permit Attachment F, Sections 4.3.3, *Representative Sample Assessment*, and 4.5.2, *Representative Sample Analysis*. Representative sample analysis shall include, at a minimum, testing for each hazardous waste code contained in the waste stream and parameters listed in Permit Attachment F, Table 4-1, *Parameters and Methods for Pre-Acceptance Representative Sample Analysis*; as well as applicable parameters listed in Tables 4-2, *Tests and Analytical Methods for Fingerprint Samples* and 4-3, *Additional Tests and Analytical Methods*; as required to ensure complete analysis. Additional parameters not listed in Tables 4-2 and 4-3 may also be selected. The Permittee shall assess these data as required at Permit Condition 2.5.3.a.ii.

2.5.2.b Fingerprint Sampling and Analysis

Fingerprint sampling and analysis shall be performed upon acceptance of each waste stream shipment ~~and~~ prior to ~~storage, treatment, or~~ disposal, as specified at Permit Attachment F, Sections 4.4.3.1, *Fingerprint Test Procedure*, and 4.5.4, *Fingerprint Analysis*. All waste, except for debris waste, is subject to fingerprint sampling and analysis upon waste acceptance. Fingerprint analyses shall include, at a minimum, the parameters listed at Permit Attachment F, Table 4-2, and shall be sampled and analyzed following protocols and analytical frequencies specified at Permit Attachment F, Section 4.4.3.1. Reduction in fingerprint sampling and analysis frequency shall occur in accordance with waiver provisions presented at Permit Attachment F, Section 4.4.3.1, or through Permit modification. If discrepancies between fingerprint analysis and waste stream characterization information exist upon completion of discrepancy resolution as presented at Permit Attachment F, Section 4.4.4.1, *Discrepancy Resolution*, the waste shall be rejected by the Permittee. The Permittee shall ensure that the generator re-assumes responsibility for the rejected waste or shall ensure proper disposal of the waste at an appropriate facility within 30 days of the waste rejection.

2.5.2.c Annual Sampling and Analysis

The Permittee shall obtain a representative sample analysis from each off-site generator prior to initial acceptance of a waste stream, in accordance with Permit Condition 2.5.2.a, and annually thereafter, as specified at Permit Attachment F, Section 4.5.3, *Annual Analysis*. The annual analysis shall include, at a minimum, parameters presented at Permit Attachment F, Table 4-1, in addition to any parameters included during analysis of the pre-shipment representative sample of the waste stream and additional parameters identified by the Permittee. If the annual analysis indicates waste stream changes such that the hazardous waste code assignment and/or LDR determination is modified, a new Waste Profile Form shall be obtained from the generator. The annual analysis shall be conducted as part of the Facility quality assurance program, as specified at Permit Attachment F, Section 4.4.3.2, *Annual Analysis Procedure*.

2.5.2.d Additional Sampling and Analysis

Additional sampling and analysis shall be performed to assess chemical characteristics of wastes in ~~specific~~ the Landfill management unit~~s~~ as specified at Permit Attachment F, Section 4.5.5, *Additional Analysis for ~~Specific~~ the Landfill Management Unit~~s~~*. Sampling and analysis required for ~~specific~~ the Landfill management unit~~s~~ includes, but ~~are~~ is not limited to, the following:

- ~~**storage units.** - Wastes managed in the Drum Storage Building, Roll-Off Container Storage Area, and the Liquid Waste Storage Tanks shall undergo pre-acceptance representative sample analysis, annual analysis, and initial and on-going fingerprint sample analysis as described at Permit Attachment F, Section 4.5.5.2, *Waste Analysis Requirements Specific to Storage Units*. Ignitability, reactivity, and incompatibility of each waste stream shall be determined using procedures listed at Permit Attachment F, Table 4-2; and as addressed at Permit Attachment F1;~~

- ~~**Surface Impoundment.** - Wastes placed in the Surface Impoundment shall undergo pre-acceptance representative sample analysis as specified at Permit Attachment F, Section 4.5.5.3, *Waste Analysis Requirements Specific to the Surface Impoundment*. Compatibility, ignitability, and reactivity determination shall also be performed for wastes placed in the Surface Impoundment, as specified at Permit Attachment F, Section 4.5.5.3; and as addressed at Permit Attachment F1. Waste removed from the Surface Impoundment shall undergo analysis to ensure continued LDR compliance as specified at Permit Attachment F, Section 4.5.5.3.;~~

- ~~**Stabilization Tanks.** - Wastes placed in the Stabilization Tanks shall be analyzed as specified at Permit Attachment F, Section 4.5.5.4, *Waste Analysis Requirements Specific to the Stabilization Tanks*, and shall be characterized to ensure compatibility with the tank liner and previous wastes placed in the Stabilization Tanks. This may be accomplished through pre-acceptance representative sample~~

~~analysis for wastes placed directly into the Stabilization Tanks, or through analysis performed on waste removed from the Surface Impoundment.~~

~~A second representative sample of any waste requiring stabilization shall be collected and shall be used for bench-scale testing to determine treatability. Bench-scale tests shall also be conducted as part of the representative sample analysis for incoming waste streams that are directly placed in the Stabilization Tanks. After stabilization, wastes shall be re-tested to ensure LDR requirements are met prior to placement into the Landfill. Compatibility, ignitability, and reactivity determination shall also be performed as specified at Permit Attachment F1; and~~

- **Landfill.** - Waste analysis for landfilled wastes is specified at Attachment F, Section 4.5.5.5, *Waste Analysis Requirements Specific to the Landfill*. All waste placed ~~directly~~ into the Landfill shall undergo pre-acceptance representative sample analysis as specified at Permit Condition 2.5.2.a. In addition to fingerprint analysis performed on all incoming waste as required at Permit Condition 2.5.2.b, a minimum of 10 percent of incoming wastes ~~that are to be directly landfilled~~ shall be sampled to verify conformance with LDR requirements, as specified at Permit Attachment F1, Section 4.5.5.5.

2.5.2.e Waste Analysis Requirements for Waste Generated On-Site

The Permittee shall comply with the waste analysis requirements for waste generated on-site specified at Permit Attachment F, Section 4.5.6.

2.5.2.f Compatibility Analysis

The Permittee shall include a compatibility determination on all pre-acceptance representative sample analyses, annual analyses, and additional sampling analyses conducted as required at Permit Conditions 2.5.2.a, 2.5.2.c, and 2.5.2.d; and at Permit

Attachment F1; to ensure that potentially incompatible wastes are not ~~stored, treated, or~~ disposed in the same location.

2.5.3 Waste Acceptance Criteria

The Permittee shall ensure that all waste managed at the Facility meets the criteria for acceptance and management specified at Permit Attachment F, Section 4.2, *Criteria for Waste Management at the Facility*; these criteria include characterization to acquire all the information that must be known to ~~treat, store, or~~ dispose of the waste as required by 20.4.1.500 NMAC (incorporating 40 CFR 264) and 20.4.1.800 NMAC (incorporating 40 CFR 268).

2.5.3.a Waste Acceptance from Off-Site Generators

The Permittee shall accept hazardous waste from off-site generators only in accordance with Permit Attachment F, Sections 4.3 and 4.4; and Permit Attachment N, Section 3.0, *Operations*.

2.5.3.a.i Waste Profile Form

The Permittee shall use the Waste Profile Form contained at Permit Attachment F2. The Permittee shall acquire a completed Waste Profile Form and accompanying characterization information from the generator for each new waste stream, as specified at Permit Attachment F, Section 4.3.1, *Waste Characterization Information Provided by the Generator*. The Permittee shall ensure that the generator submits a new Waste Profile Form for each new waste stream and for an existing waste stream if it is significantly modified.

The Permittee shall evaluate information provided by the generator as specified at Permit Attachment F, Sections 4.3, and 4.3.2, *Paperwork Evaluation*. If acceptable knowledge information is used, the information provided must be traceable (e.g., the information provided for a selected drum must be traceable back to the process which produced it) and auditable (i.e., "auditable" records mean those records that are readily available, that can be correlated to specific waste shipments or specific containers of waste, and that verify the characterization of such wastes).

Any revision of the Waste Profile Form and associated characterization information shall be accomplished through Permit modification.

2.5.3.a.ii Representative Sample Evaluation

Following Permittee approval of the Waste Profile Form and associated characterization information, the Permittee shall obtain a representative waste stream sample, which the Permittee shall submit to a qualified laboratory other than that used by the generator for analysis. The Permittee shall assess these data with respect to the Waste Profile Form and characterization information, as specified at Permit Attachment F, Section 4.3.3.

Discrepancy analysis shall include, but not be limited to, items listed at Permit Attachment F, Section 4.3.3.1, *Major Discrepancies*. If a major discrepancy is identified, the Permittee shall require the generator to submit a sampling plan for generator analysis of the waste. The generator's sampling plan must be consistent with EPA guidance, as specified at Permit Attachment F, Section 4.3.3.1, and must address the discrepant information in accordance with Permit Attachment F, Sections 4.3.3.1, *Major Discrepancies*, and 4.3.3.2, *Minor Discrepancies*. The sampling plan shall be documented in the Facility Operating Record within 15 days after receipt and approval by the Facility. The Permittee shall determine whether additional sampling is necessary to ensure that the elements listed at Permit Attachment F, Section 4.3.3.3, *Additional Waste Acceptance Conditions*, are appropriately addressed.

2.5.3.b Incoming Waste Acceptance

Incoming waste shipments shall be evaluated in accordance with Permit Attachment F, Section 4.4. If manifest discrepancies or discrepancies noted during visual examination are not resolved within 90 days of identifying the discrepancy, waste will not be accepted for ~~storage or~~ disposal, and the waste will either be returned to the sender or disposed at an appropriate permitted Facility by the Permittee.

The Permittee shall ensure that a generator shipping hazardous debris or contaminated soil to the Facility has first complied with the certification requirements identified in the Table contained at 20.4.1.800 NMAC (incorporating 40 CFR 268.7).

2.5.3.c Air Emissions Requirements

The Permittee shall comply with the air emissions testing requirements contained at Permit Conditions 2.15.1.b, 2.15.2.b, and 2.15.2.c.

2.5.3.d Other Waste Management Requirements

The Permittee shall ensure that all waste analyses, reports, documentation, notifications, and certifications required under 20.4.1.800 NMAC (incorporating 40 CFR 268.7) are provided by off-site generators or off-site treatment facilities that ship waste to the Facility, including, where appropriate, the certification requirement for treatment of hazardous debris.

2.5.3.e Waste Acceptance from Foreign Generators

The Permittee shall accept hazardous waste from foreign generators in accordance with, in addition to all of the requirements for off-site generators, Permit Attachment F4, *Waste Characterization Using Acceptable Knowledge*, and Permit Attachment F, Section 4.7.4, *Laboratory Requirements for Foreign Generators* as required in part by the Final Order from the Secretary dated March 18, 2002, through his authority stipulated at 20.4.1.900 (incorporating 40 CFR 270.32(b)(2)).

2.5.4 Sampling Plan

2.5.4.a Facility Sampling Plan

The Permittee shall follow the procedures specified at Permit Attachment F, Section 4.6, *Sampling Plan*. Modifications to this Sampling Plan are expected to be necessary, and revised sampling methods shall be EPA-approved methodologies included in the EPA publication, SW-846. Alternative SW-846 methods may be approved by the Secretary through permit modification under 20.4.1.900 NMAC (incorporating 40 CFR 270.42).

The modification may also include changes to the individual sampling and analysis protocols specific to individual waste streams presented in Attachment F, Section 4.6, which identify the fingerprint analysis to be used and sampling and analytical requirements prior to acceptance of an individual waste stream, as specified at Permit Attachment F, Section 4.3.4, *Notification and Approval of Waste Shipment*.

2.5.5 Laboratory Quality Assurance/Quality Control Plan

The Permittee shall follow the Laboratory QA/QC Plan described at Permit Attachment F, Section 4.7.2, *Facility Laboratory QA/QC Plan*.

2.5.6 Individual Sampling and Analysis Protocols

The Permittee shall also develop and place into the Operating Record individual sampling and analysis protocols specific to individual waste streams identifying the fingerprint analysis to be used and sampling and analytical requirements prior to acceptance of an individual waste stream, as specified at Permit Attachment F, Section 4.3.4.

2.5.7 Quality Assurance Objectives

The Permittee shall review, validate, and verify all analytical data; reconcile analytical results with data quality objectives; satisfy data reporting requirements; and identify, document, and report all nonconformances and operational variances to the Secretary.

2.5.8 Quality Control Checks

The Permittee shall take additional samples as quality control checks as specified at Permit Attachment F, Section 4.7.2.3, *Laboratory QA/QC Samples*. Upon request, the Permittee shall split samples with NMED.

2.5.9 Disposal of Laboratory Samples

The Permittee shall dispose of on-site laboratory samples with compatible waste batches.

2.5.10 Contract Laboratory Requirements

The Permittee shall inform each contract laboratory in writing that it shall operate under the waste analysis conditions set forth at Permit Attachment F, Section 4.7.3, *Requirements for Off-Site Laboratories*.

2.6 SECURITY

The Permittee shall comply with the security provisions specified at Permit Attachment B, *Procedures to Prevent Hazards*, Section 5.1, *Security Provisions to Prevent Hazards*. [20.4.1.500 NMAC (incorporating 40 CFR 264.14)]

2.6.1 Means to Control Entry

Access to the Facility shall be only through a controlled access point that is manned by security guards, as specified at Permit Attachment B, Section 5.1.1, *Barrier and Means to Control*

Entrance; as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.14(b)(2)(ii)).

2.6.2 Barriers

In order to prevent unknowing entry and minimize the possibility for unauthorized entry of persons, livestock or wildlife, the Facility shall have the following barrier as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.14(b)(2)(i)). The active portion of the Facility shall be bounded by a six-foot chain link fence topped with a three strand barbed wire access barrier with two access gates located in the northern portion of the Facility. The fence shall have metal flashing around its base constructed to protrude a minimum of 18-inches above ground and a minimum of 10-inches below ground. The fence shall be regularly maintained to ensure proper barriers..

2.6.3 Warning Signs

Warning signs in English and Spanish, e.g., "DANGER, NO UNAUTHORIZED PERSONNEL, KEEP OUT", and "PELIGRO, NO PERMITIDA LA ENTRADA SIN AUTORIZACION", shall be posted at the road entry point to the Facility and every 50 feet along the perimeter fence, as specified at Permit Attachment B, Section 5.1.2, *Warning Signs*. These bilingual signs shall be legible from a distance of 25 feet and shall also be visible from any approach to the Facility. In addition, the warning signs shall be posted at each entrance to an active portion of the Facility, and in sufficient numbers to be seen from any approach to each active portion, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.14(c)).

2.7 GENERAL INSPECTION REQUIREMENTS

The Permittee shall keep Permit Attachments D, *Inspection Procedures*; and D1; at the Facility until final closure of the Facility.

2.7.1 Inspection Frequencies

2.7.1.a Inspection Schedules

The Permittee shall implement the Inspection Schedules contained at Permit Attachment D1, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.15(b)).

2.7.1.b Additional Inspection Requirements

The Permittee shall inspect areas subject to spills, such as loading and unloading areas, daily when in use, as required by 20.1.500 NMAC (incorporating 40 CFR 264.15(b)(4)).

2.7.1.c Testing and Maintenance of Emergency Equipment

The Permittee shall inspect the monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment identified at Permit Attachment C1, *Emergency Equipment*, to detect any malfunctions and deterioration, operator errors, and discharges, as specified at Permit Attachment D, *Inspection Procedures*, Section 5.2.8, *Safety and Emergency Response Equipment Inspection Procedures*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.33); in order to assure proper operation in time of emergency.

2.7.1.d Inspection Logs and Checklists

The Permittee shall use the inspection logs or checklists contained at Permit Attachment D1. The Permittee shall ensure that inspectors record the date and time of the inspection, the status of items inspected (items not inspected shall be marked "NI"), the date and nature of any repairs or other remedial actions needed, and sign the checklist, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.15(d)).

2.7.2 Remedial Action

The Permittee shall remedy any deterioration or malfunction of equipment or structures which an inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard, as specified at Permit Attachment D, Section 5.2.1.2, *Remedial Action*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.15(c)). When the hazard is imminent or has already occurred, the Permittee shall take remedial action immediately.

2.7.3 Recordkeeping - Inspection Logs

The Permittee shall maintain all inspection logs in the Operating Record required under Permit Condition 2.12.1.a. Inspection logs need be retained only for a period of three years, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.15(d) and 264.73(b)(5)).

2.8 PERSONNEL TRAINING

The Permittee shall keep a copy of Permit Attachment E, *Personnel Training*, at the Facility, and shall maintain a Personnel Training Program as specified at Permit Attachment E, Section 7.0, *Personnel Training*; as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.14(b)(12)) and 20.4.1.500 NMAC (incorporating 40 CFR 264.16).

2.8.1 Personnel Training Requirements

The Permittee shall train all persons involved in the management of hazardous waste in procedures relevant to the positions in which they are employed, as specified at Permit Attachments E and F, Section4.6.5.1, *Training Requirements for Personnel Responsible for Sampling Collection* and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.16).

2.8.2 Personnel Training Procedures

The Personnel Training Program shall include the material and procedures outlined at Permit Attachment E, Section 7.2, *Training Content and Frequency*, and shall otherwise comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.16(a)(3)).

The Permittee shall ensure that Facility personnel successfully complete the Personnel Training Program within six months after their employment at the Facility, or to their assignment to a new position at the Facility, whichever is later. Employees shall not work in unsupervised positions until they have successfully completed the training requirements for their positions, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.16(b)).

Facility personnel shall take part in an annual review of the initial training required for their positions, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.16(c)).

2.8.3 Recordkeeping - Personnel Training Documents and Records

The Permittee shall maintain training documents and personnel training records, as specified at Permit Attachment E, Section 7.3, *Record Keeping*, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.16(d)). Training documents and personnel training records shall be kept until completion of closure or for at least three years from the date an employee last worked at the Facility, whichever is earlier, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.16(e)).

2.9 SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

2.9.1 Precautions

The Permittee shall manage ignitable, reactive, or incompatible wastes as specified at Permit Attachment B, Section 5.5, *Precautions to Prevent Ignition or Reaction of Ignitable, Reactive, or Incompatible Wastes*; and shall otherwise comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.17(a) and (b)).

2.9.2 Recordkeeping – Precautions for Ignitable, Reactive, or Incompatible Waste

The Permittee shall document compliance with Permit Condition 2.9.1 in the Operating Record, in accordance with Permit Condition 2.12.1.a; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.73(b)(3)).

2.10 PREPAREDNESS AND PREVENTION

The Permittee shall maintain Permit Attachment B at the Facility until final completion of closure, as specified by Permit Part 8, has been approved by the Secretary.

2.10.1 Required Equipment

At a minimum, the Permittee shall maintain at the Facility the equipment identified at Permit Attachment C1, *Emergency Equipment*, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.32).

2.10.2 Access to Communications or Alarm System

The Permittee shall maintain access to the communications or alarm system as specified at Permit Attachment B, Section 5.3, *Preparedness and Prevention Procedures*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.34).

2.10.3 Roadways

The Permittee shall maintain roadways within the Facility as specified at Permit Attachment L, Section 2.1.3, *Facility Traffic Plan*, to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in an emergency.

2.10.4 Arrangements with Local Authorities

The Permittee shall maintain preparedness and prevention arrangements with State and local authorities, contractors, and other governmental agencies, at a minimum as specified at Permit Attachment C, *Contingency Plan*, Sections 6.3.1.1, *Life-Threatening Situations*, and 6.3.4, *Off Site Notification and Evacuation Criteria*, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.37(a) and 264.52(c)). The Permittee shall maintain these documents at appropriate locations at the Facility.

2.10.5 Notification of Agreements with Local Authorities

The Permittee shall submit signed copies of the preparedness and prevention agreements with local authorities listed at Permit Attachment C3, *Cooperating Local Authorities*, or documentation of refusal to enter into preparedness and prevention agreements, to the Secretary 30 days prior to initiation of operations at the Facility, in accordance with Permit Condition 1.10, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.37(b)).

If a local authority with which the Permittee has an agreement terminates the agreement, Permittee shall document the termination in the Operating Record and shall provide a copy of this documentation and alternative emergency response arrangements to the Secretary within 15 days.

2.10.6 Response Action Plan

The Permittee shall keep Permit Attachment J, *Action Leakage Rate and Response Action Plan*, at the Facility until completion of closure for the Facility is approved by the Secretary.

2.10.7 Operations and Maintenance Plan

The Permittee shall keep Permit Attachment N, *Operations and Maintenance Plan*, at the Facility until completion of closure is approved by the Secretary.

~~a.~~2.11 CONTINGENCY PLAN

2.11.1 Implementation of Contingency Plan

The Permittee shall immediately implement Permit Attachment C, *Contingency Plan*, whenever there is a fire, explosion, or release of hazardous waste or hazardous constituents that could threaten human health or the environment, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.51(b)).

If the Permittee implements the Contingency Plan as a result of a spill or release to the environment and after 30 calendar days the Permittee has not been able to remove all contaminated soil or water to appropriate action levels, in accordance with Permit Condition 9.2, the Permittee shall comply with the requirements of either Permit Part 9 or 10, as appropriate. The Permittee may submit for the Secretary's approval a one time, 30 day extension to the above 30 calendar days compliance period.

2.11.2 Copies of the Contingency Plan

The Permittee shall maintain copies of the Contingency Plan and all revisions and amendments to the Contingency Plan at all document locations throughout the Facility until the completion of closure for the Facility is approved by the Secretary. The Permittee shall also submit a copy of the Contingency Plan and current revisions and amendments thereto to all federal, State, and local entities that may be called upon to provide emergency services and/or with which the Permittee has preparedness and prevention arrangements, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.53). As a part of the submittal to all federal, State, and local entities, the Permittee shall also submit Permit Attachment A, *General Facility Description and Information*.

2.11.3 Amendments to the Contingency Plan

The Permittee shall review and immediately amend, when necessary, the Contingency Plan as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.54). The Permittee shall submit all revisions and amendments to the Plan to the Secretary through a Permit modification before implementation of such revisions and amendments as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.42).

2.11.4 Emergency Coordinator

A trained Emergency Coordinator (EC) or an alternate EC, as identified at Permit Attachment C, Section 6.1, *General Responsibilities of the Emergency Coordinator*, shall be available 24 hours a day, seven days a week, in case of an emergency. The EC or alternate EC shall be thoroughly familiar with the Contingency Plan and shall have the authority to commit the resources needed to implement the Contingency Plan, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.55).

In the event of an imminent or actual emergency, the EC shall implement the emergency procedures specified at 20.4.1.500 NMAC (incorporating 40 CFR 264.56) and Permit Attachment C.

2.11.5 Updated Contingency Plan

The Permittee shall submit an updated Contingency Plan to the Secretary for approval at the time of Facility certification, as specified at Permit Attachment C and in accordance with Permit Condition 1.10. The updated Contingency Plan shall include, at a minimum, the following.

2.11.5.a List of Emergency Coordinators

The Permittee shall submit to the Secretary an updated list of the names, addresses, and phone numbers of all persons designated to act as ECs 15 days prior to initiation of operations, in accordance with Permit Condition 1.10; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.52(d)).

This updated list of ECs shall be inserted as replacement pages into this Permit at Permit Attachment C2, *Emergency Coordinators*.

The Permittee shall inform the Secretary in writing of changes to the list of ECs and telephone numbers within 15 calendar days from the date of the changes, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.52(d)).

2.11.5.b Emergency Response Team Members

The Permittee shall submit to the Secretary a list of the names and qualifications of all individuals qualified as members of the on-site emergency response team discussed at Permit Attachment B, *Procedures to Prevent Hazards*, Section 5.4.6. This list shall be provided to the Secretary 15 days prior to initiation of operations at the site.

2.11.5.c Evacuation Plan

The Permittee shall include in the updated Contingency Plan a finalized, building- or unit-specific evacuation plan for Facility personnel where there is a possibility that evacuation could be necessary. This plan shall describe evacuation routes, and alternate evacuation routes in cases where the primary routes could be blocked by releases of hazardous waste or fires. The plan shall include a clear map of the evacuation routes, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.52(f)).

This plan shall be inserted as replacement pages at Permit Attachment C4, *Evacuation Plans*.

2.11.6 Reporting and Recordkeeping - Contingency Plan Implementation

Whenever the Contingency Plan is implemented, the Permittee shall note the time, date, and details of the incident in the Operating Record and submit a written report to the Secretary within 15 calendar days, as specified at Permit Attachment C, Section 6.4.2, *Required Reports and Notification*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.56(j)).

2.12 RECORDKEEPING AND REPORTING

2.12.1 Recordkeeping Requirements

The Permittee shall maintain at the Facility all the records, data, certifications, and other information listed at Table 2-2, *Recordkeeping Requirements*. Records kept shall include, but are not limited to, the following.

2.12.1.a Operating Record

The Permittee shall maintain a written Operating Record at the Facility as required by this Permit and 20.4.1.500 NMAC (incorporating 40 CFR 264.73). The Operating Record shall include all information required at 20.4.1.500 NMAC (incorporating 40 CFR 264.73(b)). Information placed in the Operating Record shall be kept until final closure of the Facility is approved by the Secretary, except as noted elsewhere in this Permit.

2.12.1.b Facility Notification to Off-Site Generators

The Permittee shall keep a copy of the written notice to off-site generators that the Facility has the appropriate permit(s), and will accept the waste the generator is shipping, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.12(b)).

2.12.1.c Generator Notifications and Certifications

The Permittee shall keep copies of the notices, and the certifications and demonstrations if applicable, required of the generator or the Permittee, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.73(b)(11) through (b)(16)).

2.12.1.d Manifest Records

The Permittee shall retain at the Facility a copy of each manifest received from an off-site generator of hazardous waste accepted at the Facility for a period of at least three years, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.71(b)(5)).

2.12.1.e Waste Analysis for Waste Acceptance

The Permittee shall maintain waste analysis records and copies of all certifications, demonstrations, and other documents relevant to waste analyses required for waste acceptance (including both pertinent Facility records and records from off-site generators) in the Operating Record, as required by 20.4.1.500 NMAC (incorporating CFR 264.73(b)(3)) and 20.4.1.800 NMAC (incorporating 40 CFR 268.4(a) and 268.7).

2.12.1.f Recordkeeping - 40 CFR 264, Subpart BB Exemption

The Permittee shall record in a log, for use in determining exemption from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart BB), all the information required at 20.4.1.500 NMAC (incorporating 40 CFR 264.1064(k)). The documentation to determine exemption shall be kept with, or made readily available with, the Operating Record for a period of three years.

2.12.1.g Recordkeeping - 40 CFR 264, Subpart CC Exemption

The Permittee shall record in a log, for use in determining exemption from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC), all the information required at 20.4.1.500 NMAC (incorporating 40 CFR 264.1089(f)). The documentation to determine exemption shall be kept with or made readily available with the Operating Record for a period of three years.

2.12.1.h Recordkeeping – 40 CFR 264, Subpart CC Compliance

The Permittee shall maintain at the Facility the information required under Permit Condition 3.4.

2.12.1.i Waste Stream Tracking

Information on each hazardous waste stream (including underlying hazardous constituents) managed at the Facility shall be recorded in the Waste Tracking System described at Permit Attachment F1, Section 4.8, *Waste Tracking*, and maintained in the Operating Record or at another location approved by the Secretary until completion of post-closure care has been approved by the Secretary, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.73(b)(1)).

The information to be maintained shall describe the waste, the hazard characteristics, the basis for hazard designation, and the date deposited in the Landfill, the grid location within the landfill, and shall include the laboratory report results (if chemical analysis is used) detailing the chemical and physical analysis of the waste. The information provided for each waste stream shall be complete for each movement of the waste from acceptance through ~~storage, treatment, and~~to disposal at the Facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264, Appendix I);

2.12.1.j Waste Minimization Program

The Permittee shall annually, by December 1 for the previous year ending September 30, enter into the Operating Record a certified statement specifying that the Permittee has a program in place, in accordance with Permit Condition 2.13, to reduce the volume and toxicity of hazardous wastes generated by the Facility's operation to the degree determined by the Permittee to be economically practicable; and the proposed method of ~~treatment, storage, or~~ disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.73(b)(9)).

A current description of the program shall also be maintained in the Operating Record;

2.12.1.k Monitoring Records

2.12.1.k.i Monitoring Information

The Permittee shall retain records of all monitoring information, including all calibration and maintenance records, and all original strip chart recordings for continuous monitoring instrumentation, for a period of at least three years from the date of the sample, measurement, or record, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.30(j)(2)). This period may be extended by the Secretary at any time.

~~The Permittee shall retain monitoring records for the Surface Impoundment Leak Detection and Removal System (LDRS) and Vadose Zone Monitoring System (VZMS) and associated water level elevations until the completion of Surface Impoundment closure, or if necessary post-closure, is approved by the Secretary, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.226(d)(1)).~~

The Permittee shall retain records for the Landfill Leachate Collection and Removal System (LCRS), LDRS, and VZMS until the completion of post-closure care for the Landfill is approved by the Secretary, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.303(c)(1));

2.12.1.k.ii Record Information

Records for monitoring information shall include, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270(30)(j)(3)):

- the date, exact place, and time of sampling or measurements;
- the name of the individual(s) who perform the sampling or measurements;
- the date(s) analyses are performed;
- the name and address of the laboratory that performed the analyses;
- the name of the individual(s) who perform the analyses;
- the analytical techniques or methods used; and
- the result of such analyses;

2.12.1.l Corrective Action Records

For a unit undergoing corrective action under Permit Parts 9 or 10, the Permittee shall retain, until completion of the corrective action has been approved by the Secretary, records of all monitoring information, waste analyses, and all other pertinent data and information used to prepare the appropriate documents required for the action by this Permit, as required by

20.4.1.900 NMAC (incorporating 40 CFR 270.30(j)(2) and 270.31(b)).

2.12.1.m Grid "Cell" Map

The Permittee shall maintain the grid "cell" map of the Landfill and location identification of the waste placed in the Landfill in the Operating Record, in accordance with Permit Conditions 6.7.1.a; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.73(b)(2) and 264.309).

2.12.1.n Other Records

The Permittee shall retain records of all other data used to prepare documents required by this Permit, copies of all other reports and records required by this Permit, and records of all data used to complete the Permit Application, for a period of three years from the date of the report, record, certification, or application, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.30(j)(2)).

2.12.2 Reporting Requirements

In addition to the documents, certifications, and other information required before the initiation of operations at the Facility under Permit Condition 1.10, the Permittee shall submit to the Secretary as applicable during the operating life and closure and post-closure care periods of the Facility all the reports, documents, certifications, notifications, and other submittals as applicable, required at Table 2-3, *Reporting/Notification/Certification Requirements*. Reports which shall be submitted include, but are not limited to, the reports identified at Permit Conditions 2.12.2.a through 2.12.2.d.

2.12.2.a Biennial Report

The Permittee shall submit to the Secretary a single copy of the biennial report by March 1 of each even-numbered year. The biennial report shall include the information required at 20.4.1.500 NMAC (incorporating 40 CFR 264.75), and shall be submitted on EPA form 8700-13B. The biennial report shall include a copy of the annual certified statement regarding the Waste Minimization Program required at Permit Condition 2.13, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.75(h) through 40 CFR 264.75(j)).

2.12.2.b Quarterly Report

The Permittee shall submit a quarterly report on the status of operations for the previous three months at the Facility to the Secretary. The report shall be due 60 days after the reporting period has ended. The report shall provide an update on activities carried out during the reporting period, including:

- quantities of hazardous wastes ~~stored, treated, and/or~~ disposed in the Landfill ~~(including waste generated on-site),~~ by EPA Hazardous Waste Number;
- a discussion of spills and releases which have occurred during the reporting period, and subsequent actions taken;
- any variances or discrepancies from this Permit;
- monitoring results, including raw data, of the monitoring of the LCRS and LDRS at the ~~Surface Impoundment and~~ Landfill, of the monitoring of the VZMS, and all other monitoring requirements of this Permit, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.30(l)(4) and 270.31(c)); and
- a summary of operation and maintenance activities for the VZMS, in accordance with Permit Condition 7.6, and for the LCRS and LDRS, at the ~~Surface Impoundment and~~ Landfill.

The report shall also include a discussion of planned activities for the upcoming three-month period, including any necessary changes or modifications in operating activities approved under this Permit.

2.12.2.c Waste Minimization Program Certification

The Permittee shall submit a copy of the annual certified statement regarding the Waste Minimization Program required at Permit Condition 2.13 to the Secretary by December 1 for the previous year ending September 30, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.75(i)).

2.12.2.d Reporting - Noncompliance with the 40 CFR 264, CC Exemption

The Permittee shall report to the Secretary each occurrence, within 15 calendar days of the time the Permittee becomes aware of the occurrence, whenever hazardous waste is placed in a waste management unit, the Landfill, in noncompliance with the exemption from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC) provided at Permit Condition 2.15.2.a; as specified at Permit Attachment G, *Air Quality*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1090(a)).

2.13 WASTE MINIMIZATION PROGRAM

The Permittee shall institute a program, as specified at Permit Attachment A, Section 9.0*, Waste Management*, to reduce the volume and toxicity of hazardous wastes generated at the Facility to the degree determined by the Permittee to be economically feasible. Suggested criteria for the program include:

~~1~~(1) any written policy or statement that outlines goals, objectives, and/or methods for source reduction and recycling of hazardous waste at the Facility;

~~2~~(2) any employee training or incentive program designed to identify and implement source reduction and recycling opportunities;

~~3~~(3) any source reduction and/or recycling measures implemented in the last five years or planned for the near future;

~~4~~(4) an itemized list of the dollar amounts of capital expenditure (plant and equipment) and operating costs devoted to source reduction and recycling of hazardous waste;

~~5~~(5) factors that have prevented source reduction and/or recycling;

~~6~~(6) an investigation of additional waste minimization efforts that could be implemented at the Facility. This investigation would analyze the potential for reducing the quantity and toxicity of each waste stream through recycling and all other appropriate means. The analysis would include an assessment of the technical feasibility, cost, and potential waste reduction for each option;

~~7~~(7) a flow chart or matrix detailing all hazardous wastes produced by quantity, type, and building or area;

~~8~~(8) a demonstration of the need to use those processes which produce a particular hazardous waste due to a lack of alternative processes or available technology which would produce less hazardous waste;

~~9~~(9) a description of the waste minimization methodology employed for each related process at the Facility which shows whether source reduction or recycling is being employed; and

~~10~~(10) a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years.

2.14 TRANSPORTATION OF HAZARDOUS WASTE

2.14.1 Transportation of Hazardous Waste to the Facility

2.14.1.a Manifest Requirements

The Permittee shall comply with the manifest requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.71).

2.14.1.b Manifest Discrepancies

Upon discovering a significant discrepancy, as identified at Permit Attachment F, Section 4.4, and at 20.4.1.500 NMAC (incorporating 40 CFR 264.72(a)), between the quantity or type of waste designated on the manifest and the quantity or type of waste actually received at the Facility, the Permittee shall attempt to reconcile the discrepancy with the generator or transporter. If the discrepancy is not resolved within 90 days after receiving the waste, the Permittee shall immediately submit to the Secretary a letter describing the discrepancy and attempts to resolve it, and a copy of the manifest, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.72(b)).

2.14.1.c Unmanifested Waste Report

If the Permittee accepts for ~~treatment, storage, or~~ disposal any hazardous waste from an off-site source without an accompanying manifest, and if the waste is not excluded from the manifest requirements by the conditionally exempt small quantity generator exclusions contained at 20.4.1.500 NMAC (incorporating 40 CFR 261.5), then the Permittee shall prepare and submit to the Secretary a single report within 15 calendar days after receipt of the waste. The unmanifested waste report shall contain the information required at 20.4.1.500 NMAC (incorporating 40 CFR 264.76).

2.14.2 Transportation of Hazardous Waste On-Site at the Facility

2.14.2.a Traffic Control Procedures

The Permittee shall transport hazardous waste on-site using the traffic control procedures and traffic patterns specified at Permit Attachment A, Section 1.4, *Traffic Patterns*. All vehicles carrying hazardous waste shall use only the entrance, access, and perimeter roads depicted at Permit Attachment L1, Drawing No. 26 (2 of 2).

2.14.2.b Dust Control Procedures

2.14.2.b.i Dust Suppression

The Permittee shall not use waste or used oil or any other material which is contaminated with dioxins, PCBs, or any other hazardous waste, other than a waste identified solely on the basis of ignitability, for dust suppression or road treatment, as required by 20.4.1.700 NMAC (incorporating 40 CFR 266.23(b)).

2.14.2.b.ii Other Dust Control Procedures

The Permittee shall apply the dust control procedures specified at Permit Attachment A, Section 2.5.1.7, *Wind Dispersal Control Procedures*, to control the dust generated from the surface of the daily landfill soil cover.

2.14.3 Decontamination of Equipment and Vehicles

The Permittee shall ensure that any vehicles or equipment which have come in contact with hazardous waste in any storage or treatment area and/or which have been in contact with hazardous waste in the Landfill are sufficiently decontaminated prior to their further movement to prevent contamination of uncontaminated areas of the Facility as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.31)). Wash water generated from truck or equipment decontamination shall be collected, tested, and treated, and disposed as specified at Permit Attachment F, Section 4.5.6.

2.15 AIR QUALITY PROTECTION

2.15.1 40 CFR, Subpart BB

2.15.1.a Compliance and Exemption

The Permittee shall manage waste with an organic concentration of at least 10 percent by weight in compliance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.1050(b)(1)). Waste with an organic concentration of less than 10 percent by weight is exempt from the requirement to comply with 20.4.1.500 NMAC (incorporating 40 CFR, Subpart BB).

Alternatively, the Permittee may elect to demonstrate compliance with this Permit Condition through compliance with a New Source Air Emissions Permit, to the extent that the documentation required under the New Source Air Emissions Permit duplicates the documentation required under this Permit Condition, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.1064(m)).

2.15.1.b Waste Determination

The Permittee shall use the test methods contained at 20.4.1.500 NMAC (incorporating 40 CFR 264.1063(d)), to make a determination of compliance with Permit Conditions 2.4.2.b.i and 2.15.1.a for each waste stream managed at the Facility, as specified at Permit Attachment F1, Section 4.5.1.3, *Additional Analysis to Ensure Compliance with Regulatory and Operational Limits*.

2.15.2 40 CFR, Subpart CC

2.15.2.a Compliance and Exemption

The Permittee shall manage waste with an average volatile organic concentration equal to or greater than 500 parts per million by weight (ppmw) at the point of waste origination in compliance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC). Waste with an average volatile organic concentration less than 500 ppmw at the point of waste origination is exempt from the requirement to comply with 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC), in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.1082(c)(1)).

Alternatively, the Permittee may elect to demonstrate compliance with this Permit Condition by documentation of compliance with a New Source Air Emissions Permit, to the extent that the documentation required under the New Source Air Emissions Permit duplicates the documentation required under this Permit Condition, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.1089(h)).

2.15.2.b Initial Waste Determination

The Permittee shall use the test methods contained at 20.4.1.500 NMAC (incorporating 40 CFR 264.1083) to make an initial determination of compliance with Permit Conditions 2.4.2.b.i and 2.15.2.a for each waste stream managed at the Facility, as specified at Permit Attachment F1, Section 4.5.1.3. The initial determination shall be made before the first time a waste stream is placed in a permitted unit, and thereafter the determination for that waste stream shall be reviewed as necessary once every 12 months following the date of the initial determination, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1082(c)(1)).

2.15.2.c Waste Determination after Process Change

The Permittee shall perform a new waste determination of compliance with Permit Conditions 2.4.2.b.i and 2.15.2.a for any waste stream whenever changes to the source generating the waste stream are reasonably likely to cause the average volatile concentration of the waste stream to increase to a level that is equal to or greater than the applicable volatile organic limit, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1083(b)(1)(ii)).

2.15.2.d Waste Determination by the Secretary

The Secretary may at any time perform or request the Permittee to perform a waste determination for the average volatile organic concentration at the point of waste origination for a hazardous waste that is exempted from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC), in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.1082(d)).

2.16 GENERAL CLOSURE REQUIREMENTS

The Permittee shall close the Facility, or any permitted unit at the Facility, as specified at Permit Attachment O, *Closure Plan*; and as required by Permit Part 8 and 20.4.1.500 NMAC (incorporating 40 CFR 264.110 through 264.116).

2.17 GENERAL POST-CLOSURE CARE REQUIREMENTS

The Permittee shall conduct post-closure care for the Landfill, or any other permitted unit that must be closed as a landfill, as specified at Permit Attachment P, *Post-Closure Care*; and as required by Permit Part 8 and 20.4.1.500 NMAC (incorporating 40 CFR 264.117 through 264.120).

2.18 LIABILITY COVERAGE

2.18.1 Sudden Accidental Occurrences

2.18.1.a Liability Coverage Requirements for Sudden Accidental Occurrences

The Permittee shall have and maintain liability coverage for sudden accidental occurrences in the amount of one million dollars ($1,000,000) per occurrence, with an annual aggregate of at least two million dollars ($2,000,000), exclusive of legal defense costs, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.147(a)).

2.18.1.b Documentation of Liability Coverage for Sudden Accidental Occurrences

The Permittee shall demonstrate to the Secretary, for approval, continuous compliance with the liability coverage required under Permit Condition 2.18.1.a, in accordance with Permit Condition 1.10, at least 60 days before receiving hazardous waste for ~~management, treatment, storage, or~~ disposal at the Facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.147(f)(4)). This liability coverage shall be effective before the first receipt of hazardous waste at the Facility.

2.18.2 Nonsudden Accidental Occurrences

2.18.2.a Liability Coverage Requirements for Nonsudden Accidental Occurrences

The Permittee shall have and maintain liability coverage for nonsudden accidental occurrences in the amount of three million dollars ($3,000,000) per occurrence, with an annual aggregate of at least six million dollars ($6,000,000), exclusive of legal defense costs, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.147(b)).

2.18.2.b Documentation of Liability Coverage for Nonsudden Accidental Occurrences

The Permittee shall demonstrate to the Secretary, for approval, continuous compliance with the liability coverage required under Permit Condition 2.18.2.a, at least 60 days before receiving hazardous waste for ~~management, treatment, storage, or~~ disposal at the Facility, in accordance with Permit Condition 1.10. The liability coverage shall be as required at 20.4.1.500 NMAC (incorporating 40 CFR 264.147(b)).

This liability coverage shall be effective before the first receipt of hazardous waste at the Facility, in accordance with Permit Condition 1.10.

2.19 FINANCIAL INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS

2.19.1 Bankruptcy

The Permittee shall notify the Secretary by certified mail of the commencement of bankruptcy, and the name of any guarantor, within ten days after commencement of the proceeding, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.148(a)).

2.19.2 Other Financial Assurance

The Permittee shall establish other financial assurance or liability coverage within 60 days from the date the trustee or institution issuing the surety bond, letter of credit, or insurance policy declares bankruptcy; otherwise the Permittee shall be deemed to be without the required financial assurance, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.148(b)).

2.20 FINANCIAL RESPONSIBILITY

The Permittee shall maintain financial assurance for both closure and post-closure costs and comply with all applicable requirements of 20 4.1.500 NMAC (incorporating 40 CFR Part 264, Subpart H), and Permit Condition 8.3.

TABLE 2-1

PERMITTED HAZARDOUS WASTES

D Codes[1]	F Codes[2]	K Codes[3]	P Codes[4]	U Codes[5]
D001 – Ignitability[6]	F001-F012	K001-K011	P001-P018	U001-U012
D002 – Corrosivity[6]	F019	K013-K052	P020-P024	U014-U039
D003 – Reactivity[6]	F024-F025	K060-K062	P026-P031	U041-U053
D004-D043	F032	K064-K066	P33-P034	U055-U064
	F034-F035	K069	P036-P051	U066-U099
	F037-F039	K073	P056-P060	U105-U138
		K083-K088	P062-P078	U140-U174
		K090-K091	P081-P082	U176-U194
		K093-K118	P084-P085	U196-U197
		K123-K126	P087-P089	U200-U211
		K131-K132	P092-P099	U213-U223
		K136	P101-P106	U225-U228
		K141-K145	P108-P116	U234-U240
		K147-K151	P118-P123	U243-U244
				U246-U249
				U328
				U353
				U359

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1 Wastes exhibiting the characteristics of ignitability, reactivity, corrosivity, and/or toxicity

2 Wastes from non-specific sources

3 Wastes from specific sources

4 Discarded commercial chemical products, off-specification species, container residues, and spill residues thereof

5 P Code wastes identified as toxic wastes

6 Only those ignitable, corrosive, or reactive wastes that have~~can~~ been treated by permitted methods ~~at the Facility~~ prior to placement in the Landfill shall be accepted.

TABLE 2-2

RECORDKEEPING REQUIREMENTS

PERMIT NUMBER	PERMIT CONDITION
1.9.1	Documents to be Maintained until Completion of Closure
1.9.2	Documents to be Maintained until Completion of Post-Closure Care
2.5.1	General Waste Analysis Requirements
2.5.3.a.ii	Representative Sample Evaluation
2.5.6	Individual Sampling and Analysis Protocols
2.7.3	Recordkeeping – Inspection Logs
2.8.3	Recordkeeping – Personnel Training Documents and Records
2.9.2	Recordkeeping – Precautions for Ignitable, Reactive, or Incompatible Waste
2.10.5	Arrangements with Local Authorities
2.11.2	Copies of the Contingency Plan
2.11.6	Reporting and Recordkeeping – Contingency Plan Implementation
2.12.1	Recordkeeping Requirements
2.12.1.a	Operating Record
2.12.1.b	Facility Notification to Off-Site Generators
2.12.1.c	Generator Notifications and Certifications
2.12.1.d	Manifest Records
2.12.1.e	Waste Analysis for Waste Acceptance

PERMIT NUMBER	PERMIT CONDITION
2.12.1.f	Recordkeeping – 40 CFR 264, Subpart BB Exemption
2.12.1.g	Recordkeeping – 40 CFR 264, Subpart CC Exemption
2.12.1.h	Recordkeeping – 40 CFR 264, Subpart CC Compliance
2.12.1.i	Waste Stream Tracking
2.12.1.j	Waste Minimization Program
2.12.1.k.i	Monitoring Information
2.12.1.l	Corrective Action Records
2.12.1.m	Grid Map
2.12.1.n	Other Records
	~~CONTAINERS~~
~~3.7.1.a~~	~~General Recordkeeping Requirements~~
~~3.7.1.b~~	~~Ignitable or Reactive Wastes~~
~~3.7.1.c~~	~~40 CFR Part 264, Subpart BB and CC Exemptions~~
~~3.7.1.d~~	~~40 CFR 264, Subpart CC Compliance~~
~~3.7.1.e~~	~~40 CFR 264, Subpart CC~~
	~~TANKS~~
~~4.2.6~~	~~Required Certification~~
~~4.7.1.a~~	~~Inspection Records~~
~~4.7.1.b~~	~~Ignitable, Reactive, or Incompatible Wastes~~
~~4.7.1.c~~	~~40 CFR 264, Subpart BB Records~~
~~4.7.1.d~~	~~40 CFR 264, Subpart CC Records~~
	~~SURFACE IMPOUNDMENT~~

PERMIT NUMBER	PERMIT CONDITION
~~5.5.3~~	~~Action Leakage Rate~~
~~5.7.1~~	~~Recordkeeping Requirements~~
~~5.7.1.a~~	~~Inspection Logs~~
~~5.7.1.b~~	~~Ignitable, Reactive, or Incompatible Waste~~
~~5.7.1.c~~	~~LDRS and VZMS Data~~
~~5.7.1.d~~	~~40 CFR 264, Subpart BB Records~~
~~5.7.1.e~~	~~40 CFR 264, Subpart CC Records~~
	LANDFILL
6.7.1	Recordkeeping Requirements
6.7.1.a	Grid "Cell" Location
6.7.1.b	Inspection Logs
6.7.1.c	LDRS, LCRS, and VZMS Monitoring Data
	VADOSE ZONE MONITORING
7.2.4	Well Surveys
7.2.6	Continuous Core
7.2.9	Well Completion Logs
7.3.2	Leachates
7.4.10	Sampling Record
7.7.1	Recordkeeping - General
	CLOSURE / POST-CLOSURE
8.1.11.d	Landfill VZMS Monitoring

PERMIT NUMBER	PERMIT CONDITION
8.3.1.d	Recordkeeping – Cost Estimates for Closure and Post-Closure Care
	CORRECTIVE ACTION FOR REGULATED UNITS
9.5	Recordkeeping - General

TABLE 2-3

REPORTING/CERTIFICATION/NOTIFICATION REQUIREMENTS

PERMIT NUMBER	PERMIT CONDITION
1.2.2	Permit Renewal
1.2.4	Transfer of Permit
1.5.6	Duty to Provide Information
1.5.7	Disclosure Statement
1.5.9.a	Reporting Planned Changes
1.5.9.b	Reporting Anticipated Noncompliance
1.5.9.c.i	Submittal of Construction Certification and As-Built Specifications
1.5.9.d	Twenty-Four Hour and Subsequent Reporting
1.5.9.d.i	Oral Report
1.5.9.d.iii	Written Submission
1.5.9.e	Contingency Plan Implementation
1.5.9.f	Other Noncompliance
1.5.9.g	Other Information
2.3.1	Imported Waste Notification
2.10.5	Notification of Agreements with Local Authorities
2.11.2	Copies of the Contingency Plan
2.11.3	Amendments to the Contingency Plan
2.11.5	Updated Contingency Plan
2.11.5.a	List of Emergency Coordinators
2.11.5.b	Emergency Response Team Members

PERMIT NUMBER	PERMIT CONDITION
2.11.5.c	Evacuation Plan
~~2.11.5.d~~	~~Procedures in Case of Surface Impoundment Failure~~
2.11.5.e	Decontamination of Personnel and Equipment
~~2.11.5.f~~	~~Loss of Electrical Power in the Stabilization Building~~
2.11.6	Reporting and Recordkeeping – Contingency Plan Implementation
2.12.2	Reporting Requirements
2.12.2.a	Biennial Report
2.12.2.b	Quarterly Report
2.12.2.c	Waste Minimization Program Certification
2.12.2.d	Reporting – Noncompliance with the 40 CFR 264, Subpart CC Exemption
2.14.1.b	Manifest Discrepancies
2.14.1.c	Unmanifested Waste Report
2.18	Liability Coverage
2.19	Financial Incapacity
	~~CONTAINERS~~
~~3.7.2.a~~	~~40 CFR 264, Subpart CC Noncompliance~~
	~~TANKS~~
~~4.5.1.b~~	~~Containment of Visible Releases~~
~~4.7.2.a~~	~~Leak or Spill Reporting~~
~~4.7.2.a.i~~	~~Oral Report~~
~~4.7.2.a.ii~~	~~Written Report~~

PERMIT NUMBER	PERMIT CONDITION
~~4.7.2.b~~	~~Reporting Noncompliance - 40 CFR 264, Subpart CC~~
~~4.7.3.b~~	~~Certification Reporting after Major Repairs~~
	~~SURFACE IMPOUNDMENT~~
~~5.7.2.a~~	~~Notification of Sudden Drop in a Pond Liquid Level~~
~~5.7.2.a.i~~	~~Oral Report~~
~~5.7.2.a.ii~~	~~Written Report~~
~~5.7.2.b~~	~~Submittals after ALR Exceedance~~
~~5.7.2.b.i~~	~~Written Notification of ALR exceedance~~
~~5.7.2.b.ii~~	~~Preliminary Assessment~~
~~5.7.2.b.iii~~	~~Data submittal~~
~~5.7.2.c~~	~~Noncompliance with the 40 CFR 264, Subpart CC Exemption Requirements~~
~~5.7.3.b~~	~~Dike Recertification~~
~~5.7.3.c~~	~~Liner Recertification~~
	LANDFILL
6.2.1.f	Access Ramps
6.2.1.g.i	Landfill Stormwater Collection Basin
6.2.1.g.ii	Landfill Contaminated Water Collection Basin Construction and Removal
6.7.2.a	Waste Identification and Location within the Landfill
6.7.2.c	Response Actions
	VADOSE ZONE MONITORING
7.1.2	Duty to Initiate Corrective Action

PERMIT NUMBER	PERMIT CONDITION
7.1.3	Duty to Remove Non-Leachates
7.3.1.a	Time-Frame for Establishment of a Non-Leachate Indicator Parameter List and Baseline Concentrations
7.3.1.b	Reporting – Baseline Values for Non-Leachates
7.3.2.a	Monthly Sampling
7.3.2.b	Biennial Sampling
7.5	Release Assessment
7.6	VZMS Maintenance
7.7.2.a	First Quarterly Report
7.7.2.b	Quarterly Reports
7.7.2.c	Biennial Report
7.7.2.d	Special Reports
	CLOSURE / POST-CLOSURE
8.1.3.a	Notification of Closure
8.1.5	Closure Certification
8.1.6	Survey Plat
8.1.7.a	Sampling Records
8.1.7.b	Quarterly Reports
8.1.7.c	Final Closure Report
~~8.1.10.b~~	~~Surface Impoundment Permit Modification~~

PERMIT NUMBER	PERMIT CONDITION
8.1.10.c	Permit Modification for Closure as a Landfill
8.1.11.b	Landfill Permit Modification
8.2.2	Post-Closure Care Plan Modification
8.2.2.a	Amendment When necessary
~~8.2.2.b~~	~~Surface Impoundment Post-Closure Care Plan Modification~~
~~8.2.2.c~~	~~Tank System post-Closure Care Plan Modification~~
8.2.8	Annual Reports
8.2.9	Certification of Post-Closure Care Completion
8.2.11	Post-Closure Notices
8.2.11.b.i	Record of Notation
8.2.11.b.ii	Certification of Deed Notification
8.2.12	Removal of Hazardous Materials
8.3.1.a	Latest Closure Cost Estimates
8.3.2	Financial Assurance for Closure and Post-Closure Care
	CORRECTIVE ACTION FOR REGULATED UNITS
9.3.1	Notification of Release
9.3.2	Verification Sampling Report
9.3.3.a	Immediate Response Action Report
9.3.3.b	Response Action Effectiveness Report
9.3.4	Independent Assessment
9.3.6	Monthly Corrective Action Progress Report
9.3.7	Regulated Unit Investigation Work Plan

PERMIT NUMBER	PERMIT CONDITION
9.3.8	Ground Water Monitoring Work Plan
	CORRECTIVE ACTION FOR SWMUs
10.1.2	Notification of Newly Discovered SWMUs and AOCs
10.2	Facility Corrective Action Work Plan
10.3.2	Background Soil Concentrations Work Plan
10.4.1	Notification of Newly Discovered SWMUs and AOCs
10.4.2	Notification of a Release From a SWMU or AOC
10.4.3	SWMU Assessment Report
10.5.1	Notification of a Release
10.6.1	Confirmatory Sampling Work Plan
10.6.4	Confirmatory Sampling Report
10.7.1	RCRA Facility Investigation Work Plan
10.7.3.a	RCRA Facility Investigation Report
10.7.5	Quarterly Reports
10.8.1	Interim Measures Work Plan
10.8.3.a	Interim Measures Progress Report
10.8.3.b	Interim Measures Final Report
10.9.1	Corrective Measures Study Work Plan
10.9.3	Corrective Measures Study Final Report
10.10.2	Financial Assurance Report
10.10.4	Permit Modification for Completion of Corrective Action
10.11	Ground Water Monitoring Work Plan

~~**Permit Part 3**~~

~~**HAZARDOUS WASTE STORAGE IN CONTAINERS**~~

~~**HIGHLIGHTS**~~

~~This Part contains conditions for storage of hazardous waste in containers at the Triassic Park Waste Disposal Facility (the Facility). Conditions are included for the maximum volumes and kinds of waste that can be stored in containers and for management and closure of the container storage units. Standards for construction and for operation and maintenance of the storage units are also included.~~

~~Container storage consists of two permitted areas: the Drum Handling Unit and the Roll-Off Container Storage Area. The location of the container storage units within the Facility is provided at Permit Attachment L1, *Engineering Drawings*, Drawing No. 4. Information on construction and management of hazardous waste in the container storage areas is provided at Permit Attachments A, *General Facility Description and Information*, Section 2.2, *Container Storage Areas*; and L, *Engineering Report*, Sections 5.0, *Truck Roll-Off Area*, and 7.0, *Drum Handling Facility*.~~

~~The Drum Handling Unit is an open-sided building with a roof that extends over the entire floor and truck docking area. The 49,265 square feet total floor area contains 7 drum storage cells, with each cell capable of storing 160 55-gallon drums. Ignitable, reactive, or incompatible wastes are segregated in separate cells as specified at Permit Attachment A, Section 2.2. Two of the cells are designated for storage of polychlorinated biphenyl (PCB)-contaminated waste and are isolated from the other drum storage cells by a 6-inch high by 41-inch wide berm that surrounds the PCB cells. The remaining five cells are also separated by berm walkways. The drums are placed in four rows, two drums deep, and two 12-foot wide aisles provide access for the forklift to place and remove drums.~~

~~The base of the Drum Handling Unit consists of a compacted subgrade of non-swelling soils, a 60-mil high-density polyethylene (HDPE) geomembrane liner, cushion geotextile, and one foot of foundation sand underlying the building floor. The floor is constructed of steel-reinforced cast-in-place concrete covered by a chemical-resistant epoxy coating. The floor serves as the primary containment system.~~

~~The floor of each cell slopes towards a trench covered by steel grating. Each trench leads to a dual sump system for that cell where any spilled liquids can be collected and removed. The trench and sump system incorporates a geomembrane liner, leak detection and removal system (LDRS), and leachate collection and removal system (LCRS). The leachate collection sump and drain system has a total fluid capacity of 2,110 gallons, which exceeds the required ten percent (880 gallons) of allowable container volume (160 55-gallon drums or 8,800 gallons) for each cell.~~

~~The Roll-Off Container Storage Area is an uncovered, single-lined system consisting of a prepared subgrade, a geomembrane underliner, a geonet drainage layer, a geotextile filter layer, a soil subbase layer, and a surface gravel layer. The Area is surrounded by a berm with a height ranging from two to eight feet. This berm diverts run-on surface water around the perimeter of the truck roll-off area. The storage areas are accessed by 20-foot-wide compacted soil ramps at the center of each cell. Culverts under each of the access ramps allow surface water flow to the west toward the run-off Stormwater Detention Basin. The Area consists of two cells that are separated by a berm with a minimum interior height of two feet. Each cell is approximately 310 feet long by 180 feet wide and can stage 66 40-cubic yards roll-off containers.~~

~~The west cell (the Incoming Waste Cell), approximately one-half of the area, holds tarped, U.S. Department of Transportation (DOT)-approved, lined roll-off containers holding non-stabilized hazardous waste prior to treatment. Each container and its plastic bed liner comprise a double-lined system.~~

~~Secondary containment consists of a berm surrounding the Incoming Waste Cell, sloping floor, and sump incorporated into the drainage layer for leak detection and removal. The sump system has a total fluid capacity of 1,406 gallons, which exceeds the required ten percent of allowable container volume. The Roll-Off Storage Area drainage sump is monitored visually to determine whether pumping is required. Precipitation collected in the sump is removed by vacuum truck.~~

~~Waste is characterized and screened as part of the waste acceptance procedures. Roll-off containers are inspected for free liquids prior to acceptance at the Incoming Waste Cell. Free liquids detected are removed and stabilized. Roll-Offs containing free liquids are not stored in the Truck Roll-Off Area.~~

~~The east cell (the Stabilized Waste Cell) serves as a staging area for roll-off bins containing post-treatment stabilized waste awaiting landfill disposal approval. Construction is identical for the west and east cells.~~

~~Waste is transferred to both cells by generator or Facility trucks. After delivery, the trucks are decontaminated, if necessary, at the Truck Wash Area, which is operated as a RCRA 90-day storage area.~~

~~Hazardous waste containing volatile organic concentrations equal to or greater than 500 parts per million by weight (ppmw) is permitted for storage in containers, provided that these containers are managed in compliance with the Container Level 1 or Level 2 standards required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1086). This waste goes directly from the storage areas to the Landfill for final disposal; therefore, waste containing volatile organics which are permitted to be stored in this area is restricted to waste that, upon acceptance at the Facility, already meets the Land Disposal Restrictions (LDR) treatment standards and that does not contain free liquids. Wastes requiring Container Level 3 management are not permitted for management at the Facility.~~

~~3.1 GENERAL REQUIREMENTS FOR CONTAINER STORAGE~~

~~3.1.1 Permitted Storage in Drums~~

~~The Permittee shall store hazardous waste in drums only in cells at the Drum Handling Unit, as identified at Table 3-1, *Permitted Drum Storage Unit*, and as specified at Permit Attachment A, Section 2.2.1.3, *Storage Limits*. The volume of hazardous waste that may be stored in the Drum Handling Unit is limited to the maximum capacity identified at Table 3-1, and as specified at Permit Attachment A, Section 2.2.1.3.~~

~~The Drum Handling Unit, as identified in Table 3-1, is one permitted unit.~~

~~3.1.2 Permitted Storage in Roll-Off Containers~~

~~The Permittee shall store hazardous waste in roll-off containers or roll-off container equivalents only in the Roll-Off Container Storage Unit, as identified at Table 3-2, *Permitted Roll-Off Container Storage Unit*, and as specified at Permit Attachment A, Section 2.2.2.3, *Storage Limits*. The volume of hazardous waste that may be stored in the Roll-Off Container Storage Unit is~~

~~limited to the maximum capacity identified at Table 3-2, and as specified at Permit Attachment A, Section 2.2.2.3.~~

~~The Roll-Off Container Storage Unit, as identified in Table 3-2, is one permitted unit.~~

~~3.1.3 Permitted Wastes in Containers~~

~~The Permittee shall store in containers only those hazardous wastes identified at Table 2-1, *Permitted Hazardous Wastes*, subject to the prohibitions contained at Permit Condition 3.1.4.~~

~~3.1.4 Prohibited Wastes in Containers~~

~~3.1.4.a General Waste Prohibition~~

~~The Permittee is prohibited from storing in containers those wastes identified at Permit Condition 2.4.2 and Permit Attachment F, *Waste Analysis Plan*, Section 4.1.2, *Prohibited Waste*.~~

~~3.1.4.b Polychlorinated Biphenyl-Contaminated Waste~~

~~The Permittee may store PCB-contaminated waste, as identified at Permit Condition 2.4.1.b, in the Container Storage Areas.~~

~~3.2 CONTAINER STORAGE AREAS CONSTRUCTION~~

~~3.2.1 Construction Requirements~~

~~The Permittee shall construct the Drum Handling Unit and loading dock area, and the Roll-Off Container Storage Area, as specified at Permit Attachments A, Sections 2.2.1, *Drum Handling Unit*, and 2.2.2, *Roll-Off Storage Area*; L, Sections 5.0 and 7.0; L1, Drawings Nos. 37 through 39 and 41 through 43; and L2, *Specifications for Landfill, Surface Impoundment and Associated Facilities Liner and Cover System Construction*.~~

~~3.2.2 Secondary Containment~~

~~The Permittee shall construct and operate the secondary containment systems for each cell in the Drum Handling Unit, including the LDRSs and LCRSs, and the secondary containment system, including the LDRS, for the Roll-Off Container Storage Unit, as specified at Permit Attachments A, Sections 2.2.1.1, *Containment and Detection of Releases [Drums]*, and 2.2.2.1, *Containment and Detection of Releases [Roll-Off Containers]*; L, Sections 5.0 and 7.0; L1, Drawings Nos. 39 and 43; and L2; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.175).~~

~~3.2.3 Berms~~

~~The Permittee shall construct and maintain the earthen berms surrounding the Truck Roll-Off Storage Area so that there are no cracks or gaps that could adversely impact the integrity of the secondary containment system, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.175). The Permittee shall construct the perimeter berm so that the berm is from 2 to 10 feet high and slopes at 3H:1V to the floor of the Roll-Off Storage Area, as specified at Permit Attachments L, Sections 5.1.1, *General*, and 5.1.2, *Truck Roll-Off Area Layout*; and L1, Drawing No. 41. The Permittee shall construct this berm and the separator berm between the two storage cells as shown at Permit Attachment L1, Drawing No. 41 (1 and 2 of 2), and using the appropriate construction specifications contained at Permit Attachment L2.~~

~~3.3 GENERAL OPERATING REQUIREMENTS FOR CONTAINERS~~

~~The Permittee shall manage containers as specified at Permit Attachment A, Section 2.2; and as required by 20.4.1.500 NMAC (incorporating 40 CFR Part 264, Subpart I).~~

~~3.3.1 DOT Requirements~~

~~The Permittee shall use only containers that comply with the requirements for DOT shipping container regulations, 49 CFR Part 173, *Shippers - General Requirements for Shipment and Packaging*, and 49 CFR Part 178, *Specifications for Packagings*, for container storage of hazardous waste.~~

~~3.3.2 Acceptable Storage Containers~~

~~The Permittee is prohibited from storing hazardous waste in any container other than the following, as specified at Permit Attachment A, Section 2.2.8, *Types of Containers*.~~

~~3.3.2.a Drums~~

~~The Permittee shall use standard 55-gallon drums with a gross internal volume of 7.3 cubic feet, 35-gallon (4.64 cubic feet) drums, or 10-gallon (1.23 cubic feet) drums. Overpack drums may be used as necessary.~~

~~3.3.2.b Roll-Off Boxes~~

~~The Permittee shall use only 40 cubic yards or similar roll-off boxes.~~

~~3.3.3 Condition of Containers~~

~~The Permittee shall manage containers as specified at Permit Attachment A, Section 2.2.10, *Condition of Containers*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.171). If a container holding hazardous waste is not in good condition (e.g., has severe rusting or apparent structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such a container to a container that is in good condition.~~

~~3.3.4 Compatibility of Wastes with Containers~~

~~The Permittee shall use containers made of, or lined with, materials that shall not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain waste is not impaired, as specified at Permit Attachment A, Section 2.2.11, *Compatibility with the Container*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.172).~~

~~3.3.5 Management of Containers~~

~~The Permittee shall keep all containers closed during storage, except when it is necessary to add or remove waste. The Permittee shall not open, handle, or store containers in a manner that may rupture the container or cause it to leak, as specified at Permit Attachment A, Section 2.2.10; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.173).~~

~~3.3.6 Placement of Containers~~

~~3.3.6.a Drum Handling Facility~~

~~The Permittee shall store containers in the Drum Storage Unit in four rows, no more than two drums deep, as specified at Permit Attachments L, Section 7.1.2, *Facility Layout*; and L1, Drawing No. 37.~~

~~3.3.6.b Placement Limitations~~

~~The Permittee shall ensure that containers are not placed in the Roll-Off Container Storage Area within the limits potentially inundated by the 25-year, 24-hour storm event, or within four feet of the edge of the berm, as specified at Permit Attachment A, Section 2.2.2; and as shown at Permit Attachment L1, Drawing No. 41.~~

~~The Permittee shall remove any accumulated water from the Roll-Off Container Storage Area after each rainfall event, as specified at Permit Attachment L, Section 5.1.1.~~

~~3.3.7 Minimum Aisle Space~~

~~The Permittee shall maintain a minimum 2.5-foot aisle space between the double rows of drums in the Drum Handling Building such that each drum can be visually inspected. Drums shall be stored in single rows if they are placed against a wall or other barrier that prohibits inspection from all sides. The Permittee shall place roll-off containers four feet apart and four feet from the edge of the berm, as specified at Permit Attachment A, Section 2.2.13, *Aisle Space*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.35).~~

~~3.3.8 Labeling of Containers~~

~~The Permittee shall label each storage container with a hazardous waste label identifying the contents, as specified at Permit Attachment A, Section 2.2.9, *Labels*. The label shall be clearly marked to indicate the date of receipt or accumulation. The label shall not be obscured from view during storage.~~

~~3.3.9 Cell Identification~~

~~The permitted Facility storage cells shall be clearly identified. At a minimum, storage cell information signs shall be posted to be clearly visible on the storage cells, indicating "RCRA PERMIT CELL X". The Permittee shall ensure that drum storage cells and roll-off containers holding ignitable, reactive, or incompatible wastes, or PCB-contaminated wastes, are clearly identified.~~

~~3.3.10 Storage Time Limit~~

~~The Permittee shall not store wastes restricted from land disposal in containers for longer than one year unless the Permittee can demonstrate that such storage is solely for the purpose of accumulating such quantities of hazardous waste as are necessary to facilitate proper treatment or disposal, as specified at Permit Attachment A, Section 2.1.3, *Waste Staging/Storage*; and as required by 20.4.1.800 NMAC (incorporating 40 CFR 268.50(c)).~~

~~3.3.11 PCB-Contaminated Wastes~~

~~Drums holding wastes contaminated with PCBs shall be stored only in the two cells in the Drum Handling Building designated for that purpose, as specified at Permit Attachment A, Section 2.2.1.3; and as identified at Permit Attachment L1, Drawing No. 37.~~

~~3.3.12 40 CFR 264, Subpart CC~~

~~3.3.12.a Repair - Containers Using Container Level 1 Standards~~

~~If a defect is detected in a container using Container Level 1 standards in accordance with Permit Condition 3.11.2.c, then the Permittee shall repair the defect as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1086(c)(4)(iii)).~~

~~3.3.12.b Repair - Containers Using Container Level 2 Standards~~

~~If a defect is detected in a container that is being managed using Container Level 2 standards in accordance with Permit Condition 3.11.2.d, then the Permittee shall repair the defect as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1086(d)(4)(iii)).~~

~~3.4 WASTE ANALYSIS – COMPLIANCE WITH 40 CFR 264, SUBPARTS BB AND CC DETERMINATION~~

~~The Permittee shall comply with the requirements of Permit Conditions 2.5 (*Waste Analysis Plan*), 2.15.1.b (*Waste Determination*), 2.15.2.b (*Initial Waste Determination*), and 2.15.2.c (*Waste Determination After Process Change*) for each waste stream in each container. This determination may include documentation that the waste is exempt from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subparts BB and CC), as provided at 20.4.1.500 (incorporating 40 CFR 264.1063(d) and 264.1082(c)). When waste testing for average volatile organic concentration has not been performed or has not been completed, the Permittee shall manage the container in accordance with Permit Condition 3.11 until the waste average volatile organic concentration is determined.~~

~~3.5 MANAGEMENT OF LEAKS OR SPILLS~~

~~Upon detection of a spill or release at the Container Storage Units to either the surface environment or a leak detection~~

~~system, the Permittee shall respond as specified at Permit Attachment C, *Contingency Plan*, Section 6.3.5.2, *Spills, Leaks, or Other Releases Control Procedure*, and shall make a determination in accordance with Permit Attachment F, *Waste Analysis Plan*, Sections 4.6, *Sampling Plan*, and 4.5.6, *Waste Analysis Requirements for Waste Generated On-Site*, to identify the nature and concentration of all waste constituents. The Permittee shall select an appropriate method of treatment and/or disposal, and shall initiate procedures for removal in a timely manner, as specified at Permit Attachment A, Sections 2.2.1.1 and 2.2.2.1.~~

~~3.6 INSPECTION SCHEDULES AND PROCEDURES~~

~~3.6.1 Inspection Procedures~~

~~The Permittee shall inspect the Container Storage Units and loading dock area to ascertain the condition of containers and secondary containment, safety equipment, and aisle space at least weekly, as specified at Permit Attachments D, *Inspection Procedures*, Section 5.2.4, *Container Storage Area Inspection Procedures*; and D1, *Inspection Schedules and Checklists*; to detect leaking containers and deterioration of the containment system caused by corrosion and other factors, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.174).~~

~~3.6.2 LDRS/LCRS at the Drum Handling Unit~~

~~The Permittee shall inspect the LDRS and LCRS sumps at the Drum Handling Unit at least weekly for the presence of liquid, and shall otherwise manage any liquids present in the sumps, as specified at Permit Attachments A, Section 2.2.1.1; D, Section 5.2.4; and D1. Pumpable quantities of liquid shall be removed by vacuum truck in a timely manner.~~

~~3.6.3 LDRS at the Roll-Off Container Storage Unit~~

~~The Permittee shall inspect the LDRS sumps at the Roll-Off Container Storage Unit at least weekly for the presence of liquid, and shall otherwise manage any liquids present in the sumps as specified at Permit Attachments A, Section 2.2.2.1; D, Section 5.2.4; and D1. Pumpable quantities of liquid shall be removed in a timely manner.~~

~~3.6.4 Inspection for Compliance with 40 CFR 264, Subpart CC~~

~~3.6.4.a Inspection for Containers Using Container Level 1 Standards~~

~~The Permittee shall inspect containers that use Container Level 1 controls, and their covers and closure devices, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1086(c)(4)(i) and (c)(4)(ii). Inspection shall be at first acceptance of containers if the container is not emptied within 24 hours of acceptance. Inspection shall include determination of the existence of any visible cracks, holes, gaps, or other open spaces. Defects shall be repaired by the Permittee in accordance with the requirements of Permit Condition 3.3.12.a.~~

~~3.6.4.b Inspection for Containers Using Container Level 2 Standards~~

~~The Permittee shall inspect containers that use Container Level 2 controls, and their covers and control devices, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1086(d)(4)(i) and (d)(4)(ii)). Inspection shall be at first acceptance of containers if the container is not emptied within 24 hours of acceptance. Inspection shall include determination of the existence of any visible cracks, holes, gaps, or other open spaces. Defects shall be repaired by the Permittee in accordance with the requirements of Permit Condition 3.3.12.b.~~

~~3.7 RECORDKEEPING AND REPORTING~~

~~3.7.1 Recordkeeping~~

~~3.7.1.a General Recordkeeping Requirements~~

~~The Permittee shall keep inspection records, container storage waste analyses and other documentation pertaining to compliance, and records of maintenance performed, in the Operating Record, as specified at Permit Attachment N, *Operations and Maintenance Plan*, Section 3.8.1, *Records*; and in accordance with Permit Condition 2.7.3.~~

~~3.7.1.b Ignitable, Reactive, or Incompatible Waste~~

~~The Permittee shall document and place in the Operating Record evidence of compliance with the requirements for ignitable, reactive, or incompatible wastes contained at Permit Conditions 3.8 and 3.9, including the results of all waste analyses, trial~~

~~tests, and any other documentation showing compliance, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17(c) and 264.73(b)(3)).~~

~~3.7.1.c 40 CFR 264, Subparts BB and CC Exemptions~~

~~The Permittee shall maintain in a log kept at the Facility all the information necessary to determine exemption from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subparts BB and CC), in accordance with Permit Conditions 2.12.1.f and 2.12.1.g.~~

~~3.7.1.d 40 CFR 264, Subpart CC Compliance~~

~~For containers that fall under Container Level 1 standards in accordance with Permit Condition 3.11.2.c.ii that do not meet the applicable DOT regulations on packaging hazardous materials for transportation specified at 20.4.1.500 NMAC (incorporating 40 CFR 264.1086(f)), the Permittee shall maintain at the Facility a copy of the procedures used to determine that these containers are not managing hazardous waste in light material service, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1086(c)(5).~~

~~3.7.1.e 40 CFR 264, Subpart CC~~

~~The Permittee shall prepare and maintain in the Operating Record for a minimum of three years the information used for each waste determination required at Permit Condition 2.12.1.g (e.g., test results, measurements, calculations, and other documentation), as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1089(a), (f)(1), and/or (h)).~~

~~3.7.2 Reporting~~

~~3.7.2.a 40 CFR 264, Subpart CC Noncompliance~~

~~The Permittee shall report to the Secretary each occurrence when hazardous waste is stored in a storage area in noncompliance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC), in accordance with Permit Condition 2.12.2.d.~~

~~3.8 SPECIAL PROVISIONS FOR IGNITABLE OR REACTIVE WASTE~~

~~3.8.1 Procedures for Ignitable or Reactive Waste~~

~~The Permittee shall not store ignitable or reactive waste in a container unless the procedures specified at Permit~~

~~Attachments A, Section 2.2.5, *Ignitable/Reactive Wastes*; and B, *Procedures to Prevent Hazards*, Section 5.5, *Precautions to Prevent Ignition or Reaction of Ignitable, Reactive, or Incompatible Wastes*; are followed, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17(a) and (b)).~~

~~3.8.2 Protective Distances~~

~~Ignitable or reactive waste in drums stored in the Drum Handling Unit shall be stored only in a cell clearly marked for ignitable or reactive waste. Containers holding ignitable or reactive waste shall not be located within 50 feet of the Facility's property line, as specified at Permit Attachment A, Section 2.2.5, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.176).~~

~~3.9 SPECIAL PROVISIONS FOR INCOMPATIBLE WASTE~~

~~3.9.1 Separation of Incompatible Wastes~~

~~The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container, as specified at Permit Attachment B, Section 5.5.3, *Incompatible Waste Handling*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.177(a)).~~

~~3.9.2 Unwashed Containers~~

~~The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material, as specified at Permit Attachment A, Section 2.2.11; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.177(b)).~~

~~3.9.3 Segregation of Containers with Incompatible Wastes~~

~~Hazardous waste containers in Container Storage Areas shall be segregated by waste type and compatibility, as specified at Permit Attachment B, Section 5.5.3; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.177(c)).~~

~~3.10 HEALTH AND SAFETY~~

~~The Permittee shall ensure that supplied air respirator systems are available for use as necessary for Facility personnel involved with drum sampling and decanting activities at the Drum~~

~~Handling Unit, as specified at Permit Attachment L, Section 7.1.2.~~

~~3.11 40 CFR 264, SUBPARTS BB AND CC~~

~~3.11.1 Wastes Containing Concentrations of Organic Compounds Greater than Ten Percent by Weight~~

~~The Permittee shall not manage in any equipment such as pumps, compressors, pressure relief devices, sampling equipment, connecting systems, and valves, any hazardous waste with organic concentrations equal to or greater than ten percent by weight, as specified at Permit Attachment G, *Air Quality*, Section 11.2, *40 CFR 264 Subpart BB - Air Emission Standards for Equipment Leaks*; and in accordance with Permit Condition 2.4.2.a.~~

~~3.11.2 40 CFR 264, Subpart CC~~

~~3.11.2.a Compliance~~

~~The Permittee shall manage containers containing hazardous wastes with an average volatile organic concentration at the point of waste origination equal to or greater than 500 ppmw, or with an unknown or undocumented concentration, as required by 4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC).~~

~~3.11.2.b Exemptions~~

~~3.11.2.b.i Volatile Organic Concentration~~

~~Containers containing hazardous waste with an average volatile organic concentration at the point of waste origination of less than 500 ppmw are exempt from compliance with the standards set forth in 20.4.1.500 NMAC (incorporating 40 CFR 264.1084 through 1087), in accordance with 4.1.500 NMAC (incorporating 40 CFR 264.1082(c)(1)). Hazardous wastes with unknown or undocumented average volatile organic concentration at the point of waste origination are not exempt from compliance under these requirements.~~

~~3.11.2.b.ii Compliance with LDR Treatment Standards~~

~~Containers containing any of the following waste are exempt from compliance with 4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC), in accordance with 4.1.500 NMAC (incorporating 40 CFR 264.1082(c)(4)):~~

- ~~organic waste that meets the numerical concentration limits for organic hazardous constituents, applicable to the hazardous waste, as specified under the Table "Treatment Standards for Hazardous Wastes" contained in 4.1.800 NMAC (incorporating 40 CFR 268.40);~~

- ~~organic waste that has been treated by the treatment technology established for the waste in 4.1.800 NMAC (incorporating 40 CFR 268.42(a); or~~

- ~~organic waste that has been treated by an equivalent method approved by the Secretary.~~

~~3.11.2.b.iii Design Capacity~~

~~Containers that have a design capacity less than or equal to 0.1 cubic meter (approximately 26 gallons) are exempt from compliance with 4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC), as set forth in 4.1.500 NMAC (incorporating 40 CFR 264.1080(a) and (b)(2)).~~

~~3.11.2.c Container Level 1 standards~~

~~3.11.2.c.i Design Capacity Less than or Equal to 0.46 Cubic Meter~~

~~Containers having a design capacity greater than 0.1 cubic meter and less than or equal to 0.46 cubic meter (approximately 120 gallons) and containing waste with either undocumented volatile organic concentrations or having a measured average volatile organic concentration at the point of waste origination of equal to or greater than 500 ppmw shall be managed in accordance with the Container Level 1 standards specified at 4.1.500 NMAC (incorporating 40 CFR 264.1086(c)); and as required by 4.1.500 NMAC (incorporating 40 CFR 264.1086(b)(1)(i)).~~

~~3.11.2.c.ii Design Capacity Greater than 0.46 Cubic Meter~~

~~Containers having a design capacity greater than 0.46 cubic meter that are not in light material service and that contain waste with an average volatile organic concentration at the point of waste origination equal to or greater than 500 ppmw shall be managed in accordance with the Container Level 1 standards specified at 4.1.500 NMAC (incorporating 40 CFR 264.1086(c)); and as required by 4.1.500 NMAC (incorporating 40 CFR 264.1086(b)(1)(ii)).~~

~~3.11.2.d 40 CFR Part 264, Subpart CC Level 2 Standards~~

~~Containers having a design capacity greater than 0.46 cubic meter that are in light material service and that contain waste with an average volatile organic concentration at the point of waste origination equal to or greater than 500 ppmw shall be managed in accordance with the Container Level 2 standards specified at 4.1.500 NMAC (incorporating 40 CFR 264.1086(d)); and as required by 4.1.500 NMAC (incorporating 40 CFR 264.1086(b)(1)(iii)). Containers having a design capacity greater than 0.46 cubic meter that contain waste for which the condition of light material service is unknown or undocumented shall be managed by the Permittee as though the waste were in light material service, until analysis of the waste demonstrates otherwise.~~

~~3.12 CLOSURE~~

~~The Permittee shall conduct closure activities for the Drum Handling Unit and/or the Roll-Off Container Storage Unit as specified at Permit Attachment O, *Closure Plan*, Sections 8.1.1, *Drum Handling Unit*, and 8.1.5, *Roll-Off Storage Area*, and other pertinent sections; and in accordance with Permit Part 8; and as required by 20.4.1.500 NMAC, (incorporating 40 CFR 264.178). The Permittee shall follow the time frame for closure specified at Permit Attachment O1, *Compliance Schedules for Closure*.~~

~~TABLE 3-1~~

~~PERMITTED DRUM STORAGE UNIT~~

~~CELL~~	~~DIMENSIONS~~	~~MAXIMUM ALLOWABLE CAPACITY~~
~~Cell 1; secondary containment; sump; Drum Handling Building; loading dock area~~	~~52 feet by 63 feet~~	~~160 55-gallon drums or equivalent (8,800 gallons)~~
~~Cell 2; secondary containment; sump~~	~~52 feet by 63 feet~~	~~160 55-gallon drums or equivalent (8,800 gallons)~~
~~Cell 3; secondary containment; sump~~	~~52 feet by 63 feet~~	~~160 55-gallon drums or equivalent (8,800 gallons)~~
~~Cell 4; secondary containment; sump~~	~~52 feet by 63 feet~~	~~160 55-gallon drums or equivalent (8,800 gallon)~~
~~Cell 5; secondary containment; sump~~	~~52 feet by 63 feet~~	~~160 55-gallon drums or equivalent (8,800 gallon)~~
~~Cell 6; secondary containment; sump~~	~~52 feet by 63 feet~~	~~160 55-gallon drums or equivalent (8,800 gallon)~~
~~Cell 7; secondary containment;~~	~~52 feet by 63 feet~~	~~160 55-gallon drums or equivalent (8,800~~

~~**CELL**~~	~~**DIMENSIONS**~~	~~**MAXIMUM ALLOWABLE CAPACITY**~~
~~sump~~		~~gallon)~~
~~**TOTAL**~~		~~**1,120 55-gallon drums or equivalent (61,600 gallons)**~~

~~TABLE 3-2~~

~~PERMITTED ROLL-OFF CONTAINER STORAGE UNIT~~

~~**CELL**~~	~~**DIMENSIONS**~~	~~**MAXIMUM ALLOWABLE CAPACITY**~~
~~Incoming Waste Cell; secondary containment; sump, cell base; berms~~	~~180 feet by 310 feet (inside dimensions)~~	~~66 40-cubic yard roll-off containers or roll-off container equivalent~~
~~Stabilized Waste Cell; secondary containment; sump; cell base~~	~~180 feet by 310 feet (inside dimensions)~~	~~66 40-cubic yard roll-off containers or roll-off container equivalent~~
~~**TOTAL**~~		~~**132 40-cubic yard roll-off containers or roll-off container equivalents**~~

~~Permit Part 4~~

~~HAZARDOUS WASTE STORAGE AND TREATMENT IN TANKS~~

~~HIGHLIGHTS~~

~~This Part contains conditions for storage and treatment of hazardous waste in tanks at the Triassic Park Waste Disposal Facility (the Facility). Permitted waste that can be stored or treated in tanks is identified at Permit Condition 2.4.1 and Table 2-1, *Permitted Waste*. Waste that is prohibited is identified at Permit Condition 2.4.2.~~

~~Hazardous waste at the Facility is stored in tanks located in the Liquid Waste Receiving and Storage Tank Area. Hazardous waste is treated in tanks located in the Stabilization Tank Building. The location of these units within the Facility is provided at Permit Attachment L1, *Engineering Drawings*, Drawing No. 4, *Facility Layout*.~~

~~Tank storage consists of four aboveground tanks. Only liquids are stored in tanks. Each of the four tanks is double-walled and constructed of high-density polyethylene materials. The outer wall provides secondary containment for the tank. Each outer tank has sufficient capacity to contain 100 percent of the contents of the inner tank in the event of tank failure. The Liquid Waste Tank Storage Area has a coated concrete pad beneath the tanks and has no roof or walls. The concrete floor for each tank slopes to a collection sump. Spill prevention is maintained by hard-plumbed piping, dry disconnect coupling, and/or overfill prevention controls. Storage in tanks is discussed at Permit Attachment A, *General Facility Description and Information*, Section 2.3, *Storage in Tanks*.~~

~~Liquids are transferred directly from off-site tanker trucks, or from the Drum Handling Unit or the Roll-Off Container Storage Area (Incoming Waste Cell), to the Storage Tanks. Liquids are transferred by transfer truck from the Liquid Waste Storage Tanks to a Stabilization Tank or the Surface Impoundment for treatment.~~

~~The Stabilization Area consists of a building containing four in-ground double-lined steel Stabilization Tanks and a control room. The tanks are double-walled steel tanks contained in a concrete vault for additional support. The outer wall of the vault provides additional containment for the tanks. Corrosion protection consists of cathodic grounding of the tanks. Outside~~

~~the building are two dry reagent silos, a water tank, and exhaust air bag house. Air particulates are removed and collected into the bag house prior to venting air emissions from the building. Treatment in tanks is discussed at Permit Attachment A, Section 2.4, *Stabilization*.~~

~~Treatment consists of solidification of the waste by mixing with dry or liquid reagents. Wastes are tested prior to stabilization in the tanks to determine the appropriate reagent and compatibility with the tanks. Reagent is added to the tank by a backhoe. Bulk liquids, sludges, and solids that do not meet Land Disposal Restriction (LDR) standards, as well as solids that may contain free liquids, are treated.~~

~~Hazardous waste is off-loaded directly from off-site transport trucks, or from trucks coming from the Container Storage Areas or Liquid Waste Storage Tanks, into the Stabilization Tanks. After stabilization, the waste is transferred to a roll-off container and either stored in the Roll-Off Container Storage Area (Stabilized Waste Cell) to cure or transferred directly to the Landfill.~~

~~In order to maintain exemption for the Liquid Waste Storage Tanks and Stabilization Tanks from compliance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart BB), as specified at Permit Attachment G, *Air Quality*, Section 11.2, *40 CFR 264 Subpart BB - Air Emission Standards for Equipment Leaks*, no hazardous waste with an organic concentration equal to or greater than ten percent by weight is permitted to be placed in the Liquid Waste Storage Tanks or Stabilization Tanks.~~

~~In order to maintain exemption for the Liquid Waste Storage Tanks and Stabilization Tanks from compliance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC), as specified at Permit Attachment G, Section 11.3, *40 CFR Subpart CC - Air Emissions Standards for Tanks, Surface Impoundments and Containers*, no hazardous waste that has an average volatile concentration at the point of waste origination equal to or greater than 500 parts per million by weight (ppmw) is permitted to be placed in the Liquid Waste Storage Tanks or Stabilization Tanks.~~

~~4.1 GENERAL REQUIREMENTS FOR TANKS~~

~~4.1.1 Permitted Storage in Tanks~~

~~The Permittee shall store liquid hazardous wastes in tanks only in the four Liquid Waste Storage Tanks identified at Table 4-1, *Permitted Liquid Waste Storage Tanks*, as specified at Permit Attachment A, Section 2.3. The volume of liquid hazardous waste stored in each tank is limited to the capacity identified at Table 4-1, as specified at Permit Attachment A, Section 2.3.~~

~~Each Liquid Waste Storage Tank is one permitted unit, as identified at Table 4-1.~~

~~4.1.2 Permitted Treatment in Tanks~~

~~The Permittee shall treat hazardous waste in tanks only in the four Stabilization Tanks, identified at Table 4-2, *Permitted Treatment Tanks*, as specified at Permit Attachment A, Section 2.4. Quantities of hazardous waste treated in each bin are limited to the maximum capacities identified at Table 4-2, as further specified at Permit Attachment A, Section 2.4.~~

~~Each Stabilization Tank is one permitted unit, as identified at Table 4-2.~~

~~4.1.3 Permitted Wastes in Tanks~~

~~The Permittee shall store or treat in tanks only those wastes identified at Permit Condition 2.4.1, subject to the prohibitions contained at Permit Condition 4.1.4.~~

~~4.1.4 Prohibited Wastes in Tanks~~

~~4.1.4.a General Waste Prohibition~~

~~The Permittee is prohibited from storing or treating in tanks those wastes identified at Permit Condition 2.4.2 and Permit Attachment F, *Waste Analysis Plan*, Section 4.1.2, *Prohibited Waste*.~~

~~4.1.4.b Wastes Containing Concentrations of Organic Compounds Greater than Ten Percent by Weight (40 CFR 264, Subpart BB)~~

~~The Permittee shall not manage in any equipment, tanks, or piping any hazardous waste with organic concentrations equal to or greater than ten percent by weight, pursuant to 4.1.500 NMAC (incorporating 40 CFR 264.1050(b)).~~

~~4.1.4.c Wastes Containing Concentrations of Volatile Organic Compounds Greater than 500 ppmw (40 CFR 264, Subpart CC)~~

~~The Permittee shall not manage in tanks hazardous wastes which have an average volatile organic concentration at the point of waste origination equal to or greater than 500 ppmw or with an unknown or undocumented concentration, as required by 4.1.500 NMAC (incorporating 40 CFR 264.1082(c)(1)), unless the waste is one of the following, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.1082(c)(4)):~~

- ~~organic waste that meets the numeric concentration limits for organic hazardous constituents, applicable to the hazardous waste, as specified at the Table contained at 20.4.1.800 NMAC (incorporating 40 CFR 268.40);~~
- ~~organic waste that has been treated by the treatment technology established for the waste at 20. 4.1.800 NMAC (incorporating 40 CFR 268.42(a)); or~~
- ~~organic waste that has been treated by an equivalent method approved by the Secretary pursuant to a Permit modification.~~

~~4.2 TANK CONSTRUCTION REQUIREMENTS~~

~~4.2.1 Requirements for Storage Tanks~~

~~The Permittee shall construct the Liquid Waste Storage Tanks, concrete pad, ancillary equipment, and receiving area, as specified at Permit Attachments A, Section 2.3.1, *Containment and Detection of Releases*; L, *Engineering Report*, Section 8.0, *Liquid Waste Storage Facility*; L1, Drawing No. 40; and L2, *Specifications for Landfill, Surface Impoundment and Associated Facilities Liner and Cover System Construction*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.192). The Permittee shall ensure that the tanks meet the design standards contained at Permit Attachment L3, *Tank Integrity Assessment Certification*, submitted by the Permittee as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.192).~~

~~4.2.2 Requirements for Treatment Tanks~~

~~The Permittee shall construct the Stabilization Tanks, ancillary equipment, vault, receiving area, and Stabilization Building as~~

~~specified at Permit Attachments A, Section 2.4.1, *Contaminant and Detection of Releases*; L, Section 6.0, *Stabilization Facility*; L1, Drawings Nos. 33 through 36; and L2; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.192). The Permittee shall ensure that the tanks meet the design standards contained at Permit Attachment L3, submitted by the Permittee as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.192).~~

~~4.2.3 Secondary Containment for Storage Tanks~~

~~The Permittee shall construct and operate the secondary containment system for the Liquid Waste Storage Tanks as specified at Permit Attachments A, Section 2.3.1; L, Section 8.0; and L1, Drawing No. 40; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.193(b) through (f)).~~

~~4.2.4 Secondary Containment for Treatment Tanks~~

~~The Permittee shall construct and operate the secondary containment systems for the Stabilization Tanks as specified at Permit Attachments A, Section 2.4.1; L, Section 6.0; and L1, Drawings Nos. 33 through 36; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.193(b) through (f)).~~

~~4.2.5 Ancillary Equipment~~

~~The Permittee shall construct secondary containment for ancillary equipment as specified at Permit Attachments A, Sections 2.3.1, 2.4.1, 2.3.9, *Ancillary Equipment [Liquid Waste Storage Tanks]*, and 2.4.9, *Ancillary Equipment [Stabilization Tanks]*; L, Sections 6.0 and 8.0; and L1, Drawings Nos. 33 through 40; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.193(f)).~~

~~4.2.6 Required Certification~~

~~The Permittee shall install the Liquid Waste Storage Tank and the Stabilization Tank systems in such a manner as to insure that the systems are not damaged during installation. Prior to placing the tank systems in use, the tank systems shall be inspected and certified by an independent installation inspector or an independent professional engineer registered in New Mexico with the qualifications set forth at 20.4.1.500 NMAC (incorporating 40 CFR 264.192 (b)). The certification shall state that the tank systems were properly designed and installed as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.192(b) and 264.193(d)); as specified at Permit Attachment A, Sections 2.3.10, *Installation and Tightness Testing [Liquid Waste Storage Tanks]*, and 2.4.10, *Installation Inspection and Tightness*~~

~~*Testing [Stabilization Tanks]*; and as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.11(d)).~~

~~The Permittee shall keep this certification on file at the Facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.192(g)).~~

~~4.2.7 As-Built Specifications~~

~~The Permittee shall submit to the Secretary as-built specifications for the tank systems in accordance with Permit Conditions 1.5.9.c and 1.10.~~

~~4.3 GENERAL OPERATING REQUIREMENTS FOR TANKS~~

~~4.3.1 Compatibility with Tanks~~

~~The Permittee shall not place hazardous wastes or treatment reagents in a tank system if they could cause the tank, its ancillary equipment, or containment system to rupture, leak, corrode, or otherwise fail, as specified at Permit Attachment A, Section 2.3.2, *Management of Incompatible Wastes [Liquid Waste Storage Tanks]*, and 2.4.2, *Management of Incompatible Wastes [Stabilization Tanks]*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.194(a) and 264.199).~~

~~4.3.2 Spill and Overflow Prevention~~

~~The Permittee shall use appropriate controls and practices to prevent spills and overflows from tanks or containment systems as specified at Permit Attachment A, Sections 2.3.3, *Spill and Overflow Prevention [Liquid Waste Storage Tanks]*, and 2.4.3, *Spill and Overflow Prevention [Stabilization Tanks]*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.194(b)).~~

~~4.3.3 Storage Time Limit~~

~~The Permittee shall not store waste in a tank for longer than one year unless the Permittee can demonstrate that such storage is solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper treatment or disposal; as required by 20.4.1.800 NMAC (incorporating 40 CFR 268.50(b) and 268.50(c)).~~

~~4.3.4 Necessary Treatment in Tanks~~

~~The Permittee shall stabilize all bulk liquids, semi-solids, sludges, solids that may contain free liquids, and solids that do not meet the LDR treatment standards contained at 20.4.1.800~~

~~NMAC (incorporating 40 CFR, Part 268), prior to their disposal in the Landfill.~~

~~4.4 WASTE ANALYSIS~~

~~4.4.1 Waste Characterization~~

~~The Permittee shall characterize waste entering and leaving hazardous waste storage and treatment tanks as specified at Permit Attachment F, *Waste Analysis Plan*, Sections 4.4, *Procedures for Incoming Waste Acceptance*, 4.5.5.2, *Waste Analysis Requirements Specific to Storage Units*, and 4.5.5.4, *Waste Analysis Requirements Specific to the Stabilization Tanks*, to ensure that the waste management requirements specified at Permit Attachment F, Section 4.2, *Criteria for Waste Management at the Facility*, are met.~~

~~4.4.2 Waste Analysis to Determine 40 CFR 264, Subpart BB Exemption~~

~~The Permittee shall make a determination of compliance with Permit Condition 4.1.4.b in accordance with the test methods specified at Permit Condition 2.15.1.b; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1063(d)).~~

~~4.4.3 Waste Analysis to Determine 40 CFR 264, Subpart CC Exemption~~

~~The Permittee shall make determinations of compliance with Permit Condition 4.1.4.c in accordance with Permit Conditions 2.15.2.b and 2.15.2.c, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1083(a)).~~

~~4.5 MANAGEMENT OF LEAKS OR SPILLS~~

~~4.5.1 Removal of Tank System from Use~~

~~In the event of a release or spill from a tank system or surrounding area, or if a system becomes unfit for further use, the Permittee shall remove the system from service immediately and complete the actions required at Permit Conditions 4.5.1.a through 4.5.1.c, as specified at Permit Attachments A, Sections 2.3.1, 2.4.1, 2.3.11, *Repair and Certification of Tank Systems [Liquid Waste Storage Tanks]*, and 2.4.11, *Repair and Certification of Tank Systems [Stabilization Tanks]*; and C, *Contingency Plan*, Section 6.3.5.2, *Spills, Leaks, or Other Releases Control Procedure*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196).~~

~~4.5.1.a Management of Hazardous Waste~~

~~In the event of a release or spill from a tank system, the Permittee shall immediately stop the flow of hazardous waste into the tank system and inspect the system to determine the cause of the release, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196).~~

~~4.5.1.b Containment of Visible Releases~~

~~In the event of a release or spill from a tank system, the Permittee shall immediately conduct a visual inspection of all releases to the environment, and, based on that inspection, shall (1) prevent further migration of the leak or spill, and (2) remove and properly dispose of any visible contamination from the system within 24 hours of detection to prevent further release and to allow inspection and repairs of the system, as specified at Permit Attachment A, Sections 2.3.11 and 2.4.11. If the Permittee finds that it is not possible to meet this time period, the Permittee shall notify the Secretary and demonstrate that a longer time period is required to select an appropriate method of treatment and/or disposal, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196(c)).~~

~~4.5.1.c Spill or Release Waste Analysis~~

~~Upon detection of a spill or release at the Liquid Waste Storage Tank Area or the Stabilization Building, the Permittee shall conduct a waste analysis as specified at Permit Attachment F, Section 4.5.6, *Waste Analysis Requirements for Waste Generated On-Site*, to determine the nature and concentration of any waste constituents.~~

~~4.5.2 Conditions in Lieu of Closure~~

~~In the event of a spill or release, the Permittee shall close the tank system as specified at Permit Attachment O, *Closure Plan*, unless the appropriate steps required at Permit Condition 4.5.2.a through 4.5.2.d are taken.~~

~~4.5.2.a Integrity of System~~

~~For a release caused by a spill that has not damaged the integrity of the system, the Permittee shall remove the waste and make any necessary repairs to fully restore the integrity of the system before returning the tank system to service, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196(e)(2)).~~

~~**4.5.2.b Release from Primary Tank System**~~

~~For a release caused by a leak from the primary tank system to the secondary containment system, the Permittee shall repair the primary system prior to returning it to service, as specified at Permit Attachment A, Sections 2.3.11 and 2.4.11; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196(e)(3)).~~

~~**4.5.2.c Secondary Containment Requirement**~~

~~For a release to the environment caused by a leak from a component of the tank system that is not fitted with secondary containment, the Permittee shall provide secondary containment for the component that meets the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.193) before the component can be returned to service, unless the source of the leak is an aboveground portion of a tank system that can be inspected visually. If the source is an aboveground component that can be inspected visually, the component must be repaired to satisfy the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.192 and 193) and may be returned to service without secondary containment as long as the repair is certified and the certification submitted to the Secretary as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196(f)). If a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection, the entire component must be provided with secondary containment in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.193). [20.4.1.500 NMAC incorporating 40 CFR 264.196(e)(4))]~~

~~**4.5.3 Certification**~~

~~For all major repairs to eliminate leaks or restore the integrity of the tank system (e.g., installation of an internal liner, repair of a ruptured tank, or repair or replacement of a secondary containment vault), the Permittee shall, before returning the system to service, obtain a certification by an independent professional engineer registered in New Mexico that the repaired system is capable of handling hazardous wastes without release for the intended life of the system, as specified at Permit Attachment A, Section 2.4.11; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196(f)).~~

~~4.6 INSPECTION SCHEDULES AND PROCEDURES~~

~~4.6.1 Inspection Procedures~~

~~The Permittee shall inspect the tank systems (including secondary containment and LDRSs), overfill controls, as specified at Permit Attachment A, Section 2.3.6, *Inspections*, Permit Attachment A, Section 2.4.6, *Inspections*; Permit Attachment D, *Inspection Procedures*, Section 5.2, *Inspection Procedures*; and using the appropriate inspection schedules and checklists contained at Permit Attachment D1, *Inspection Schedules and Checklists*. The inspection shall include, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.195(b)):~~

- ~~Above ground portions of the tank system, to detect corrosion or releases of waste;~~
- ~~data gathered from monitoring and leak detection equipment (e.g., level indicators or pressure or temperature gauges), to ensure that the tank system is being operated according to its design; and~~
- ~~construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the dikes, to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation), as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.15(a)).~~

~~4.6.2 Overfill~~

~~The Permittee shall inspect the overfill controls identified at Permit Attachment A, Sections 2.3.3 and 2.4.3, daily, in accordance with Permit Condition 4.6.1; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.195(b)).~~

~~4.6.3 Cathodic Protection Systems~~

~~As required by 20.4.1.500 NMAC (incorporating 40 CFR 264.195(c)), the Permittee shall inspect the cathodic protection systems for the Stabilization Tanks in accordance with the following schedule:~~

- ~~The proper operation of the cathodic protection system shall be confirmed within six months from initial installation and annually thereafter.~~

- ~~All sources of impressed current shall be inspected and/or tested, as appropriate, every other month.~~

~~4.6.4 Tank Integrity~~

~~At least once a month, the Permittee shall inspect the Stabilization Tanks when empty to ensure the integrity of the tanks and welds, and shall annually conduct a sonic test on the Stabilization Tanks to ensure that the thickness of the inner tank and outer shell is maintained, as specified at Permit Attachments A, Section 2.4.6; and N, *Operations and Maintenance Plan*, Section 3.7.4, *Inspection and Monitoring*.~~

~~4.6.5 Ancillary Equipment Integrity~~

~~The Permittee shall conduct a leak test or other integrity assessment of all tank system ancillary equipment annually, as required by 40.4.1.500 NMAC (incorporating 40 CFR 264.193(i)(3)).~~

~~4.7 RECORDKEEPING AND REPORTING~~

~~4.7.1 Recordkeeping~~

~~4.7.1.a Inspection Records~~

~~The Permittee shall record inspections in an inspection log or summary, and shall keep these records in the Operating Record, as specified at Permit Attachment N, Section 3.8.1, *Records*; and as required by Permit Condition 2.7.3 and 20.4.1.500 NMAC (incorporating 40 CFR 264.15(d) and 264.195(d)).~~

~~4.7.1.b Ignitable, Reactive, or Incompatible Wastes~~

~~The Permittee shall document and place in the Operating Record the evidence of compliance with the requirements for ignitable, reactive, and incompatible waste contained at Permit Condition 4.8.1 and 4.9.1, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17(c) and 264.73(b)(3), using data from trial tests, waste analyses, and/or the results of the treatment of similar wastes by similar treatment processes.~~

~~4.7.1.c 40 CFR 264, Subpart BB Records~~

~~The Permittee shall record in a log that is kept in the Operating Record the results of the determination of exemption from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR~~

~~264, Subpart BB), in accordance with Permit Condition 2.12.1.f; and other information required as set forth at 20.4.1.500 NMAC (incorporating 40 CFR 264.1064(k) and/or (m)).~~

~~4.7.1.d 40 CFR 264, Subpart CC Records~~

~~The Permittee shall prepare and maintain in the Operating Record for a minimum of three years the information used for each waste determination of exemption from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC), in accordance with Permit Condition 2.12.1.g (e.g., test results, measurements, calculations, and other documentation); and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1089(a), (f)(1), and/or (h)).~~

~~4.7.2 Reporting~~

~~4.7.2.a Leak or Spill Reporting~~

~~4.7.2.a.i Oral Report~~

~~The Permittee shall report to the Secretary, within 24 hours of detection, any leak or spill of hazardous wastes that occurs from a tank treatment system or secondary containment system to the environment, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196(d)(1)).~~

~~A leak or spill of one pound or less of hazardous waste that is immediately contained and cleaned up need not be reported, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.196(d)(2)).~~

~~4.7.2.a.ii Written Report~~

~~Within 30 days of detecting a release to the environment from a tank storage system or tank secondary containment system required to be reported to the Secretary in accordance with Permit Condition 4.7.2.a.i, the Permittee shall submit a written report to the Secretary. The report shall contain, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196(d)(3)):~~

- ~~the likely route of migration;~~
- ~~as appropriate, characteristics of the surrounding soil, including soil composition, geology, hydrogeology, and climate;~~

- ~~results of any monitoring or sampling conducted in connection with the release. If the Permittee is unable to meet this time period, the Permittee shall provide the Secretary with a schedule of when the results will be available. This schedule shall be provided before the required 30-day submittal period expires;~~

- ~~as appropriate, proximity of down gradient drinking water, surface water, and populated areas; and~~

- ~~description of response actions planned or taken.~~

~~4.7.2.b 40 CFR 264, Subpart CC Noncompliance~~

~~The Permittee shall report to the Secretary each occurrence when the average volatile organic concentration of any hazardous waste placed in a tank is in noncompliance with the requirements of Permit Condition 4.1.4.c; as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1090(a)).~~

~~4.7.3 Certification~~

~~4.7.3.a Tank Installation Certification~~

~~The Permittee shall submit a copy of the tank installation certification required at Permit Condition 4.2.6 to the Secretary 30 days prior to the first receipt of waste at the Facility, in accordance with Permit Condition 1.10.~~

~~4.7.3.b Certification Reporting after Major Repairs~~

~~The Permittee shall submit to the Secretary, within seven days after returning a tank storage system to use, the certification of major repairs to correct leaks required at Permit Condition 4.5.3, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.196(f)).~~

~~4.8 SPECIAL PROVISIONS FOR IGNITABLE OR REACTIVE WASTES~~

~~4.8.1 Procedures for Ignitable and Reactive Waste =~~

~~The Permittee shall not place ignitable or reactive waste in a tank storage system unless the procedures specified at Permit Attachments A, Sections 2.3.5, *Management of Ignitable or Reactive Wastes [Liquid Waste Storage Tanks]*, and 2.4.5,~~

~~*Management of Ignitable or Reactive Waste [Stabilization Tanks]*; and B, *Procedures to Prevent Hazards*, Section 5.5.1, *General Requirements*; are followed, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b) and 264.198(a)).~~

~~**4.8.2 Protective Distances**~~

~~The Permittee shall comply with the requirements for the maintenance of protective distances between a tank and any adjoining property line that can be built upon, as specified at Permit Attachment A, and as required at Tables 2-1 through 2-6 of the National Fire Protection Association's *Flammable and Combustible Liquids Code* (latest edition); as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.198(b)).~~

~~**4.9 SPECIAL PROVISIONS FOR INCOMPATIBLE WASTES**~~

~~**4.9.1 Separation of Incompatible Wastes**~~

~~The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same tank system, nor allow incompatible wastes to commingle in the same secondary containment system, unless the compatibility of the new waste type with the prior contents of the tank has been determined by testing or process knowledge and documented in the Operating Record, as specified at Permit Attachments A, Sections 2.3.2, *Management of Incompatible Wastes [Liquid Waste Storage Tanks]*, and 2.4.2, *Management of Incompatible Wastes [Stabilization Tanks]*; B, Section 5.5.3, *Incompatible Waste Handling*; and F, Section 4.5.5.4, *Waste Analysis Requirements Specific to the Stabilization Tanks*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b) and 264.199(a)).~~

~~**4.9.2 Tank Decontamination**~~

~~The Permittee shall not place hazardous waste in a tank system that previously held an incompatible waste or material and which has not been decontaminated, unless the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b)) are met, as specified at Permit Attachment A, Sections 2.3.2 and 2.4.2; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.199(b)).~~

~~**4.10 CLOSURE**~~

~~At closure of the Liquid Waste Storage Area, the Stabilization Building or any individual tank system, the Permittee shall remove all hazardous waste and hazardous waste residues from the~~

~~unit or area being closed and shall follow the procedures for clean closure contained at Permit Attachment O, *Closure Plan*, Sections 8.1.3, *Liquid Waste Receiving and Storage Unit*, and/or 8.1.4, *Stabilization Unit*, as appropriate; and in accordance with Permit Part 8, Sections 8.1.3, *Liquid Waste Storage Facility*, and 8.1.4, *Stabilization Treatment Unit*, and other pertinent sections; and shall otherwise comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.197).~~

~~The Permittee shall follow the time schedules for closure specified at Permit Attachment O1, *Compliance Schedules for Closure*.~~

~~TABLE 4-1~~

~~PERMITTED LIQUID WASTE STORAGE TANKS~~

~~UNIT~~	~~DIMENSIONS~~	~~MAXIMUM ALLOWABLE CAPACITY~~
~~Liquid Waste Storage Tank No. 1, including secondary containment; concrete pad and berm; sump; ancillary equipment; and receiving area~~	~~10 feet by 16 feet (diameter)~~	~~9,000 gallons~~
~~Liquid Waste Storage Tank No. 2, including secondary containment; concrete pad; sump; ancillary equipment~~	~~10 feet by 16 feet (diameter)~~	~~9,000 gallons~~
~~Liquid Waste Storage Tank No. 3, including secondary containment; concrete pad; sump; ancillary equipment~~	~~10 feet by 16 feet (diameter)~~	~~9,000 gallons~~
~~Liquid Waste~~	~~10 feet by 16~~	

~~**UNIT**~~	~~**DIMENSIONS**~~	~~**MAXIMUM ALLOWABLE CAPACITY**~~
~~Storage Tank No. 4, including secondary containment; concrete pad; sump; ancillary equipment~~	~~feet (diameter)~~	~~9,000 gallons~~
~~**TOTAL**~~		~~**36,000 gallons**~~

~~**TABLE 4-2**~~

~~**PERMITTED TREATMENT TANKS**~~

~~**UNIT**~~	~~**DIMENSIONS**~~	~~**MAXIMUM ALLOWABLE CAPACITY**~~
~~Stabilization Building; Stabilization Bin No. 1; ancillary equipment; vault; and receiving area~~	~~25 feet by 10 feet by 10 feet~~	~~2,500 cubic feet~~
~~Stabilization Bin No. 2; secondary containment; ancillary equipment~~	~~25 feet by 10 feet by 10 feet~~	~~2,500 cubic feet~~
~~Stabilization Bin No. 3; secondary containment; ancillary equipment~~	~~25 feet by 10 feet by 10 feet~~	~~2,500 cubic feet~~

~~**UNIT**~~	~~**DIMENSIONS**~~	~~**MAXIMUM ALLOWABLE CAPACITY**~~
~~Stabilization Bin No. 4; secondary containment; ancillary equipment~~	~~25 feet by 10 feet by 10 feet~~	~~2,500 cubic feet~~
~~**TOTAL**~~		~~**10,000 cubic feet**~~

~~Permit Part 5~~

~~TREATMENT IN THE SURFACE IMPOUNDMENT~~

~~HIGHLIGHTS~~

~~This Part contains conditions for treatment by evaporation of hazardous waste in the Surface Impoundment at the Triassic Park Waste Disposal Facility (the Facility). Evaporation is the only treatment method permitted in the Surface Impoundment (Pond 1). The location of the Surface Impoundment within the Facility is shown at Permit Attachment L1, *Engineering Drawings*, Drawing No. 4. Surface Impoundment operations are described at Permit Attachments A, *General Facility Description and Information*, Section 2.6.4, *Operation of the Evaporation Pond*; and L, *Engineering Report*, Section 4.0, *Evaporation Pond*.~~

~~The universe of permitted waste that can be treated in the Surface Impoundment is identified at Table 2-1, *Permitted Hazardous Wastes,* unless specifically excluded below. The Surface Impoundment may treat non-ignitable liquids and solids with polychlorinated biphenyl (PCB) concentrations of less than 50 parts per million (ppm); these wastes are not regulated under the Toxic Substances Control Act (TSCA). The Surface Impoundment may also treat, under certain conditions, bulk PCB-contaminated remediation waste. Waste that is specifically prohibited from treatment in the Surface Impoundment is identified at Permit Condition 5.1.3. Hazardous waste that does not meet Land Disposal Restrictions (LDR) treatment standards will not be placed in the Surface Impoundment. In addition, the Facility will not treat waste in the Surface Impoundment that would require compliance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subparts BB and CC).~~

~~This Permit authorizes only one Surface Impoundment (Pond 1), identified at Permit Attachment L1, Drawing No. 28, for treatment by evaporation. As shown in Table 5-1, Pond 1 is comprised of two cells, cells 1A and 1B, with a combined approximate capacity of 5.2 million gallons and an area of approximately 75,240 square feet. This Surface Impoundment is considered one permitted unit.~~

~~Two additional ponds may be constructed in the future to provide additional leachate storage and treatment capacity if demand for pond treatment capacity increases beyond that provided in the initial phase of construction. These two additional ponds are not authorized by this Permit.~~

~~The depth of cells 1A and 1B are approximately 12 feet maximum, with a bottom slope of approximately two percent toward a leakage collection sump located in the center of each cell. The two cells are separated by a dike (berm) and can be independently filled or drained. A transfer pump is located on the separator berm, and the contents of one cell can be transferred to the other cell if necessary in order to locate and repair a liner leak. Each cell is equipped with its own discharge station.~~

~~The Surface Impoundment receives waste from off-site generators, from on-site leachate collection systems, and from other activities at the Facility that may generate hazardous waste.~~

~~The Surface Impoundment liner system consists of a primary geomembrane liner above a geonet layer and a secondary geomembrane liner. A leak detection and removal system (LDRS) for detecting and removing leachate is located in the geonet layer between the two liners. One LDRS sump is located in the center of each cell. Leachate collected in the sump may be pumped to a tanker truck and returned to the Surface Impoundment, stored in a Liquid Waste Storage Tank, or transferred directly to the Stabilization Unit prior to disposal in the Landfill.~~

~~The vadose zone monitoring system (VZMS) for the Surface Impoundment consists of the following: Two vadose zone sumps, one for each cell, located below the secondary liner. The sumps contain pressure transducers to measure the presence and volume of fluids and pumping systems capable of removing any fluids. Two deep vadose zone monitoring wells shown at Permit Attachment I, *Vadose Zone Monitoring System Work Plan*, Figure No. 2, are located east of the Surface Impoundment. These wells monitor the accumulations of any escaped fluids down-gradient from the Surface Impoundment. A neutron probe access tube located northwest of the Surface Impoundment and three suction lysimeters located in association with the wells and probe holes. These technologies will monitor unsaturated flow.~~

~~The VZMS is described at Permit Part 7. Corrective Action requirements for leachate from the Surface Impoundment to the VZMS are contained at Permit Part 9.~~

~~5.1 GENERAL REQUIREMENTS FOR THE SURFACE IMPOUNDMENT~~

~~5.1.1 Permitted Treatment in the Surface Impoundment~~

~~The Permittee shall treat hazardous waste only by evaporation in the Surface Impoundment, as identified at Table 5-1, *Permitted Surface Impoundment;* and as specified at Permit Attachment A, Sections 2.6, *Treatment in Evaporation Pond*, and 2.6.3, *Nature of Waste;* and subject to the terms of this Permit Part. The volume of hazardous waste that may be treated is limited to the maximum capacity identified at Table 5-1; and as specified at Permit Attachment A, Section 2.6.1, *Design of Evaporation Pond*.~~

~~The Surface Impoundment, consisting of cells 1A and 1B, is one permitted unit.~~

~~5.1.2 Permitted Wastes in the Surface Impoundment~~

~~The Permittee shall treat only those hazardous wastes identified at Permit Condition 2.4.1 in the Surface Impoundment, subject to the prohibitions contained at Permit Condition 5.1.3.~~

~~5.1.3 Prohibited Wastes in the Surface Impoundment~~

~~5.1.3.a General Waste Prohibition~~

~~The Permittee is prohibited from treating in the Surface Impoundment those wastes identified at Permit Condition 2.4.2 and Permit Attachment F, *Waste Analysis Plan*, Section 4.1.2, *Prohibited Waste*.~~

~~5.1.3.b Land Disposal Restrictions~~

~~The Permittee is prohibited from treating any hazardous waste in the Surface Impoundment that does not meet the LDR treatment standards contained in the Table at 20.4.1.800 NMAC, (incorporating 40 CFRSubpart D), as specified at Permit Attachment A, Section 2.6.3.~~

~~5.1.3.c Wastes Containing Concentrations of Organic Compounds Greater than Ten Percent by Weight (40 CFR 264, Subpart BB)~~

~~The Permittee shall not place any hazardous waste in the Surface Impoundment that contains or contacts hazardous wastes with an organic concentration greater than or equal to ten percent by weight, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.1050(b)).~~

~~5.1.3.d Wastes Containing Concentrations of Volatile Organic Compounds Greater than 500 ppmw (40 CFR 264, Subpart CC)~~

~~The Permittee shall not place any hazardous waste in the Surface Impoundment that has an average volatile organic concentration at the point of waste origination equal to or greater than 500 parts per million by weight (ppmw), in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.1082(c)(1)), unless the waste is one of the following, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.1082(c)(4)):~~

- ~~organic waste that meets the numerical concentration limits for organic hazardous constituents, applicable to the hazardous waste, as specified at the Table contained at 20.4.1.800 NMAC (incorporating 40 CFR 268.40);~~
- ~~organic waste that has been treated by the treatment technology established for the waste at 20.4.1.500 NMAC (incorporating 40 CFR 268.42(a)); or~~
- ~~organic waste that has been treated by an equivalent method approved by the Secretary pursuant to a Permit modification.~~

~~5.2 SURFACE IMPOUNDMENT CONSTRUCTION REQUIREMENTS~~

~~5.2.1 Construction Requirements~~

~~The Permittee shall construct the Surface Impoundment and liner systems, truck transfer pad, and ancillary equipment, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.221(c)); and as follows:~~

~~5.2.1.a Liner System~~

~~The Permittee shall install and maintain two liners, separated by a geonet layer containing an LDRS, to prevent releases from the Surface Impoundment, as specified at Permit Attachments A, Sections 2.6.1, *Design of Evaporation Pond*, and 2.6.2, *Construction*; L, Section 4.0; L1, Drawings Nos. 28 through 32; L2, *Specifications for Landfill, Surface Impoundment and Associated Facilities Liner and Cover System Construction*; and M, *Construction Quality Assurance Plan*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.221(c)(1)).~~

~~The Surface Impoundment liners shall include the following components, from top to bottom, constructed to prevent migration of hazardous constituents outside of the liner system:~~

- ~~a 60-mil thick high density polyethylene (HDPE) geomembrane primary top liner, as specified at Permit Attachment L2, Section 02775, *Geomembrane Liners*;~~

- ~~a geonet leak detection and removal layer with transmissivity greater than or equal to 5 x 10^{-3} m^2/sec, as specified at Permit Attachment L2, Section 02712, *Geonet*;~~

- ~~a 60-mil thick HDPE secondary geomembrane liner as specified at Permit Attachment L2, Section 02775, *Geomembrane Liners*; and~~

- ~~a minimum 3-foot thick compacted clay liner with a hydraulic conductivity, as constructed, of less than or equal to 1 x 10^{-7} cm/sec, as specified at Permit Attachment L2, Section 02221, *Clay Liner*.~~

~~5.2.1.b Leak Detection and Removal System (LDRS)~~

~~The Permittee shall install and maintain an LDRS in the geonet layer to detect and remove leakage through all areas of the primary liner, as specified at Permit Attachments A, Sections 2.6.1.2, *Leak Detection and Removal System/Vadose Monitoring System*, and 2.6.2.4, *Liner, LDRS, and Vadose System Installation*; L, Section 4.1.3, *Subgrade Excavation, Liner System, LDS Sump Design and Vadose Monitoring Sump Design*; L1, Drawing No. 32; L2; and M; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.221(c)(2)).~~

~~The LDRS shall include, for each Surface Impoundment cell, a centrally located sump positioned in the geonet layer between the primary and secondary geomembrane layers. The sumps shall consist of gravel with 12 inch piping and a 50 gallons per minute (gpm) pump with sufficient capacity to maintain less than 12 inches of head on the secondary liner, as specified at Permit Attachments A, Section 2.6.1.2; L, Section 4.1.3; and L1, Drawing No. 32.~~

~~5.2.1.c Dikes~~

~~The Permittee shall construct the perimeter dikes and earthen separator dike with sufficient structural integrity to prevent~~

~~massive failure, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.221(h)). The Permittee shall construct all dikes so that the dike height will allow at least two feet of freeboard above the design water elevation of 4,121 feet above sea level.~~

~~5.2.1.c.i Separator Dike~~

~~The Permittee shall construct the separator dike with sideslopes of 2H:1V, as specified at Permit Attachments L, Section 4.1.2, *Evaporation Pond Layout and Phasing*; and L1, Drawing No. 28. The separator dike shall be constructed as specified at Permit Attachment L2, Section No. 02110, *Site Preparation and Earthwork*, and Section 02119, *Prepared Subgrade*.~~

~~5.2.1.c.ii Perimeter Dike~~

~~The Permittee shall construct the perimeter dikes with sideslopes of 3H:1V and shall be of height and width as specified at Permit Attachment L1, Drawing No. 30. They shall be constructed in accordance with appropriate specifications contained at Permit Attachment L2.~~

~~5.2.1.d Discharge Pads~~

~~The Permittee shall construct the Surface Impoundment discharge pads as specified at Permit Attachments A, Section 2.6.4.2, *Placement of Wastewater into the Evaporation Pond*; L, Section 4.1.4, *Evaporation Pond Discharge Pad Arrangement*; L1, Drawing No. 31; and L2.~~

~~5.2.1.e Vadose Zone Monitoring System Sumps~~

~~The Permittee shall install and maintain sumps below the Surface Impoundment liners to detect and remove leakage through all areas of the secondary liner, in accordance with Permit Condition 7.2.1.c; and as specified at Permit Attachments A, Section 2.6.2.4; I, Section 2.0, *Vadose Zone Monitoring System Installation*; L, Section 4.1.3; and L1, Drawing No. 32.~~

~~5.2.1.f Vadose Zone Monitoring Wells~~

~~The Permittee shall construct the Vadose Zone Monitoring Wells in accordance with Permit Conditions 7.2.1.a and 7.2.1.b; and as specified at Permit Attachment I, Section 2.2.2, *Vadose Zone Monitoring Well Construction*.~~

~~5.2.1.g Neutron Probe Access Probe Holes~~

~~The Permittee shall construct the neutron probe access probe holes in accordance with Permit Conditions 7.2.1.d.~~

~~5.2.1.h Suction Lysimeters~~

~~The Permittee shall construct the suction lysimeters in accordance with Permit Conditions 7.2.1.e.~~

~~5.2.1.i Run-On/Run-Off Control~~

~~The Permittee shall construct and maintain run-on/run-off controls for the Surface Impoundment as specified at Permit Attachments B, *Procedures to Prevent Hazards*, Section 5.4.2.2, *The Landfill and Evaporation Pond*; L, Section 2.1.4, *Facility Storm Water Control*; L1, Drawing No. 25; and N, *Operations and Maintenance Plan*, Section 2.2, *Evaporation Pond*.~~

~~5.2.2 Construction Quality Assurance Plan~~

~~The Permittee shall implement Permit Attachment M under the direction of a Construction Quality Assurance (CQA) officer who is a professional engineer registered in New Mexico to ensure that all construction required under Permit Condition 5.2.1 meets or exceeds all design criteria and specifications of this Permit, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.19(a) through 264.19(d)).~~

~~5.2.3 As-Built Specifications~~

~~The Permittee shall submit to the Secretary as-built specifications for the Surface Impoundment in accordance with Permit Conditions 1.5.9.c and 1.10.~~

~~5.3 GENERAL OPERATING REQUIREMENTS FOR THE SURFACE IMPOUNDMENT~~

~~The Permittee shall operate and maintain the Surface Impoundment as specified at Permit Attachments A, Section 2.6.4.3, *Inspections, Monitoring, and Repairs*; L, Section 4.1.2; and N, Section 3.5, *Evaporation Pond Operation*. Operation and maintenance shall comply with 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart K), and the conditions set forth in this Permit.~~

~~5.3.1 Overtopping Prevention~~

~~The Permittee shall operate and maintain the Surface Impoundment to prevent overtopping, as specified at Permit Attachments A, Section 2.6.4.3; and L, Section 4.1.2; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.221(g)).~~

~~5.3.2 Dike Maintenance~~

~~The Permittee shall maintain the separator dike and the area around the Surface Impoundment, including the perimeter dikes, as specified at Permit Attachments A, Section 2.6.4.3; and N, Section 3.5.5, *Inspection and Monitoring*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.221(h)).~~

~~5.3.3 Protective Netting~~

~~The Permittee shall ensure that protective netting in good condition is maintained over the Surface Impoundment to protect the bird life of the area, as specified at Permit Attachment A, Section 1.2, *Site Environment and Climate*; and as shown at Permit Attachment L1, Drawing No. 30.~~

~~5.3.4 Waste Placement and Removal~~

~~The Permittee shall ensure that waste is placed in and removed from the Surface Impoundment as specified at Permit Attachments L, Section 4.1.4; and N, Section 3.5.3, *Waste Placement*.~~

~~5.3.5 Leachate Management~~

~~Leachate collected from the leak detection systems at the Surface Impoundment may be retreated in the Surface Impoundment. Collected leachate that does not meet LDR treatment standards shall receive additional treatment by stabilization before it can be placed in the surface impoundment. If, after treatment by stabilization, the leachate cannot meet LDR standards, the Permittee shall ship the leachate off-site to an appropriate permitted hazardous waste management facility in compliance with all applicable regulations for generation and transport of hazardous waste.~~

~~5.4 WASTE ANALYSIS~~

~~5.4.1 Waste Characterization~~

~~The Permittee shall characterize waste entering and leaving the Surface Impoundment as specified at Permit Attachment F, *Waste Analysis Plan*, Sections 4.4, *Procedures for Incoming Waste*~~

~~*Acceptance*, and 4.5.5.3, *Waste Analysis Requirements Specific to the Evaporation Pond*, to ensure that the waste management requirements specified at Permit Attachment F, Section 4.2, *Criteria for Waste Management at the Facility*, are met.~~

~~5.4.2 Waste Analysis to Determine 40 CFR 264, Subpart BB Exemption~~

~~The Permittee shall make a determination of compliance with Permit Condition 5.1.3.c in accordance with the test methods specified at Permit Condition 2.15.1.b; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1063(d)).~~

~~5.4.3 Waste Analysis to Determine 40 CFR 264, Subpart CC Exemption~~

~~The Permittee shall make a determination of compliance with Permit Condition 5.1.3.d in accordance with the test methods specified at Permit Conditions 2.15.2.b and 2.15.2.c; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1083(a)(2)).~~

~~5.4.4 Leachate~~

~~5.4.4.a LDRS and VZMS Sumps Sampling and Analysis~~

~~The Permittee shall sample and analyze the leachate collected from the Surface Impoundment LDRS and VZMS sumps in accordance with Permit Attachment F, Section 4.5.6, *Waste Analysis Requirements for Waste Generated On-Site*, for all the multi-source leachate (EPA Hazardous Waste Number F039) constituents listed in the Table contained at 20.4.1.800 NMAC (incorporating 40 CFR 268.40).~~

~~5.4.4.b VZMS Sampling and Analysis~~

~~The Permittee shall sample and analyze any fluid collected from the VZMS in accordance with the appropriate conditions within Permit Part 7.~~

~~5.5 MANAGEMENT OF LEAKS OR SPILLS~~

~~5.5.1 Spills and Releases to the Land Surface~~

~~The Permittee shall ensure that spills and releases to the land surface are contained and remediated in a timely manner. Upon detection of a spill or release from the Surface Impoundment to the land surface, the Permittee shall determine the appropriate response in accordance with Permit Attachments A, Section~~

~~2.6.4.3; and C, *Contingency Plan*, Section 6.3.5.2, *Spills, Leaks, or Other Releases Control Procedure*.~~

~~If, in responding to a spill or release, the Permittee determines that the Contingency Plan should be implemented, implementation shall be conducted as specified at Permit Attachment C, Section 6.3, *Implementation Procedures*.~~

~~All analyses to determine the nature and concentration of the spilled or released waste constituents shall be performed as specified at Permit Attachment F, Section 4.5.6. All recovered spilled or released material along with other hazardous wastes generated in addressing the release shall be managed as specified at Permit Attachment C, Section 6.3.7, *Storage and Treatment of Released Hazardous Waste*.~~

~~5.5.2 Leachate Management~~

~~The Permittee shall completely remove all fluids from each sump in the LDRS and from the VZMS sump in a timely manner, as specified at Permit Attachments I, Section 4.0, *Monitoring Procedures*; and N, Section 3.5.4, *Operation of Leachate Detection and Vadose Zone Monitoring Systems*. The Permittee shall conduct a waste analysis of the removed fluids as specified at Permit Condition 5.4.4.a.~~

~~5.5.3 Action Leakage Rate~~

~~The Action Leakage Rate (ALR) for the Surface Impoundment, as approved by the Secretary in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.222(a)), is 1,000 gallons per acre per day (gpad) as measured in the LDRS sumps for both cells; and as specified at Permit Attachments A, Section2.6.4.7, *Action Leakage Rate*; and J, *Action Leakage Rate and Response Action Plan*, Section 5.3.4, *Discussion of Proposed Action Leakage Rates*.~~

~~To determine if the ALR has been exceeded, the Permittee shall calculate and record the average daily flow rate to each LDRS sump on a weekly basis during the active life and closure period of the Surface Impoundment, as specified at Permit Attachments A, Section 2.6.4.7, *Action Leakage Rate*; and J, Section 5.4, *Determination If the Action Leakage Rate Is Exceeded*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.222(b)).~~

~~5.5.4 Flow Rates Less than or Equal to the ALR~~

~~The Permittee shall respond to leakage less than or equal to the ALR as specified at Permit Attachment A, Section 2.6.4.8, *Response Action Plan*.~~

~~5.5.5 Flow Rates Greater than the ALR~~

~~The Permittee shall respond to leakage greater than the ALR as specified at Permit Attachments A, Section 2.6.4.8; and J, Section 7.0, *Response Actions*; and shall meet all requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.223(b)(3) through (b)(5) and (c)). In addition, the Permittee shall respond to leakage greater than the ALR by complying with the following conditions, as specified at Permit Attachment I, Section 4.2:~~

~~5.5.5.a Removal of Cell from Service~~

~~The Permittee shall immediately remove from use the cell that is leaking in exceedance of the ALR; and~~

~~5.5.5.b VZMS Sampling~~

~~The Permittee shall immediately inspect each monitoring point in the VZMS for fluids in accordance with Permit Condition 7.4.1.b.~~

~~In addition, the Permittee shall increase the frequency of inspection of the VZMS wells from monthly to weekly in accordance with Permit Condition 7.4.1.b.~~

~~5.5.6 Response to Sudden Drop of Liquid Level~~

~~In the event of a sudden drop in the liquid level of one of the Surface Impoundment cells that is not known to be caused by changes in the flow into or out of that cell, expected evaporation rates, or dike leaks, the Permittee shall remove the leaking (or impacted) cell from service immediately and complete the following actions, as specified at Permit Attachment C, *Contingency Plan*, Section 6.3.5.3, *Evaporation Pond Failure Control Procedure*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.227(a) and (b)):~~

- ~~immediately shut off the flow or stop the addition of wastes into the leaking (or impacted) cell;~~
- ~~immediately contain any surface leakage which has occurred or is occurring;~~

- ~~immediately stop the leak;~~
- ~~take any necessary steps to stop or prevent catastrophic failure; and~~
- ~~if a leak cannot be stopped by any other means, empty the leaking (or impacted) cell.~~

~~5.5.7 Return of Surface Impoundment to Service~~

~~If one of the Surface Impoundment cells has been removed from service pursuant to Permit Conditions 5.5.5.a or 5.5.6, it may be returned to service only if the portion of the cell that was failing has been repaired and the repair recertified in accordance with Permit Condition 5.7.3.c.~~

~~5.5.8 Closure in Lieu of Repair~~

~~If one of the Surface Impoundment cells has been removed from service in accordance with Permit Condition 5.5.6 and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.227), and is not being repaired, the Surface Impoundment shall be closed as specified at Permit Attachment O, *Closure Plan*, Section 8.1.2, *Evaporation Pond*, and other applicable sections. Closure shall be in accordance with Permit Condition 5.10; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.228).~~

~~5.6 INSPECTION SCHEDULES AND PROCEDURES~~

~~5.6.1 Inspection Requirements~~

~~5.6.1.a General Inspection Requirements~~

~~The Permittee shall inspect the Surface Impoundment, liner and leachate systems, and ancillary equipment as specified at Permit Attachments D, *Inspection Procedures*, Section 5.2.3, *Evaporation Pond Inspection Procedures*; and D1, *Inspection Schedules and Checklists*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.226).~~

~~5.6.1.b Inspection during Construction~~

~~The Permittee shall inspect the Surface Impoundment liners and cover systems during construction and installation for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, or foreign materials), as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.226(a)).~~

~~5.6.1.c Inspection after Construction~~

~~The Permittee shall inspect the Surface Impoundment immediately after construction. This inspection shall include the following, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.226(a)):~~

- ~~synthetic liners and cover systems (e.g., membranes, sheets or coatings) to ensure tight seams and joints and the absence of tears, punctures, or blisters; and~~

- ~~soil-based and admixed liners and cover systems for imperfections including lenses, cracks, channels, root holes, or other structural non-uniformities that may cause an increase in the permeability of the liner or cover system.~~

~~5.6.1.d Inspections during Facility Operation~~

~~The Permittee shall inspect the Surface Impoundment, discharge pads, dikes, and ancillary equipment weekly and after storms, as specified at Permit Attachments A, Section 2.6.4.3; D, Section 5.2.3; D1; and N, Section 3.5.5; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.226(b)).~~

~~5.6.2 LDRS and VZMS Monitoring Requirements~~

~~The Permittee shall monitor each sump in the LDRS and VZMS daily and the vadose zone wells monthly for the presence of liquids during the active life and closure period of the Surface Impoundment, as specified at Permit Attachments A, Section 2.6.1.2; I, Sections 4.1, *Monitoring Frequency*, and 4.3, *Monitoring Method*, and Table 2; and N, Section 3.5.4.~~

~~The Permittee shall probe or inspect the neutron probe access tube for the presence of liquids twice annually during the active life and closure period of the Surface Impoundment as specified at Permit Part 7.4.1.b. The Permittee shall sample the appropriate suction lysimeters for the presence of liquids as specified at Permit Part 7.4.1.b during the active life and closure period of the Surface Impoundment.~~

~~The vadose zone wells shall continue to be monitored semi-annually for the presence of liquids during the post-closure care period, as specified at Permit Attachment P, *Post-Closure Care*, Section 8.2.5, *Vadose Zone Monitoring System*; and in accordance with Permit Condition 7.4.~~

~~If liquids are present, the Permittee shall sample and analyze the liquids as specified at Permit Attachment F, Section 4.5.6. The Permittee shall remove and properly dispose of all remaining liquids, as specified at Permit Attachment I, Section 4.2, *Response Actions*.~~

~~5.7 RECORDKEEPING AND REPORTING~~

~~5.7.1 Recordkeeping Requirements~~

~~The Permittee shall follow the recordkeeping requirements for the Surface Impoundment specified at Permit Attachment N, Section 3.5.1, *Records*. Records kept shall include, but are not limited to:~~

~~5.7.1.a Inspection Logs~~

~~In accordance with Permit Condition 2.7.3, the Permittee shall keep in the Operating Record for a minimum of three years the inspection logs and other records for the inspections conducted in accordance with Permit Condition 5.6.1; as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.15(d) and 40 CFR 264.73(b)(5)).~~

~~5.7.1.b Ignitable, Reactive, or Incompatible Waste~~

~~The Permittee shall document and place in the Operating Record the evidence of compliance with the requirements for ignitable, reactive, and incompatible waste contained at Permit Conditions 5.8 and 5.9; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17(c) and 264.73(b)(3)), making references to published scientific or engineering literature, using data from trial tests, waste analyses, and/or the results of the treatment of similar wastes by similar treatment processes.~~

~~5.7.1.c LDRS and VZMS Data~~

~~The Permittee shall keep records for the LDRS and VZMS monitoring conducted in accordance with Permit Condition 5.6.2, including a record of the amount of liquids removed during the active life and closure period of the Surface Impoundment, in~~

~~accordance with Permit Condition 2.12.1.k.i; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.226(d)(1)).~~

~~5.7.1.d 40 CFR 264, Subpart BB Records~~

~~The Permittee shall record in a log that is kept in the Operating Record the results of the determination of exemption from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264,Subpart BB), conducted in accordance with Permit Condition 5.4.2, and other information required under 20.4.1.500 NMAC (incorporating 40 CFR 264.1064(k) and (m)).~~

~~5.7.1.e 40 CFR 264, Subpart CC Records~~

~~The Permittee shall prepare and maintain in the Operating Record for a minimum of three years the information used for each waste determination required in accordance with Permit Condition 5.4.3 (e.g., test results, measurements, calculations, and other documentation).~~

~~5.7.2 Reporting and Notification Requirements~~

~~5.7.2.a Notification of Sudden Drop in a Cell Liquid Level~~

~~The Permittee shall submit the following information to the Secretary upon determination of a sudden drop in the liquid level of a Surface Impoundment cell that is not caused by changes in intentional flows into and out of the surface impoundment or expected evaporation rates:~~

~~5.7.2.a.i Oral Report~~

~~The Permittee shall make an oral report to the Secretary within 24 hours of becoming aware of a sudden drop in the liquid level of a Surface Impoundment cell, as specified at Permit Attachment C,~~ ~~*Contingency Plan, Section*~~ ~~6.3.5.3; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 270.30(l)(6)(i) and (ii)); and~~

~~5.7.2.a.ii Written Report~~

~~The Permittee shall notify the Secretary in writing, within seven days of detecting either a leak in the Surface Impoundment dikes or a sudden drop in the liquid level, if the drop is not caused by changes in the flows into or out of the Surface Impoundment or expected evaporation rates, as specified at~~

~~Permit Attachment C, Section 6.3.5.3; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.227(b)(6)).~~

~~5.7.2.b Submittals after ALR Exceedance~~

~~The Permittee shall submit the following information to the Secretary after becoming aware of an exceedance of the ALR for the Surface Impoundment:~~

~~5.7.2.b.i Written Notification of ALR Exceedance~~

~~The Permittee shall notify the Secretary in writing of an exceedance of the ALR at the Surface Impoundment within seven days of determination of the exceedance, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.223(b)(1));~~

~~5.7.2.b.ii Preliminary Assessment~~

~~The Permittee shall submit a preliminary written assessment to the Secretary within 14 days after determination of the exceedance, as to the amount of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.223(b)(2)); and~~

~~5.7.2.b.iii Data Submittal~~

~~The Permittee shall submit to the Secretary the results of analyses required under 20.4.1.500 NMAC (incorporating 40 CFR 264.223(b)(6)), the results of actions taken, and actions planned, within 30 days after the written notification required in accordance with Permit Condition 5.7.2.b.i. Monthly thereafter, as long as the flow rate in the leak detection system exceeds the action leakage rate, the Permittee shall submit to the Secretary a report summarizing the results of any remedial actions taken and actions planned.~~

~~5.7.2.c Noncompliance with the 40 CFR 264, Subpart CC Exemption Requirements~~

~~The Permittee shall report to the Secretary each occurrence, within 15 calendar days of the time that the Permittee becomes aware of the occurrence, of the placement of hazardous waste in the Surface Impoundment that does not comply with the exemption contained at Permit Condition 5.1.3.d from the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart CC); as specified at Permit Attachment G, *Air Quality*, Section 11.3.7.2,~~

~~*Reporting*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.1090(a)).~~

~~5.7.3 Certifications~~

~~5.7.3.a Surface Impoundment CQA Certification~~

~~As required by 20.4.1.500 NMAC (incorporating 40 CFR 264.19(d)), the Permittee shall submit a certification to the Secretary at least 60 days prior to the initiation of operations at the Facility in accordance with Permit Condition 1.10. The certification shall show that the approved CQA Plan has been successfully carried out and that the Surface Impoundment meets all regulatory requirements in accordance with Permit Condition 1.5.9.c.i. The certification shall be signed by the CQA officer and shall also attest that the Secretary's inspection, provided for at Permit Condition 1.5.9.c.ii, has been either completed or waived. The Permittee shall furnish documentation supporting this certification to the Secretary upon request.~~

~~5.7.3.b Dike Recertification~~

~~If one of the Surface Impoundment cells is removed from service for more than six months, the Permittee shall, prior to returning the cell to service, obtain a certification from a qualified, professional engineer registered in New Mexico that the Surface Impoundment dikes, including that portion of the dikes that provides freeboard, has structural integrity, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.226(c)). The Permittee shall submit the certification to the Secretary.~~

~~The certification shall establish that the dike:~~

- ~~shall withstand the stress of the pressure exerted by the types and amounts of wastes to be placed in that cell; and~~
- ~~shall not fail due to scouring or piping, without dependence on any liner system included in the Surface Impoundment construction.~~

~~5.7.3.c Liner Recertification~~

~~If one of the Surface Impoundment cells is removed from service as the result of a sudden drop in the liquid level due to liner failure and the liner has been repaired, the Permittee shall not return that cell to service until the repaired liner system has been recertified by a qualified, professional engineer~~

~~registered in New Mexico, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.227(d)(2)), and the recertification has been submitted to the Secretary.~~

~~5.8 SPECIAL PROVISIONS FOR IGNITABLE OR REACTIVE WASTES~~

~~The Permittee shall not place ignitable and reactive waste in the Surface Impoundment at the same time, as specified at Permit Attachments A, Section 2.6.4.4, *Specific Requirements for Ignitable, Reactive, and/or Incompatible Wastes*, and B, *Procedures to Prevent Hazards*, Section 5.5, *Procedures to Prevent Ignition or Reaction of Ignitable, Reactive, or Incompatible Waste*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17 and 40 CFR 264.229).~~

~~5.9 SPECIAL PROVISIONS FOR INCOMPATIBLE WASTES~~

~~The Permittee shall ensure that incompatible wastes, or incompatible wastes and materials, are not placed in the Surface Impoundment at the same time, as specified at Permit Attachments A, Section 2.6.4.4, and B, Section 5.5; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b) and (c) and 264.230).~~

~~5.10 CLOSURE~~

~~The Permittee shall follow the procedures for clean closure specified at Permit Attachment O, Section 8.1.2, *Evaporation Pond*, and other pertinent sections; and shall conduct closure activities in accordance with pertinent sections of Permit Part 8; and shall otherwise comply with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.228). The Permittee shall follow the time frame for closure specified at Permit Attachment O1, *Compliance Schedules for Closure*.~~

~~TABLE 5-1~~

~~PERMITTED SURFACE IMPOUNDMENT~~

~~**CELL**~~	~~**DIMENSIONS**~~	~~**TOTAL CAPACITY**~~
~~IA~~	~~285 feet long by 132 feet wide by 12 feet deep~~	~~2.6 million gallons~~
~~IB~~	~~285 feet long by 132 feet wide by 12 feet deep~~	~~2.6 million gallons~~
~~**TOTAL**~~		~~**5.2 million gallons**~~

PERMIT PART 6

HAZARDOUS WASTE DISPOSAL IN THE LANDFILL

HIGHLIGHTS

This Part contains conditions for disposal of hazardous waste in the Landfill at the Triassic Park Waste Disposal Facility (the Facility). Conditions include requirements for the kinds of hazardous waste that can be placed in the Landfill, Landfill capacity, liner systems, and leak detection systems. Requirements for engineering designs, Landfill operation, and response to leaks from the Landfill are also included.

The location of the Landfill is shown at Permit Attachment L1, *Engineering Drawings*, Drawing No. 4. Landfill operations and design are discussed at Permit Attachments A, *General Facility Description and Information*, Section 2.5, *Landfill*; and L, *Engineering Report*, Section 3.0, *Landfill*.

This Permit authorizes only Phase 1~~I~~A of the Landfill, shown at Permit Attachment L1, Drawing No. 8. Phase 1~~I~~A includes approximately 47 acres (outside dimensions) with a fill area of 35 acres, and a capacity of approximately 553,200 cubic yards.

Phase 1~~I~~B, Phase 2~~II~~ and Phase 3~~III~~ of the Landfill, shown at Permit Attachment L1, Drawing No. 25 or described in Permit Attachment L, Section 3.1.4, are planned for future development. Reference to the Landfill in this Permit means Phase 1~~I~~A only. The Landfill Phase 1~~I~~A is considered one permitted unit. This permit does not authorize Phase 1~~I~~B, Phase 2~~II~~ and Phase 3~~III~~ of the Landfill.

The Landfill is permitted to receive all hazardous waste accepted at the Facility; however, all waste placed in the Landfill must meet the Land Disposal Restrictions (LDR) treatment standards contained at 20.4.1.800 NMAC (incorporating 40 CFR, Subpart 268). Waste may be received from off-site generators, from the on-site leachate and leak collection systems, and from other activities at the Facility that generate hazardous waste.

A lined Contaminated Water Collection Basin and a lined Stormwater Collection Basin are located immediately south of the Landfill floor, as shown at Permit Attachment L1, Drawing No. 10, to collect runoff from slope areas. Both basins are considered part of the permitted Landfill unit.

The Landfill liner systems cover the entire north slope of the Landfill, the slopes below the access ramps, and most of the Landfill floor. The liners shall be installed in stages as the Landfill expands to cover all surrounding earth that may contact waste or leachate.

The Landfill liner consists of primary and secondary systems. The primary system consists of, from top to bottom, a two-foot layer of protective soil, a geocomposite drainage layer, and a high-density polyethylene (HDPE) geomembrane liner. The geocomposite drainage layer drains to a sump consisting of a pump and leachate collection piping in drainage gravel, providing a Leachate Collection and Removal System (LCRS) to remove leachate from the Landfill. The sump is located in the floor of the geocomposite layer near the center of the Landfill.

The secondary system consists of, from top to bottom, a geocomposite drainage layer, an HDPE geomembrane liner, a geosynthetic clay liner, and six inches of prepared subgrade. A Leak Detection and Removal System (LDRS), similar in design to the LCRS, is located below the primary geomembrane and is designed to detect and remove leachate that passes through the primary liner system. The LDRS sump lies under the LCRS sump.

A vadose zone monitoring system (VZMS) includes a sump located on a geomembrane liner. It is located below the secondary liner and under the LDRS sump. All of the sumps contain pressure transducers to measure the presence and volume of fluids. The LCRS, LDRS, and VZMS are shown at Permit Attachment L1, Drawing No. 17.

Leachate collected in the sumps is pumped to the Leachate Storage Tank, shown at Permit Attachment L1, Drawing No. 19, analyzed, and treated as necessary prior to being disposed in the Landfill.

The VZMS also includes 15~~four~~ vadose zone monitoring wells and two neutron probe access tubes, shown at Permit Attachment I, *Vadose Zone Monitoring System Work Plan*, Figure No. 2. The wells are located east and west of the Landfill and locations outside the facility to~~and~~ monitor the accumulations of any escaped fluids down gradient from the Landfill. Neutron probe access tubes are located on both the north and west boundaries of the Landfill and monitor releases migrating as unsaturated flow.

The VZMS is described at Permit Part 7. Corrective Action requirements for leakage from the Landfill to the VZMS are described at Permit Part 9.

6.1 GENERAL REQUIREMENTS FOR THE LANDFILL

6.1.1 Permitted Disposal in the Landfill

6.1.1.a Hazardous Waste Disposal

The Permittee shall dispose of hazardous waste only in the Landfill, as identified at Table 6-1, *Permitted Landfill Unit*, and as specified at Permit Attachment A, *General Facility Description and Information*, Section 2.5. The volume of hazardous waste that may be disposed in the Landfill is limited to the maximum capacity identified at Table 6-1, and as specified in Permit Attachment A, Section 2.5.1.1, *Nature and Quantity of Waste*.

6.1.1.b Polychlorinated Biphenyls

The Permittee may dispose of ~~non-ignitable liquids with polychlorinated biphenyl (PCB) concentrations of less than 50 parts per million (ppm),~~ soils with PCB concentrations of less than 50 ppm~~,~~ and bulk PCB-contaminated remediation waste in the Landfill.

6.1.2 Prohibited Wastes in the Landfill

The Permittee is prohibited from placing in the Landfill any hazardous waste that does not meet the LDR treatment standards contained at 20.4.1.800 NMAC (incorporating 40 Subpart D).

6.2 LANDFILL CONSTRUCTION

6.2.1 Construction Requirements

The Permittee shall construct, operate, and maintain the Landfill, including liner systems, water collection basins and ditches, access ramps, and ancillary equipment, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301) and this Permit, and as follows:

6.2.1.a Landfill Excavation

The Permittee shall excavate and prepare the Landfill floor and subsurface sides as specified at Permit Attachment A, Section 2.5.2.2, *Excavation and Preparation of Landfill Bottom and Subsurface Sides*; and Permit Attachment L1, Drawings 7 and 8.

6.2.1.b Liner Systems

The Permittee shall install and maintain two liners, constructed to prevent any migration of wastes out of the Landfill to the adjacent subsurface soil or ground water, as specified at Permit Attachments A, Section 2.5.1.2, *Liner Systems*; L, Section 3.~~0~~1.3.2; L1, Drawings No. 5 through 12 and 15 through 20; L2, *Specifications for Landfill~~, Surface Impoundment and Associated Facilities~~ Facility Liner and Cover System Construction*; and M, *Construction Quality Assurance Plan for Landfill~~, Surface Impoundment and Associated Facilities~~ Facility Construction*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(c)(1) and 264.301(d)(1)).

The Landfill liner systems shall include the following components, from top to bottom:

- a two foot layer of protective soil;
- a geocomposite drainage layer;
- a 60-mil HDPE geomembrane liner;
- a geocomposite drainage layer;
- a 60-mil HDPE geomembrane liner;
- a geosynthetic clay liner, consisting of at least three feet of compacted clay having a permeability not greater than 10^{-7} cm/sec; and
- six inches of prepared subgrade.

The Permittee shall stage construction of the Landfill liner as specified at Permit Attachment L, Section 3.1.4, *Waste Filling Sequence*.

6.2.1.c LCRS

The Permittee shall install and maintain an LCRS above the primary system HDPE geomembrane liner, to consist of the geocomposite LCRS drainage layer and sump, pump, and piping, to collect and remove leachate, as specified at Permit Attachments A, Section 2.5.1.3, *Leachate Collection and Removal System (LCRS)*; L, Sections 3.1.~~3~~4, *Subgrade Excavation, Liner System, LCRS, LDRS, and Vadose Sump Design*, and 3.2, *Landfill Design Analyses*; L1, Drawings Nos. 12 and 15 through 20; L2; and M; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(c)(2)).

The sump, sump piping, slope riser pipes, crest riser pad, and vertical riser shall be constructed as specified at Permit Attachment L, Sections 3.1.~~3~~ 4 and 3.2. The sump and pump shall have the capacity identified at Permit Attachment L, Section 3.1.~~3~~4, Table L-2, *Landfill Sump Arrangement Summary*.

6.2.1.d LDRS

The Permittee shall install and maintain an LDRS between the primary and secondary HDPE geomembrane liners, to consist of the geocomposite LDRS drainage layer and sump, pump, and piping, to detect and remove leachate that may pass through all areas of the primary liner, as specified at Permit Attachments A, Section 2.5.1.4, *Leak Detection and Removal System (LDRS)*; L, Sections 3.1.~~3~~ 4 and 3.2; L1, Drawings Nos. 12 and 15 through 20; L2; and M; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(c)(3)). The sump and pump shall have the capacity identified at Permit Attachment L, Section 3.1.3, Table 2.

6.2.1.e VZMS Sump

The Permittee shall install and maintain a vadose zone sump system below the Landfill liners to serve as a detection system for leakage of the LDRS, as specified at Permit Attachments A, Section 2.5.1.5, *Vadose Zone Monitoring System (VZMS)*; L, Sections 3.1.~~3~~ 4 and 3.2; L1, Drawings Nos. 16 through 18; and M. The sump and pump shall have the capacity identified at Permit Attachment L, Section 3.1.~~3~~4, Table L-2.

6.2.1.f Access Ramps

The Permittee shall construct two 30 feet wide, 10 percent grade, access ramps on the east and west sides of the Landfill to the floor surface as specified at Permit Attachments L, Sections 2.1.3, *Facility Traffic Plan*, 3.1.2, *Landfill Layout and Phasing*, 3.2, and 3.2.6, *Access Ramp Design*; and L1, Drawings Nos. 10 and 14.

The Permittee shall construct an access ramp in the south slope, in accordance with Permit Attachment L, Section 3.1.~~4~~5, *Waste Filling Sequence*; and as shown at Permit Attachment L1, Drawing No. 8; with the approximate same dimensions and slope as the access ramps constructed on the east and west slopes, when needed to provide access to the south end of the Landfill Phase

IA (i.e., when lining of the south end of the Landfill Phase IA begins).

The Permittee shall notify the Secretary in writing 60 days prior to initiating construction of the south access ramp.

6.2.1.g Run-On/RunOff Controls

6.2.1.g.i Landfill Stormwater Collection Basin

The Permittee shall construct a Stormwater Collection Basin near the toe of the cut slope of the Landfill floor, as specified at Permit Attachments A, Section 2.5.1.6, *Run-On/Runoff Control*; L, Sections 3.1.~~6~~7, *Landfill Clean Storm Water Control Features*, and 3.2.10, *Surface Water Drainage Analysis*; and L1, Drawings Nos. 13, 14, and 25; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(g)). The Stormwater Collection Basin shall be lined with an HDPE liner, as shown at Permit Attachment L1, Drawing No. 13.

The Permittee shall provide the Secretary with 60 days prior written notice if the Stormwater Collection Basin is removed preparatory to the disposal of waste in the southern part of the Landfill during Phase IA of Facility operations.

6.2.1.g.ii Landfill Contaminated Water Collection Basin

The Permittee shall construct a Contaminated Water Collection Basin north of the Stormwater Collection Basin on the floor of the Landfill, as discussed at Permit Attachments A, Section 2.5.1.6; and L, Section 3.2.10; and as shown at Permit Attachment L1, Drawing No. 10; to collect possible contaminated runoff from the Landfill. The Contaminated Water Collection Basin shall be located on the Landfill liner systems.

The Permittee shall provide the Secretary with 60 days prior written notice if the Contaminated Water Collection Basin is removed preparatory to the disposal of waste in the southern part of the Landfill during Phase 1A of Facility operations.

6.2.1.g.iii Stormwater Collection Basin Berms

The Permittee shall construct the berm separating the Stormwater Collection Basin and the Contaminated Water Collection Basin, and the berm on the south slope of the Landfill, as shown at Permit Attachment L1, Drawings Nos. 9 and 13, with sufficient structural integrity to prevent failure, and using the construction specifications contained at Permit Attachment L2.

6.2.1.g.iv Perimeter Ditches

The Permittee shall construct perimeter ditches located on either side of the Landfill perimeter road to intercept runoff from areas outside of the Landfill and to divert this water to the Facility Stormwater Detention Basin located west of the Surface Impoundment (see Permit Attachment L1, Drawing No. 4), as specified at Permit Attachment L, Section 3.1.~~6~~7; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(h)). The perimeter ditches shall be constructed as specified at Permit Attachment L1, Drawing No. 25 (2 of 2).

6.2.1.g.v Run-On Diversion

The Permittee shall construct HDPE-lined ditches on the side of the access ramps to divert runoff from the slope areas above the access ramps and from the cut slope area to the Stormwater Collection Basin, as described at Permit Attachments A, Section 2.5.1.6; and L, Section 3.1.~~6~~7; and as shown at Permit Attachment L1, Drawings 10 and 14. The ditches shall be constructed as shown at Permit Attachment L1, Drawings 13, 14, and 25 (2 of 2). The Permittee shall operate the Landfill so that any runoff from the active waste filling area will drain to the Contaminated Water Collection Basin located within the Landfill as shown at Permit Attachment L1, Drawing 10.

6.2.1.h Vadose Zone Monitoring Wells

The Permittee shall construct ~~four deep~~15 vadose zone monitoring wells and two neutron probe access tubes to monitor fluids released from the Landfill in accordance with Permit Condition 7.2.1.a and 7.2.1.d; and as specified at Permit Attachment I, Section 2.2.2, *Vadose Zone Monitoring Well Construction*.

6.2.2 CQA Program

The Permittee shall implement the Construction Quality Assurance Plan contained at Permit Attachment M under the direction of a Construction Quality Assurance (CQA) officer who is a professional engineer registered in New Mexico to ensure that all construction required under Permit Condition 6.2 meets or exceeds all design criteria and specifications of this Permit, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.19(a)).

6.3 GENERAL LANDFILL OPERATING REQUIREMENTS

6.3.1 Operation and Maintenance of the Landfill

The Permittee shall operate and maintain the Landfill as specified at Permit Attachments A, Section 2.5.3, *Operation*; L, Sections ~~3.1.4~~2.2.3~~ and 3.1.5~~, *Final Cover*; and N, *Operations and Maintenance Plan*, Sections 3.4, *Landfill Operation*, and 4.1, *Landfill*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart N) and this Permit.

6.3.2 Placement of Waste in the Landfill

The Permittee shall manage the Landfill waste placement operation based on a series of grids along the north end of the Landfill and along both the east and west sides of the Landfill, as specified at Permit Attachment A, Sections 2.1.5, 2.2.10, and 2.5.3.7, *Procedures for Protecting Wastes*. This two-dimensional grid system, together with a vertical waste tracking system that counts the number of lifts between potentially incompatible wastes, and the thickness of those lifts, shall be used to ensure that the minimum spacing of incompatible waste is at least the 50 feet required by Permit Condition 6.9.

6.3.3 Daily Cover

The Permittee shall ensure that a daily soil cover with a minimum thickness of 0.5 foot is placed on the active waste placement area of the Landfill to control wind dispersal of particulate matter, as specified at Permit Attachments A, Section 2.5.1.7, *Wind Dispersal Control Procedures*; and N, *Operations and Maintenance Plan*, Section 3.4.3, *Waste Placement*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(j)).

6.3.4 Management of Run-On/Runoff

6.3.4.a Collection Basins

The Permittee shall ensure that run-on and runoff is pumped out of the Stormwater Collection Basin and the Contaminated Water Collection Basin ~~within 24 hours~~ after a storm event, or otherwise manage these basins to maintain the design capacity of the systems, as specified at Permit Attachment A, Section 2.5.1.6, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(i)).

6.3.4.b Standing Water

The Permittee shall ensure that standing water that collects on the Landfill floor is pumped out ~~within 24 hours~~ after a storm event, as specified at Permit Attachment A, Section 2.5.1.6; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(g)).

6.3.5 Leachate

If leachate collected from the Landfill leak detection systems, which includes the LCRS, the LDRS, and possibly the VZMS, meets LDR treatment standards, then the Permittee shall manage leachate by recirculating the liquid and applying it to the landfill soil cover for enhanced evaporation. Management of leachate by recirculation has been evaluated through calculations that provided with the Engineering Report in Permit Attachment L and modeling results and calculations in Permit Attachment L5. Management of leachate by recirculation for enhanced evaporation shall keep all leachate and potential contaminants within the lined landfill cell.~~treat the leachate in the Surface Impoundment or Stabilization Tank to remove all free liquids, as appropriate, and, if the leachate residue continues to meet LDR treatment standards, dispose of the treated leachate residue in the Landfill. If the leachate does not meet LDR treatment standards, the Permittee shall either treat the leachate in the Stabilization Tank to remove all free liquids and attain the LDR Treatment Standards as specified in Permit Part 4, or shall ship the leachate off-site to an appropriate permitted hazardous waste management facility, in compliance with all applicable regulations for generation and transport of hazardous waste.~~

6.4 WASTE ANALYSIS

6.4.1 Waste Characterization

The Permittee shall ensure that all waste placed in the Landfill meets the waste analysis requirements specified at Permit Attachment F, *Waste Analysis Plan*, Section 4.5.5.5, *Waste Analysis Requirements Specific to the Landfill*; and Permit Conditions 6.8 through 6.10.

6.4.2 Annual Analysis

At least annually, the Permittee shall randomly sample and analyze a minimum of 10 percent of incoming waste streams that are to be directly landfilled to verify compliance with the LDR treatment standards, as specified at Permit Attachment F, Section 4.5.5.5.

6.4.3 Leachate

6.4.3.a Leak Detection Systems Sampling and Analysis

The Permittee shall sample and analyze the leachate collected from the Landfill LDRS, LCRS, and VZMS sump in accordance with Permit Conditions 6.5.2.d and Permit Attachment F, Section 4.5.6, *Waste Analysis Requirements for Waste Generated On-Site*, for all the multisource leachate (EPA Hazardous Waste Number F039) constituents listed in the Table contained at 20.4.1.800 NMAC (incorporating 40 CFR 268.40).

6.4.3.b VZMS Well Sampling and Analysis

The Permittee shall sample and analyze any fluid collected from the VZMS monitoring wells in accordance with Permit Conditions 6.6.2, 7.3.2.a, and 7.3.2.b. Sampling and analysis shall be performed over the time period specified at Permit Condition 7.1.4.

6.5 LEAKS, SPILLS, AND LEACHATE MANAGEMENT

6.5.1 Spills and Releases

The Permittee shall ensure that spills and releases to the surface environment are contained and remediated in a timely manner.

6.5.2 Leachate Removal

6.5.2.a Removal of Leachate from the LCRS and LDRS

The Permittee shall remove pumpable liquids from the LCRS and LDRS sumps whenever monitoring indicates the presence of liquid to prevent the hydraulic head on the bottom liner from exceeding 12 inches, as specified at Permit Attachment N, Section 3.4.4, *Operation of Leachate Collection and Detection Systems*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.301(c)(4)).

6.5.2.b Removal of Leachate from the VZMS Sump

The Permittee shall remove pumpable quantities of leachate (if any) from the VZMS sump as specified at Permit Attachment I, Section 4.0, *Monitoring Procedures*.

6.5.2.c Leachate Storage

Leachate removed from the Landfill LCRS, LDRS, and VZMS sump shall be stored in the Leachate Storage Tank, as specified at Permit Attachment F, Section 4.5.6, *Waste Analysis Requirements for Waste Generated On-site*.

6.5.2.d Leachate Sampling

The Permittee shall ensure that sampling and analysis of leachates removed from the LCRS, LDRS, and the VZMS sump at the base of the Landfill~~ occurs before this leachate is commingled with fluids from any other unit, including VZMS wells and the Surface Impoundment~~, to ensure representative samples for the purpose of establishing the indicator parameters required at Permit Condition 7.3.2. Leachate from the Landfill LDRS, LCRS, and the VZMS sump at the base of the Landfill may be commingled before sampling and analysis, unless it is necessary to identify the location of the source of the fluids entering the LDRS and the VZMS sump.

6.5.3 Action Leakage Rate

The Action Leakage Rate (ALR) for the Landfill, as approved by the Secretary in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.302(a)), is 900 gallons per acre per day (gpad) as measured in the LDRS sump, as specified at Permit Attachment A, Section 2.5.3.8, *Action Leakage Rate*; Permit Attachment J, *Action Leakage Rate and Response Action Plan*, Section 5.2, *Determination of Action Leakage Rate: Landfill*.

To determine if the ALR has been exceeded, the Permittee shall determine the average daily flow rate on a weekly basis during the active life and closure period of the Landfill, and monthly during the post-closure care period, as specified at Permit Attachment J, Section 5.4, *Determination If the Action Leakage Rate Is Exceeded*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.302(b)).

6.5.4 Flow Rates Less than or Equal to the ALR

The Permittee shall respond to leakage less than or equal to the ALR as specified at Permit Attachment A, Section 2.5.3.9, *Response Action Plan*.

6.5.5 Flow Rates Greater than the ALR

The Permittee shall respond to leakage greater than the ALR as specified at Permit Attachment J, Section 7.0, *Response Actions*; and as required by 20.4.1.500 NMAC, (incorporating 40 CFR 264.304(b)(3) through (b)(5) and (c)). The Permittee shall also immediately inspect each monitoring point in the VZMS for fluids in accordance with Permit Condition 7.4.1.b, as specified at Permit Attachment I, Section 4.2, *Response Actions*, and shall increase the frequency of inspection of the VZMS wells from monthly to weekly in accordance with Permit Condition 7.4.1.b.

6.6 INSPECTION AND MONITORING PROCEDURES

6.6.1 Inspection Requirements

6.6.1.a General Inspection Requirements

The Permittee shall inspect the Landfill, including the liner and leachate collection systems, and ancillary equipment, as specified at Permit Attachments D, Section 5.2.2, *Landfill Inspection Procedures*; and D1, *Inspection Schedules and Checklists*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.303).

6.6.1.b Inspections during Construction

The Permittee shall inspect the liners and cover systems of the Landfill during construction and installation for uniformity, damage, and imperfections (e.g., holes, cracks, thin spots, or foreign materials), as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.303(a)).

6.6.1.c Inspections after Construction

The Permittee shall inspect the liners and cover systems of the Landfill immediately after installation or construction as required by 20.4.1.500 NMAC, (incorporating 40 CFR 264.303(a)(1) and (2)), as follows:

- the Permittee shall inspect all synthetic liners and covers to ensure tight seams and joints and the absence of tears, punctures, or blisters; and
- the Permittee shall inspect soil-based and admixed liners and covers for imperfections including lenses, cracks, channels, root holes, or other structural nonuniformities that may

cause an increase in the permeability of the liner or cover.

6.6.1.d Inspections during Operation

The Permittee shall inspect the Landfill weekly and after storms, as specified at Permit Attachment D1, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.303(b)), to detect evidence of any of the following:

- deterioration, malfunctions, or improper operation of run-on and runoff systems; and

- improper functioning of wind dispersal control systems.

6.6.2 Monitoring Requirements

The Permittee shall monitor the Landfill LCRS, LDRS, and VZMS daily, the Landfill vadose zone monitoring wells monthly, and the Landfill neutron probe access tubes twice annually for the presence of liquids and to detect evidence of deterioration or malfunction of the systems during the active life of the Landfill in accordance with Permit Condition 7.4.1. The Permittee shall monitor and record the Landfill sumps during the post-closure care period according to the schedule specified at Permit Attachment J, Section 6.0, *Leak Detection and Removal System Monitoring*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.303(c)(2)); and shall monitor the vadose zone monitoring wells and neutron probe access probes semi-annually, as specified at Permit Attachment I, Section 4.1, Table 2, *Monitoring Frequency*.

If liquids are present, the Permittee shall implement Permit Condition 7.4.2 and sample and analyze the liquids as specified at Permit Attachments F, Section 4.5.6; and I, Section 4.4, *Sample Collection*. The Permittee shall remove and properly dispose of all liquids collected, as specified at Permit Attachment I, Section 4.2.

6.7 RECORDKEEPING AND REPORTING

6.7.1 Recordkeeping Requirements

The Permittee shall follow the recordkeeping requirements for the Landfill specified at Permit Attachment N, Section 3.4.1, *Records*. Records kept shall include, but are not limited to:

6.7.1.a Grid “Cell” Location

The Permittee shall maintain the following items in the Operating Record, in accordance with Permit Condition 2.12.1.m; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.73(b)(2) and 40 CFR 264.309):

- a map with the exact location and dimensions including depth, of each grid “cell” in the three-dimensional grid system required under Permit Condition 6.3.2, with respect to permanently surveyed benchmarks; and

- the contents in each grid “cell” and the approximate location of each hazardous waste type within each grid “cell".

6.7.1.b Inspection Logs

The Permittee shall keep in the Operating Record the inspection logs and other records for the inspections conducted in accordance with Permit Condition 6.6.1 for a minimum of three years, in accordance with Permit Condition 2.7.3, and as required by 20.4.1.500 NMAC, (incorporating 40 CFR 264.15(d) and 264.73(b)(5)).

6.7.1.c LDRS, LCRS, and VZMS Monitoring Data

The Permittee shall keep records for the LDRS, LCRS, and VZMS monitoring conducted in accordance with Permit Condition 6.6.2, including a record of the amount of liquids removed during the active life, closure, and post-closure care periods of the Landfill, in accordance with Permit Condition 2.12.1.k.i; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.303(c)(1)). These records shall be retained until the Secretary has approved the completion of post-closure care for the Landfill.

6.7.2 Reporting Requirements

6.7.2.a Waste Identification and Location within the Landfill

The Permittee shall submit current information on the grid "cell" map, required under Permit Condition 6.7.1.a, to the Secretary quarterly. The Permittee shall submit the identification of waste placed in each cell in terms of the grid coordinates, to the Secretary. This information shall be included in the Quarterly Report required under Permit Condition 2.12.2.b.

6.7.2.b Ignitable, Reactive, or Incompatible Waste

The Permittee shall document and place in the Operating Record the evidence of compliance with the requirements for ignitable, reactive, and incompatible waste contained at Permit Conditions 6.8 and 6.9; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.17(c) and 264.73(b)(3)), using references to published scientific or engineering literature, using data for trial tests, waste analyses, and/or the results of the treatment of similar wastes by similar treatment processes.

6.7.2.c Response Actions

If the flow rate into any leak detection system exceeds the ALR, the Permittee shall, as specified at Permit Attachment J, Section 7.0, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.304(b)(1), (b)(2), and (b)(6)):

- notify the Secretary in writing of the exceedance within seven calendar days of the determination;

- submit a preliminary written assessment to the Secretary within 14 calendar days of the determination as to the amount of liquids, likely source of liquids, possible location, size, and cause of any leaks, and short-term actions taken and planned; and

- submit to the Secretary the results of the analysis required under Permit Condition 6.5.5, the results of actions taken, and actions planned within 45 calendar days of the determination. Monthly thereafter, the Permittee shall, as long as the flow rate in the LDRS exceeds the ALR, submit to the Secretary a report summarizing the results of any remedial actions taken and actions planned.

6.7.3 Landfill CQA Certification

Prior to the initiation of operations at the Facility, the Permittee shall submit a certification to the Secretary signed by the CQA officer that the approved CQA Plan has been successfully carried out and that the Landfill meets all regulatory requirements, in accordance with Permit Conditions

1.5.9.c.i and 1.10; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.19(d)). The certification shall also attest that the Secretary's inspection, provided for at Permit Condition 1.5.9.c.ii, has been either completed or waived. The Permittee shall furnish documentation supporting this certification to the Secretary upon request.

6.8 SPECIAL LANDFILL PROVISIONS FOR IGNITABLE OR REACTIVE WASTES

The Permittee shall not place ignitable or reactive waste in the Landfill, unless the waste meets all applicable requirements contained at 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b)) and 20.4.1.800 NMAC (incorporating 40 CFR Part 268), and the ignitable or reactive waste has been treated so that it no longer meets the definition of ignitable or reactive waste contained at 20.4.1.200 NMAC (incorporating 40 CFR 261.21 or 261.23), as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.312). The Permittee shall also comply with the procedures for managing ignitable or reactive waste contained at Permit Attachment A, Section 2.5.3.6, *Specific Requirements for Ignitable/Reactive Wastes*.

6.9 SPECIAL LANDFILL PROVISIONS FOR INCOMPATIBLE WASTES

The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same Landfill grid "cell", in accordance with the procedures specified at Permit Attachment A, Section 2.5.3.7, *Procedures for Protecting Wastes*, and at 20.4.1.500 NMAC (incorporating 40 CFR 264.17(b)), as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.313). Incompatible waste shall be placed with a minimum of one grid distance (50 feet) horizontally, vertically, and diagonally between the wastes, as specified at Permit Attachment A, Section 2.5.3.7.

6.10 DISPOSAL REQUIREMENTS FOR SPECIFIC WASTE TYPES

6.10.1 Free Liquids

6.10.1.a Bulk or Non-Containerized Free Liquids

The Permittee shall not place bulk or non-containerized free liquids or waste containing free liquids (e.g., Leachate) in the Landfill, as specified at Permit Attachment F, Section 4.5.5.5, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.314(b)).

6.10.1.b Containers Holding Free Liquids

The Permittee shall not place containers holding free liquid in the Landfill, unless one of the following conditions is met, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.314(d)):

- all free-standing liquid~~: (i) has been removed by decanting or other methods; (ii) has been mixed with absorbent or solidified so that free-standing liquid is no longer observed; or (iii)~~ has been removed or otherwise eliminated prior to waste receipt at the Facility;

- the container is no larger than an ampule;

- the container is designed to hold free liquids for use other than storage (e.g., a battery or capacitor); or

- the container is a lab pack as defined at 20.4.1.500 NMAC (incorporating 40 CFR 264.316), and is disposed in accordance with Permit Condition 6.10.2.

6.10.2 Lab Packs

The Permittee shall ensure that small containers of hazardous waste in overpacked drums (lab packs) are disposed in the Landfill as specified at Permit Attachment A, Section 2.5.3.7, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.316).

6.10.3 Hazardous Debris

The Permittee shall not place hazardous debris in the Landfill unless it has been treated by the generator and the generator has certified that the debris meets the LDR treatment standards specified at 20.4.1.800 NMAC (incorporating 40 CFR 268.45), as specified at Permit Attachment F, Section 4.5.5.5.

6.10.4 Contaminated Soil

The Permittee shall place contaminated soil in the Landfill only in accordance with all the requirements of 20.4.1.800 NMAC (incorporating 40 CFR 268.49).

6.11 SPECIFIC PROVISIONS FOR EMPTY CONTAINERS

The Permittee shall not dispose of any containers that are larger than ampules in the Landfill unless they are at least 90 percent full when placed in the Landfill or they are crushed~~, shredded, or similarly~~ and reduced in volume to the maximum practical extent by compaction~~before placement~~ in the Landfill prior to permanent burial, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.315).

6.12 CLOSURE

The Permittee shall conduct closure activities for the Landfill as specified at Permit Attachment O, *Closure Plan*, Section 8.1.6, *Landfill*, and other pertinent sections; and in accordance with Permit Part 8; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.310). The Permittee shall follow the time frame for closure specified at Permit Attachment O1, *Compliance Schedules for Closure*.

6.13 POST-CLOSURE CARE PLAN

The Permittee shall conduct post-closure care activities for the Landfill as specified at Permit Attachment P, *Post-Closure Care*, Section 8.2, *Post-Closure Activities*, and other applicable sections; and in accordance with Permit Part 8; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart G and 40 CFR 264.310).

TABLE 6-1

PERMITTED LANDFILL UNIT

Unit	Dimensions (feet)	Capacity (Cubic Yards)	Surface Area (Acres)
Landfill Phase IA	1,050 long x 1,050 wide x 100 deep	553,200	35

PERMIT PART 7

VADOSE ZONE MONITORING

HIGHLIGHTS

Introduction

This Part contains conditions to ensure the earliest possible detection of contaminant leakage from the Landfill~~ and the Surface Impoundment~~. Permit Conditions include the location, design, construction, operation, and maintenance of the Vadose Zone Monitoring System (VZMS); the methodology for sampling and characterizing the fluids that may accumulate in the system; a methodology for distinguishing between leachates and non-leachates; monitoring frequency; laboratory analysis; and data reporting and recording requirements.

The Landfill ~~and Surface Impoundment are ~~is referred to as a "regulated unit~~s~~" in this Part. The VZMS consists of a sump~~s~~ located directly below ~~bo~~the regulated unit~~s~~, and a total of eith~~eleven~~ monitoring wells located immediately adjacent to the regulated units, seven~~six~~ monitoring wells on the periphery of the facility, ~~three suction lysimeters associated with the Surface Impoundment, ~~and two~~three~~ neutron probe access tubes adjacent to the regulated unit~~s~~. The VZMS monitors the accumulation and migration of fluids below the ground surface and above the uppermost aquifer. Together with the Leachate Detection and Removal System (LDRS) and Leak Collection and Removal System (LCRS) sumps (see Permit Parts 5 and 6), the VZMS distinguishes between leachates originating within the regulated unit~~s~~ and non-leachate fluids that may originate outside the unit~~s~~.

Regulatory Background

The New Mexico Hazardous Waste Act and Regulations under 20.4.1.500 NMAC (incorporating 40 CFR 264.90 through 264.99) and 20.4.1.900 NMAC (incorporating 40 CFR 270.32(b)(2)) require owners and operators of facilities that treat, store and dispose of hazardous waste to monitor the ground water of the uppermost aquifer for possible contaminant releases and to operate under the necessary permit conditions to be protective of human health and the environment. The Secretary has approved a waiver of the requirements for ground water monitoring at the facility in accordance with 20.4.1.500 (incorporating 40 CFR 264.90(b)(4)). In lieu of ground water monitoring, and as a part of a Final

Order dated March 18, 2002, the Secretary is requiring vadose Zone monitoring. The Secretary has determined that vadose zone monitoring is more appropriate, and more protective of health and the environment, than ground water monitoring at this Facility, given the depth to ground water and the distance that hazardous constituents would have to travel to contaminate ground water. The upper zone of ground water is approximately 700 feet beneath the Facility. The Ogallala Aquifer is a minimum of 3600 feet east of the Facility. Moreover, contaminant flow modeling, based on conservative assumptions, predicts that any contaminants released from the Facility would not reach ground water within 800 years. The vadose zone monitoring system is designed to detect contaminants released from the Facility long before they reach ground water. Once detected, any contamination in the vadose zone will be addressed under the corrective action conditions of this Permit, or under other authority. The bases for the ground water monitoring waiver are specified in greater detail in Permit Attachment H, *Ground Water Monitoring Request and Approval.*

A ground water monitoring waiver for the Facility has been approved by the Secretary for reasons specified at Permit Attachment H, *Ground Water Monitoring Waiver Request and Approval,* in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.90(b)(4)). Those reasons include contaminant flow model predictions that conservatively demonstrate that fluids will not migrate from ~~a~~ the Regulated Unit to either the first zone of saturation approximately 700 feet below the facility, or to saturation associated with the Ogallala Aquifer a minimum of 3600 feet east of the facility, within 800 years. It is pursuant to the above regulations, and as a condition of the waiver approval, that vadose zone monitoring is required in lieu of groundwater monitoring under this Permit.

Other Monitoring Requirements

Monitoring requirements for the regulated unit~~s~~ contained in this Part ~~are~~ is in addition to the LDRS monitoring requirements specified at Permit Conditions 5.6.2 and 6.6.2.

Regulated Unit~~s~~

Regulated units are defined at 20.4.1.500 NMAC (incorporating 40 CFR 264.90(a)(2)) as those land-based units that receive hazardous wastes after July 26, 1982. The Facility has ~~two~~ one regulated unit~~s~~, the Landfill ~~and the Surface Impoundment~~. The Landfill is described at Permit Part 6, *Highlights*. The Landfill is a disposal unit where wastes will remain indefinitely and will therefore be subject to vadose zone monitoring Permit Conditions established in this Part that will extend through the Post-Closure Care Period (see Permit Part 8).

Potential releases from the Landfill are anticipated to be in the form of liquids escaping through a breach in the liner system. Though no free liquids will be placed in the Landfill, fluids will enter the Landfill in the form of precipitation, which will invariably leach hazardous constituents and accumulate in the Landfill sumps. Engineered controls to address the accumulated fluids and to preclude a release outside the Landfill liner system include an LCRS and an LDRS. The LCRS and LDRS are not considered part of the VZMS, but LCRS and LDRS fluid samples are used to establish indicator parameters indicative of Landfill leachate against which VZMS sample analyses are compared to determine whether a release to the vadose zone has occurred.

~~The Surface Impoundment is described at Permit Part 5, *Highlights*. Although the Surface Impoundment is a treatment unit that will undergo clean closure, its associated vadose zone monitoring wells will continue to be monitored through the post-closure care period due to their proximity to the Landfill (see Permit Part 8). Potential releases from the Surface Impoundment are anticipated to be in the form of liquids escaping through a breach in the liner system. Fluids that escape through the primary liner will be detected and removed by the Surface Impoundment LDRS.~~

7.1 GENERAL REQUIREMENTS

7.1.1 Duty to Monitor

The Permittee shall conduct vadose zone monitoring in accordance with the requirements of this Permit Part and as specified at Permit Attachment I, *Vadose Zone Monitoring System Work Plan*, and as required by 20.4.1.500 (incorporating 40 CFR 264.91, 264.97, and 264.98)).

7.1.2 Duty to Initiate Corrective Action

If at any time a release, generally in the form of a leachate escaping through a liner system, is detected from a regulated unit through the release assessment required at Permit Condition 7.5, the Permittee shall notify the Secretary within 24 hours and shall initiate corrective action in accordance with Permit Part 9.

7.1.3 Duty to Remove Non-Leachates

If the VZMS contains non-leachate fluids as identified at Permit Condition 7.3.1, the Permittee shall identify and remove, where possible, both the source and the non-leachate fluids as required by 20.4.1.500 (incorporating 40 CFR 264.97(a)(2)). If removal is implemented, the Permittee shall report the progress of that removal to the Secretary monthly.

7.1.4 Duration of Monitoring

The Permittee shall conduct vadose zone monitoring through the active life, including the closure period~~,~~ of ~~both~~ the Landfill ~~and the Surface Impoundment,~~ and through the post-closure care period of the Landfill, in accordance with this Permit Part as required by 20.4.1.500 (incorporating 40 CFR 264.90(c)).

7.2 VZMS LOCATION AND CONSTRUCTION

7.2.1 VZMS Construction and Locations

The VZMS shall consist of ~~three~~ one vadose zone sump~~s~~, ~~seventeen~~ fifteen vadose zone monitoring wells, and ~~three~~ two neutron probe access tubes. ~~, and three suction lysimeters~~ installed at locations and depths as required at Permit Conditions 7.2.1.a, 7.2.1.b, 7.2.1.c, 7.2.1.d, and 7.2.1.e; and as specified at Permit Attachment I, Section 2.0, *Vadose Zone Monitoring System Installation.* The vadose zone monitoring wells shall be capable of yielding fluid samples from the vadose zone below the Landfill and Surface Impoundment where fluids are likely to accumulate in the future. The Permittee shall construct and maintain these monitoring points to yield sufficient fluid samples that are representative of the various fluid sources, as required by 20.4.1.500 (incorporating 40 CFR 264.95(a) and 40 CFR 264.97(a)(2)). The vadose zone monitoring system shall be installed prior to the initial acceptance of waste at the Facility, in accordance with the schedule presented at Table 1-1, *Compliance Schedule*, of this Permit. See a map of the VZMS at Permit Attachment I, Figure 2.

7.2.1.a Deep Vadose Zone Monitoring Wells

The Permittee shall install and maintain a total of ~~eleven~~ nine deep vadose zone monitoring wells as required by 20.4.1.500 (incorporating 40 CFR 264.95(a) and 264.97(a)(2)).

~~Ten~~ Nine deep vadose zone wells capable of collecting representative samples of any fluid that may accumulate at or above the stratigraphic boundary between the Upper and Lower Dockum stratigraphic units, and below the stratigraphic boundary between the alluvium and the Upper Dockum, shall be constructed. The specific location of ~~six of~~ the ~~ten~~ nine deep vadose zone monitoring wells is specified at Permit Attachment I, Section 2.2, *Vadose Zone Monitoring Wells*.

The nine deep and very deep vadose zone monitoring wells will be installed at the following locations:

- four deep monitoring wells will be located in a line along the eastern boundary of the Phase 1A landfill, spaced at approximately 350-foot intervals.
- one deep monitoring well will be located at the northeast corner of the facility.
- one deep monitoring well will be located at the midpoint between the northeast corner of the Phase 1A landfill and the northeast corner of the facility.
- one off-site deep monitoring well will be installed approximately 3,300 feet northeast of the facility, within 15 feet of the location of boring WW-1.
- one off-site monitoring well will be installed approximately 550 feet west of the facility, near the southwest facility corner, within 15 feet of the location of boring PB-14.
- one very deep monitoring well will be installed at the southeast corner of the stormwater detention basin.

These wells shall be installed at the locations specified as Nos. VZMW-1D~~1~~, 2D~~2~~, 3D~~3~~, 4D~~4~~, 5D~~5~~, ~~and~~ 6D~~6~~, 7D, 8D, and 9D in Permit Attachment I, Figure 2, *Location of Sumps and Monitoring Wells*.

One deep monitoring well (VZMW-9D~~9~~) shall be located within fifteen feet of borehole location WW-1. The purpose of this deep vadose zone monitoring well is to measure potential changes in fluid chemistry and water level for a location where shallow groundwater is currently known to exist.

Two of the nine~~ten~~ deep vadose zone monitoring wells will be located northeast of the regulated units. One well will be located at the northeast corner of the facility boundary, and another one-half the distance from the northeast corner of the facility boundary to the northeast corner of the landfill on a line that intersects the two points. The purpose of these two wells is to identify the lateral extent of Upper Dockum saturation, and to monitor any possible contaminants that may potentially migrate toward the saturated zone.

Also, one of the nine~~ten~~ deep vadose zone monitoring wells will be located west of the facility boundary within fifteen feet of borehole location PB-14. This well will measure changes in fluid chemistry and water level at a location where shallow groundwater is currently known to exist.

One deep vadose zone monitoring well shall be installed and operated to determine the presence and quality of groundwater within the Lower Dockum Unit above the lower sandstone formation (Santa Rosa Sandstone). This well shall be constructed at the southeast corner of the stormwater detention basin. This well shall be screened from fifty feet below the top of the Lower Dockum Unit, down to one hundred feet above the top of the Santa Rosa Sandstone. The well shall be properly constructed to prevent fluid migration and infiltration between different stratigraphic units or zones.

These wells shall be constructed as specified in Permit Attachment I, Section 2.2.2, *Vadose Zone Monitoring Well Construction*; and as required by 20.4.1.500 (incorporating 40 CFR 264.97(c)).

7.2.1.b Shallow Vadose Zone Monitoring Wells

The Permittee shall install and maintain a total of six shallow vadose zone monitoring wells that are capable of collecting a representative sample of fluids that may accumulate at or above the stratigraphic boundary between the alluvial material and the Upper Dockum stratigraphic units, and below the ground surface as required by 20.4.1.500 (incorporating 40 CFR 264.95(a) and 264.97(a)(2)). Four shallow vadose zone monitoring wells shall be constructed and operated in the alluvial sediments west of the waste management units and east of the Stormwater Detention Basin. These wells shall be constructed on a north-south line spaced at approximately 330-foot intervals. The purpose of these wells is to monitor the possible near surface migration of regulated fluids toward the western boundary of the facility.

One shallow vadose zone monitoring well shall be constructed and operated within fifteen feet of the deep vadose zone monitoring well located near borehole WW-1. A second shallow vadose zone monitoring well shall be constructed and operated within fifteen feet of the deep vadose zone monitoring well located near borehole PB-14. The purpose of the two monitoring wells is to monitor the accumulation of fluids in the alluvial materials.

7.2.1.c Vadose Zone Monitoring Sumps

The Permittee shall install ~~three~~ a vadose zone monitoring sump~~s~~, ~~two below the Surface Impoundment and one~~ below the Landfill, that is~~are~~ capable of collecting a representative sample of any fluids that may accumulate below the Surface Impoundment and the Landfill, respectively, in accordance with Permit Conditions 5.2.1.e and 6.2.1.e.

Vadose Zone Sumps shall be designed and constructed in accordance with the following engineering design drawings contained at Permit Attachment L1, *Engineering Drawings*:

Drawing 15: Sump Plan View – Phase 1a

Drawing 16: Sump Cross-Sections – Phase 1a

Drawing 17: Typical Sump Detail Cross-Section

Drawing 18: Vadose, LDRS, LCRS Cross-Sections and Details

~~Drawing 28: Evaporation Pond Subgrade Contours – Phase 1~~

~~Drawing 29: Evaporation Pond Clay Liner Contours – Phase 1~~

~~Drawing 30: Evaporation Pond Cross-Sections~~

~~Drawing 32: Evaporation Pond LDRS and Vadose Plan and Details~~

~~Drawing 39: Drum Handling Unit Sump Details (sheet 1 and sheet 2)~~

~~Drawing 41: Truck Roll Off Area Drainage Surface Contours (plan)~~

~~Drawing 43: Truck Roll Off Area Liner Details (section and details)~~

~~Drawing 44: Truck Wash Layout and Details (sheet 1 and sheet 2)~~

7.2.1.d Neutron Probe Access Tubes

The Permittee shall install and maintain a total of ~~three~~ two deep neutron probe access tubes capable of detecting a release from the regulated units migrating in the subsurface as unsaturated flow. The neutron probe access tubes shall also be constructed to enable collection of a representative sample of any fluid that may accumulate at or above the stratigraphic boundary between the Upper and Lower Dockum stratigraphic units, and below the stratigraphic boundary between the alluvium and the Upper Dockum. Installation of neutron probe access tubes designed to detect unsaturated flow partially fulfills the Final Order from the Secretary dated March 18, 2002, through his authority stipulated at 20.4.1.900 (incorporating 40 CFR 270.32(b)(2)).

One neutron probe access tube shall be located at the center of the north boundary of the Phase 1A~~I~~ Landfill. Another access tube shall be located at the center of the west boundary of the Phase 1~~I~~A Landfill. ~~The third access tube shall be located at the northwest corner of the North Surface Impoundment.Suction~~

~~7.2.1.e Lysimeters~~

~~The Permittee shall install and maintain a total of three shallow suction lysimeters capable of detecting a release from the Surface Impoundment migrating in the subsurface as unsaturated flow. Installation of suction lysimeters designed to detect unsaturated flow partially fulfills the Final Order from the Secretary dated March 18, 2002, through his authority stipulated at 20.4.1.900 (incorporating 40 CFR 270.32(b)(2)).~~

~~The lysimeters shall be placed in vertical boreholes at a depth of five feet below the Surface Impoundment vadose zone monitoring sumps. The lysimeters shall be located at the surface a distance of fifteen feet away from VZMW 1, VZMW 2, and the neutron probe access tube at the northwest corner of the North Surface Impoundment.~~

7.2.2 Additional Vadose Zone Monitoring Points

If, after Permit issuance, the Secretary’s or the Permittee’s knowledge of subsurface conditions indicate that the VZMS Permit Conditions are insufficient to detect a release from a regulated unit, the Secretary may require the Permittee to install additional vadose zone monitoring points in accordance with Permit Condition 7.2.1. Such changes may include, but are not limited to, detection of fluid in previously dry locations, or the discovery of previously unknown permeable strata during Facility construction or operation. The Permittee shall initiate a Permit modification to incorporate required additional monitoring point(s), in accordance with 20.4.1.900 (incorporating 40 CFR 270.42).

7.2.3 Location of Replacement Wells

Should existing monitoring wells fail or otherwise cease to perform their intended function, replacement wells shall be installed as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.95(a) and 264.97(a)(2)). Replacement vadose zone monitoring wells shall be located within 15 feet of an original well.

7.2.4 Well Surveys

All vadose zone monitoring points shall be surveyed for both vertical and horizontal coordinates by a professional land surveyor registered in New Mexico. Horizontal coordinates shall be to plus or minus 0.1 foot with respect to the State Plane Coordinate System (NMSA 47-1-49 to 56) (Repl. Pamp. 1993) and a Facility benchmark. Vertical coordinates shall be to the top of the well casing (marked), the top of the concrete apron (marked), and the ground surface to plus or minus 0.01 foot with respect to mean sea level and a benchmark. This survey information shall be entered into and maintained in the Operating Record in accordance with Permit Condition 7.7.1.

7.2.5 Supervision of Construction

An experienced professional geologist or engineer shall supervise and document all VZMS construction.

7.2.6 Continuous Core

Well bores VZMW-1D, VZMS-~~5~~4D, and VZMS-~~6~~7D, as identified in Permit Attachment I, ~~Table 2~~Section 2.2.2.5, VZMS Construction Information, shall be drilled so as to provide continuous core so as to substantially be in accordance with 20.45.1.900 NMAC (incorporating 40 CFR 270.14(c)(2)). One deep borehole required in Permit Condition 7.2.1.a shall be continuously cored from 15 feet below the Upper/Lower Dockum contact to the total depth. The primary purpose of the coring is to evaluate the possible existence of paleofractures or faults beneath the facility. Should these well bores yield insufficient core to accurately determine the lithology and geologic structure of the locations, the Secretary may require additional attempts to obtain the required core from proximal locations. All geologic core shall be labeled as to depth, photographed, boxed, stored, and made available for inspection for the operating life of the Facility. Selected samples shall be sealed and stored for future inspection. These samples shall be considered part of the Operating Record and maintained in accordance with Permit Condition 7.7.1.

7.2.7 Compatibility of Well Construction Materials

The Permittee shall ensure that vadose zone fluids are not adversely affected by well construction materials, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.97(a)). A compatibility demonstration shall be provided within six months of well construction, provided that sufficient vadose zone fluids are available to perform said assessment.

7.2.8 Drilling Equipment Air Supply

Borings shall be drilled using air rotary drilling methods as specified at Permit Attachment I, Section 2.2.2, and the air supply shall be filtered or provided with an efficient separator to minimize the introduction of water or compressor oil into the well bore, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.97(a)).

7.2.9 Well Completion Logs

Well completion logs for each VZMS well shall include, in addition to those items listed at Permit Attachment I, Section 2.2.2.~~3~~5, *Well Construction Information*, the following information:

- date(s) of drilling, completion, and any well development that may be necessary;
- explanation for any introduced water and a reference to its source and its chemical analysis;
- well location horizontal and vertical coordinates;
- total boring depth to within 0.1 foot with respect to ground surface, and well depth to within 0.01 foot with respect to top of casing (marked);
- boring and well casing(s) diameters;
- drilling and lithologic logs;

- well casing material specifications and size, and reference material certifications;
- well screen slot size and depth to both top and bottom of screen interval;
- casing and screen joint type;
- filter pack material source and grain size analysis;
- filter pack placement methodology;
- sealant material sources, types and mix design;
- surface seal design;
- reference to any non-anthropogenic fluids encountered during construction;
- well development procedures, should they be required, including equipment and methods used, total daily amounts of fluids removed, recovery rates, turbidity, and static fluid surface elevation measurements, if applicable;
- description of protective cap;
- detailed well construction drawing presenting depth of well construction material emplacement and well dimensions; and
- aquifer test results, including hydraulic conductivity, for any well containing groundwater at construction.

Well Completion Logs shall be entered into and maintained in the Operating Record in accordance with Permit Condition 7.7.1. The Well Completion Logs shall be submitted to the Secretary in the first Quarterly Report after completion of well construction, in accordance with Permit Condition 7.7.2.

7.2.10 Decontamination of Material Introduced into the Well Bore

All materials (except filter pack and sealants) introduced into the well bore shall be steam cleaned or washed with hot water and anionic detergent (e.g., Alconox or equivalent) and thoroughly rinsed with distilled water prior to introduction, unless the material is supplied from the manufacturer certified clean and has remained sealed in a protective wrapping, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.97(a)). Wash/–decontamination water shall be collected in 55-gallon drums, labeled, and stored on site for later disposal in accordance with applicable regulations.

7.2.11 Decontamination of Drilling Equipment

Drilling equipment shall be decontaminated as specified at Permit Attachment I, Section 2.2.3, *Decontamination*; and in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.97(a)).

7.3 INDICATOR PARAMETERS

The Permittee shall create and maintain a list of chemical constituents and other parameters for use in monitoring the VZMS as specified below and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(a)). Monitored constituents are hereafter referred to as indicator parameters. Permit Attachments U2, *Background Values for Non-Leachates*, and V, *Vadose Zone Monitoring Indicator Parameters*; shall be developed, against which VZMS sample analysis shall be compared to assess potential releases to the vadose zone, in accordance with Permit Condition 7.

Potential sources of vadose zone fluids include two major categories: leachates originating from within the regulated units and containing the contaminants of concern; and non-leachates that originate outside the regulated units which are generally considered to not be contaminated. The non-leachate chemical constituents will be combined with the chemicals measured in leachates to establish the complete list of indicator parameters.

7.3.1 Non-Leachate Fluids

The Permittee shall establish and maintain a list of indicator parameters and their “baseline” chemical concentrations for the following non-leachate fluids according to the procedures specified at Permit Attachment I, Section 3.0, *Baseline Liquid Characterization*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(a)):

- precipitation;

- consolidation water from prepared regulated unit subgrade or geosynthetic clay liner;
- Facility water supply; and
- Stormwater Detention Pond fluids.

Non-leachate fluids are anticipated to contain only major ions and metals, but shall also be analyzed for those parameters identified at Permit Attachment I, Table 1, *Baseline Chemical Analyses*, including sulfides and sulfates, radionuclides, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), perchlorate, and total petroleum hydrocarbons (TPH). Non-leachate water samples from the four sources listed above and drill cuttings from three representative Dockum lithologies (i.e. mudstone, siltstone, and sandy siltstone) will be used in the Meteoric Water Mobility Procedure to determine non-leachate water quality (see Permit Attachment I, Appendix A, *Meteoric Water Mobility Procedure*). The result of this procedure and the non-leachate water quality analysis, as described at Attachment I, Section 3.0, shall be used to determine the non-leachate indicator parameter list at Permit Attachment V and the baseline chemical concentrations at Attachment U2.

A tolerance interval statistical procedure, as described at Permit Attachment Q, *Statistics for Release Determination*, shall be used to determine statistically significant changes from non-leachate baseline concentrations, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(f)).

7.3.1.a Time Frame for Establishing Non-leachate Fluid Indicator Parameter List and Baseline Concentrations

Both parameters on the indicator parameter list and their chemical constituent baseline concentrations for non-leachate fluids, excluding data acquired from Stormwater Detention Pond fluids, shall be established within three months of activating the Facility water supply and before acceptance of waste, in accordance with the procedures specified in Permit Attachment I, Section 3.0; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(a)).

Fluids in the Stormwater Detention Pond shall be measured annually for the constituents listed at 20.4.1.500 NMAC (incorporating 40 CFR 264, Appendix IX) and reported to the

Secretary. A list of these constituents shall be maintained in both the Operating Record and at Permit Attachment V.

7.3.1.b Reporting – Baseline Values for Non-Leachate Fluids

The indicator parameter list and the baseline chemical concentration values for non-leachate fluids, tolerance intervals required at Permit Condition 7.3.1, and the computations necessary to determine these parameters, shall be submitted by the Permittee in a separate report to the Secretary for approval in accordance with Permit Condition 7.7.2.a; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(a)).

7.3.1.c Additional Non-Leachate Fluids

The Permittee shall establish and record a list of indicator parameters and their chemical constituent baseline for any new sources of non-leachate fluid in a manner consistent with the procedure identified in Permit Condition 7.3.1; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(a)).

7.3.2 Leachates

The Permittee shall establish indicator parameters for leachates generated at ~~both~~ the Landfill ~~and the Surface Impoundment~~ as specified below; and as required by 20.4.1.500 (incorporating 40 CFR 264.98(a)). These lists shall be maintained in both the Operating Record and at Permit Attachment V. The leachate indicator parameters determined through monthly and biennial sampling shall be combined into a single leachate indicator parameter list maintained at Attachment V, which presents those parameters detected and which shall be updated as new indicator parameters are detected in subsequent sampling rounds. Parameters shall not be removed from the listing if subsequent sampling events do not detect a parameter present in previous sampling events.

7.3.2.a Monthly Sampling

The Permittee shall analyze ~~both~~ the Landfill ~~and Surface Impoundment~~ leachate (i.e., samples from the LCRS and LDRS) monthly, as specified at Permit Attachment F, *Waste Analysis Plan*, Section 4.5.6, *Waste Analysis Requirements for Waste Generated On-Site*, for the underlying hazardous constituents listed at the Table referenced at 20.4.1.800 NMAC (incorporating 40 CFR 268.40), for EPA Hazardous Waste Number F039 listed wastes (leachates); and as required by 20.4.1.500 (incorporating

40 CFR 264.98(a)). The results of these analyses shall be reported to the Secretary in the Quarterly Report, in accordance with Permit Conditions 2.12.2.b and 7.7.2.

7.3.2.b Biennial Sampling

The Permittee shall analyze ~~both~~ the Landfill ~~and Surface Impoundment~~ leachate biennially for the hazardous constituents referenced at 20.4.1.500 NMAC (incorporating 40 CFR 264, Appendix IX), as specified at Permit Attachment F, Section 4.5.6; and as required by 20.4.1.500 (incorporating 40 CFR 264.98(a)). The results of the test shall be reported to the Secretary in the Biennial Report and the samples shall be collected no sooner than 45 calendar days prior to the Biennial Report due date. Constituents previously undetected in the Appendix IX analysis shall be identified and reported. Constituents detected but not previously reported in accordance with Permit Condition 7.3.2.a and this Permit Condition shall also be reported.

7.4 MONITORING PROGRAM

The Permittee shall inspect and sample the VZMS at each monitoring point during the active life and closure period of the Facility, as specified at Permit Condition 7.1.4, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98). The Permittee shall inspect and sample vadose zone monitoring wells VZMW-1D, 2D, 3D, and 4D~~3, 4, 5, and 6~~ at the Landfill~~, and vadose zone monitoring wells 1 and 2 at the surface Impoundment~~ during the post-closure care period of the Facility. The Permittee shall use the following techniques and procedures when inspecting and sampling the vadose zone monitoring points required under Permit Condition 7.2.1. This information shall be recorded and reported in accordance with Permit Condition 7.7. Investigation-derived waste (IDW) generated during monitoring shall be managed as specified at Permit Attachment F, Section 4.5.6.1, *Overview of Wastes Generated On-site*.

7.4.1 Requirement to Inspect

7.4.1.a Inspection Schedule for Vadose Zone Fluids

The Permittee shall inspect each VZMS sump daily and each VZMS well monthly for the presence of vadose zone fluids. Inspection of Landfill VZMS sumps and Landfill and Surface Impoundment wells shall occur semi-annually during the post-closure period, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(d)).

7.4.1.b Inspection Schedule for Neutron Probe Access Tubes

The Permittee shall inspect each neutron probe access tube~~, plus Vadose Zone Monitoring Wells 1, 2 and 3,~~ every six months. The Permittee shall probe the above inspection locations with a neutron geophysical logging tool calibrated to optimally distinguish between dry and partially saturated lithologies at the Facility. Baseline neutron logs shall be established in both open and cased holes for the above inspection locations. Subsequent inspections will produce logs that will be compared to the baselines. If a neutron log shows a 0.25 change over established baseline API readings over a two-foot interval anywhere in the column, the Permittee shall immediately inspect the appropriate monitoring point for the presence of vadose zone fluids. ~~If a neutron log shows a 0.25 change over established baseline API readings over a two-foot interval within a depth range of five feet above or below the depth of the suction lysimeters, the Permittee shall immediately inspect the appropriate suction lysimeter for the presence of vadose zone fluids.~~ If vadose zone fluids are detected during any of the above inspections, the Permittee shall implement Permit Condition 7.4.2.

7.4.1.c Inspection Due to Exceedance of the ALR

If the Action Leakage Rate (ALR) is exceeded, the Permittee shall inspect each VZMS monitoring point associated with the impacted regulated unit immediately, and the Permittee shall increase the frequency of inspection of the monitoring wells from monthly to weekly at the impacted regulated unit; as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(d), 264.223, and 264.304). The inspection frequency shall remain weekly as long as the ALR continues to be exceeded.

7.4.2 Requirement to Sample

If fluids are detected in a VZMS monitoring well, sump, or neutron probe access tube, ~~or lysimeter~~ upon the inspection required in Permit Condition 7.4.1., the Permittee shall collect a sample of vadose zone fluid monthly at each monitoring point containing fluid, as detailed at Attachment I, Sections 4.1 *Monitoring Frequency*, and 4.3, *Monitoring Method*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)). A sample shall be collected immediately when fluids are first detected at each monitoring point.

7.4.3 Fluid Elevation Measurement

The Permittee shall determine fluid elevation at each well and VZMS sump, referenced to mean sea level, each time fluid is detected, as specified at Permit Attachment I, Section 4.4, *Sample Collection*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(e)).

7.4.4 Fluid Purging

The Permittee shall evacuate fluids in the monitoring points to the surface, as specified at Permit Attachment I, Section 4.4; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)).

7.4.5 Decontamination

The Permittee shall ensure that reusable sampling equipment is decontaminated as specified at Permit Attachment I, Section 4.9, *Decontamination*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)).

7.4.6 Equipment Calibration

The Permittee shall ensure that field measuring instruments are calibrated as specified at Permit Attachment I, Section 4.8, *Field Equipment*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)).

7.4.7 Sample Containerization

The Permittee shall place fluid samples in containers as specified at Permit Attachment I, Section 4.4; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)).

7.4.8 Quality Assurance Samples

The Permittee shall assure sample quality as specified at Permit Attachment I, Section 4.6, *Quality Assurance Samples*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)).

7.4.9 Sample Preservation

The Permittee shall preserve samples as specified at Permit Attachment I, Section 4.5, *Sample Preservation and Transportation*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)).

7.4.10 Sampling Record

The Permittee shall ensure that sampling activities as specified at Permit Attachment I, Section 6.1, *Field Documentation*, are recorded in the Operating Record, in accordance with Permit Condition 7.7.1; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)). The sampling record shall include the Quarterly Well Inspection Logs (containing information required under Permit Condition 7.4.1) and Monitoring Field Logs (containing information required under Permit Conditions 7.4.2 through 7.4.9).

7.5 RELEASE ASSESSMENT

The Permittee shall conduct a release assessment on all fluid samples collected in accordance with Permit Condition 7.4.2 and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(f)) to determine whether fluids may have originated from within a regulated unit. If the data analysis specified at Permit Condition 7.5.1.a indicates that a release has occurred, the Permittee shall notify the Secretary within 24 hours of detection, as specified in Permit Attachment C (*Contingency Plan*), Section 6.~~5.3.2~~4.2, and initiate the corrective action requirements of Permit Part 9, including the verification sampling requirements of Permit Condition 9.3.2. The fluid constituent concentrations indicative of a release shall be referred to as “action levels”. The release assessment shall be performed using the following techniques and procedures:

7.5.1 VZMS Sample Analysis

The Permittee shall analyze VZMS samples in accordance with all conditions of this Permit Part for all indicator parameters specified at Permit Attachment V and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(f)). It is presumed that the number of VZMS analytes will increase as additional waste streams are placed into the regulated unit.

7.5.1.a Release Determination

The Permittee shall determine whether a VZMS release has occurred, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(f)), by evaluating monitoring data for two criteria: 1) a significant change in non-leachate indicator parameter chemical concentrations, and 2) the detection of any leachate indicator parameters. The Permittee shall measure leachate constituents using the detection limits specified in Permit Condition 7.5.4.

The Permittee shall use trilinear diagrams to graphically determine any significant changes in the following non-leachate parameters: bicarbonate, chloride, dissolved major cations (Na, K, Mg, Ca, Fe), total dissolved solids (TDS), and sulfate. Trilinear diagrams will be compared after consecutive sampling events and over time. A tolerance interval statistical procedure, as described at Permit Attachment Q, shall be used to determine statistically significant changes in the following non-leachate parameters: dissolved and total metals (Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Ti, Zn) and radionuclides (gross alpha, gross beta, gamma emitters, total uranium, radium 226/228, radon). TDS, sulfates and all detected leachate indicator parameters shall be presented in a tabular format and will be compared after consecutive sampling events and over time.

The Permittee shall initiate corrective action under Permit Part 9 and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(g)) for any release defined as (a) any significant change in the shape of the trilinear diagram (i.e., a change in major ion ratio); (b) any statistically significant change in non-leachate dissolved or total metals or radionuclides; or (c) any detection of an anthropogenic hazardous constituent in VZMS samples.

7.5.1.b Analytical Methods

The Permittee shall utilize the appropriate analytical methods for baseline constituents as specified at Permit Attachment I, Table 1. Analytical methods for leachate constituents shall be chosen from *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods* (EPA publication SW-846, most current edition).

7.5.2 Evaluation Frequency

The release assessment shall be conducted each time fluid samples are collected, in accordance with Permit Condition 7.4.2 and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(d)), at each monitoring point required under Permit Condition 7.2.1, and as specified at Permit Attachment I, Section 6.4, *Data Analysis*.

7.5.3 Evaluation Schedule

The Permittee shall perform the evaluations specified at Permit Condition 7.5.1, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(f)(2)), within 30 calendar days after completion of sampling. The 30-day evaluation period includes the time required to perform laboratory analysis. The Permittee may petition the Secretary in writing for an extension to the 30-day evaluation period. The reasons for extending the 30-day evaluation period shall be presented in the petition. The Secretary will approve or disapprove the extension petition in writing within ten calendar days of receipt of the petition.

7.5.4 Detection Limits

Analytical detection limits shall in all cases be below the most stringent of the following three criteria, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(f)):

- applicable State or federal drinking water standards;
- the universal treatment standards (UTS) contained at 20.4.1.800 NMAC (incorporating 40 CFR 268,Subpart D); or
- the lowest detection limits specified at EPA publication SW-846, Third Edition, Update IV 2008~~1986~~.

7.5.5 Laboratory Quality Assurance/Quality Control

The Permittee shall ensure that waste analyses are performed using the laboratory quality assurance/quality control (QA/QC) measures specified at Permit Attachment I, Section 5.2, *Laboratory Quality Assurance/Quality Control*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(f)).

7.5.6 Data Validation

The Permittee shall ensure that all laboratory analytical data is presented in accordance with the most current version of EPA publication SW-846, Third Edition, documentation packages. Data validation shall be conducted as specified at Permit Attachment I, Section 5.3, *Data Review, Validation, and Verification Requirements*, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(f)).

7.5.7 Data Reporting

The Permittee shall report the VZMS analytical data to the Secretary within 15 calendar days of sample evaluation schedule specified in Permit Condition 7.5.3. Data shall be reported in a form that is conducive to determining the presence of a release.

The analytical information shall be presented as specified at Permit Condition 7.5.1.a and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.97(j) and 264.98(c)).

7.5.8 Alternate Indicator Parameters

The Permittee may propose to the Secretary an alternate list of indicator parameters that could be used to analyze vadose zone fluids and that shows contamination by leachates through a Permit modification pursuant to 20.4.1.900 (incorporating 40 CFR 270.42).

7.6 VZMS MAINTENANCE

The Permittee shall maintain the VZMS as specified at Permit Attachment N, *Operations and Maintenance Plan*, Sections 3.4.4, *Operation of Leachate Collection and Detection Systems*, and 3.5.4, *Operation of Leachate Detection and Vadose Zone Monitoring Systems*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.96). A summary of operation and maintenance activities shall be reported to the Secretary in the Quarterly Report in accordance with Permit Conditions 2.12.2.b and 7.7.2.

7.7 RECORDKEEPING AND REPORTING

7.7.1 Recordkeeping

The Permittee shall enter, at a minimum, the following VZMS information into the Operating Record in accordance with Permit Condition 2.12.1; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.98(c)):

- well survey information (Permit Condition 7.2.4);
- geologic core (Permit Condition 7.2.6);
- Well Completion and Lithologic Logs (Permit Condition 7.2.9);
- leachate chemistry (Permit Condition 7.3.2);
- 40 CFR 264 Appendix IX analysis (Permit Condition 7.3.2.b);
- sampling activities (Permit Condition 7.4.2);

- fluid elevation measurements (Permit Condition 7.4.3);
- VZMS inspection reports (Permit Condition 7.4.1.a);
- VZMS analytical results (Permit Condition 7.5.1);
- sample collection and preservation (Permit Condition 7.4);
- data evaluation (Permit Condition 7.5); and
- non-leachate removal (Permit Condition 7.1.3).

7.7.2 Reporting

The Permittee shall report the following information to the Secretary, as specified at Permit Attachment I, Section 6.5, *Data Reporting*; and as required by 20.4.1.500 (incorporating 40 CFR 264.98(c)):

7.7.2.a First Quarterly Report

The following information shall be submitted in the first Quarterly Report:

- Well Completion and Lithologic Logs (Permit Condition 7.2.9);
- A list of indicator parameters for non-leachate fluids and associated computations (Permit Condition 7.3.1.b);
- A list of indicator parameter for initial leachates (Permit Condition 7.3.2) based on F-039 and the first Appendix IX analysis; and
- VZMS analytical results collected during the first quarter, and associated Well Inspection Logs and Monitoring Field Logs sampling information (Permit Conditions 7.4.1, 7.4.10, and 7.5.3).

7.7.2.b Quarterly Reports

The following information shall be submitted in all Quarterly Reports:

- leachate chemistry (Permit Condition 7.3.2.a);
- fluid elevation data for each well (Permit Condition 7.4.3);
- vadose zone system inspection reports (Permit Condition 7.4);
- vadose zone system analytical results (Permit Condition 7.5.1);
- sample collection and preservation procedures (Permit Conditions 7.4.3, 7.4.4, 7.4.5, 7.4.6, 7.4.7, 7.4.8, and 7.4.9);
- release assessment information in the form of a summary of the data reports (Permit Condition 7.5);
- operation and maintenance report (Permit Condition 7.6);
- non-leachate fluid removal summary (Permit Condition 7.1.3);
- Indicator Parameter List, including non-leachate parameters and leachate parameters, revisions to the list based on quarterly/biennial leachate sampling results, and evaluations used to derive this list (Permit Condition 7.3);
- monthly leachate sampling results for that quarter (Permit Condition 7.3.2.a); and
- summary of Appendix IX results included in the previous biennial sampling event (Permit Condition 7.3.2.b)

7.7.2.c Biennial Report

The following information shall be submitted in the Biennial Report required under Permit Condition 2.12.2.a:

- Appendix IX analysis (Permit Condition 7.3.2.b); and

- Indicator Parameter List modification based on Appendix IX analysis, and evaluations used to derive this list (Permit Condition 7.3)

7.7.2.d Special Reports

The following information shall be submitted in special reports:

- release information (Permit Condition 7.1.2);

- monthly reports as long as there are fluids in the VZMS; and

- non-leachate parameter list and computations necessary to determine non-leachate parameter list (Permit Condition 7.3.1.b)

7.7.3 VZMS Report Supervision

A professional geologist or engineer shall supervise all VZMS report preparation.

PERMIT PART 8

CLOSURE AND POST-CLOSURE CARE

HIGHLIGHTS

This Permit Part contains closure and post-closure care conditions for ~~each the permitted unit at~~ the Facility. Also included are financial responsibility requirements for the Permittee for closure and post-closure care.

The Permittee may close the entire Facility ~~(final closure) or any permitted unit at the Facility (partial closure)~~ after notification to the Secretary. The Permittee will update Permit Attachment O, *Closure Plan*, ~~for the Surface Impoundment and the Landfill~~ through Permit modification prior to closure ~~of these this units~~ to more accurately reflect unit conditions existing at the time of closure. The Permit modification may also include modification of Permit Attachment P, *Post-Closure Care Plan*.

~~All permitted units except the The Landfill are is expected to clean close. The term "clean closure" is defined as a closure performance standard requiring removal of hazardous waste and/or hazardous constituents to statistically-based background concentrations, rather than to health-based risk concentrations. Any unit that cannot be clean closed must be closed as a landfill through Permit modification of Permit Attachments O and P. Remediation activities that may be necessary at any the permitted unit will be regulated under Permit Parts 9 and 10.~~

Post-closure care requirements at the completion of closure include maintenance and monitoring of the Landfill Phase 1A cap, the storm water collection system, leak and leachate detection and collection systems, and Vadose Zone Monitoring System (VZMS); site inspections and security; and, if necessary, a ground water monitoring system. The Permittee must modify the Permit to include post-closure care requirements, including maintenance, monitoring, reporting, and, if necessary, corrective action, at any other permitted unit(s) at the Facility that cannot be clean closed by removal and decontamination in accordance with Permit Attachment O.

8.1 CLOSURE

8.1.1 Performance Standards for Closure

The Permittee shall close the Facility~~, or any permitted unit at the Facility,~~ as specified at Permit Attachment O; and as required by this Permit Part and 20.4.1.500 NMAC (incorporating 40 CFR 264.110 through 264.116); and in accordance with the time schedules contained at Permit Attachment O1, *Compliance Schedules for Closure.* The Permittee shall keep Permit Attachments O; O1, *Compliance Schedules for Closure*; and O2, *Financial Assurance for Closure*; at the Facility or at another location approved by the Secretary until the completion of Facility closure has been approved by the Secretary.

8.1.1.a General Performance Standard

At closure of the Facility~~ or any unit at the Facility~~, the Permittee shall, as required by the performance standard contained at 20.4.1.500 NMAC (incorporating 40 CFR 264.111):

- minimize the need for further maintenance; and
- control, minimize, or eliminate, to the extent necessary to protect human health and the environment, the post-closure escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to surface or subsurface soils, ground or surface waters, or the atmosphere.

8.1.1.b Clean Closure Performance Standard

~~At closure, the Permittee shall ensure that all of the permitted units, with the exception of the Landfill, shall close in accordance with the clean closure performance standard specified at Permit Attachment O, Section 8.3, *Closure Performance Standard*.~~

~~Clean closure is achieved for a permitted unit when chemical analysis of potentially contaminated materials, soils, or leachate does not detect the presence of hazardous waste or hazardous constituents, or when any hazardous waste or hazardous constituent contained in soils or fluids removed from, below, or adjacent to a permitted unit is not above background concentrations identified at Permit Attachment U, *Action Levels for Corrective Action*; Appendix U1, *Background Concentrations*~~

~~*for Soil*; and Appendix U3, Background Concentrations for Ground Water; in statistically significant concentrations, as determined using the methodology contained at Permit Attachment Q, *Statistics for Release Determination*, or as determined by the Secretary.~~

8.1.2 Closure Plan Modification

8.1.2.a Amendment When Necessary

The Permittee shall amend the Closure Plan through Permit modification, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.112(c)(2)), whenever:

- changes in operating plans or Facility design affect the Closure Plan;
- there is a change in the expected year of closure;
- unexpected events during partial or final closure require a modification of the approved Closure Plan;
- changes in statutory or regulatory requirements; or
- changes in available technology.

The modified Closure Plan shall identify the steps necessary to perform closure ~~of a thepermitted unit or~~ of the Facility at any point during its active life, in accordance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)).

The modified Closure Plan shall be approved by the Secretary, in writing, prior to implementation. If the Secretary does not approve the modified Closure Plan submitted by the Permittee, the Secretary will notify the Permittee, in writing, of Closure Plan deficiencies and will specify a due date for submission of a revised Closure Plan. Upon approval by the Secretary, the modified Closure Plan, including revised schedules of implementations and revised cost estimates, shall be incorporated into this Permit by replacement or modification, as appropriate, of Permit Attachments O and O1 and made an enforceable part of this Permit.

8.1.2.b Landfill ~~and Surface Impoundment~~ Closure Plan Modification Prior to Closure

The Permittee shall amend the Closure Plan for the Landfill ~~and, if necessary, the Surface Impoundment~~ through Permit modification, and shall submit the amended Plan to the Secretary for approval 60 calendar days prior to the commencement of partial or final closure activities. The Permit modification must provide revised implementation schedules and cost estimates, a discussion of closure activities in accordance with appropriate parts of Permit Conditions 8.1.10, 8.1.11, and 8.3, and detailed plans and specifications for the Landfill cover ~~and, if necessary, the Surface Impoundment cover,~~ and revegetation of the Landfill ~~and Surface Impoundment~~ area~~s~~. In its submittal on the re-vegetation of the Landfill ~~and Surface Impoundment~~ area~~s~~, Permittee shall address soil quality, the seed mix planned in order to establish native grasses, the maintenance of the vegetation, and plans for re-seeding in the event the original vegetation planted fails.

~~**8.1.2.c Storage and Treatment Units, Closure Plan Modification**~~

~~If, at closure, the Permittee determines that the clean closure performance standard contained at Permit Condition 8.1.1.b cannot be met at any of the hazardous waste storage or treatment units, the Permittee shall prepare and submit to the Secretary for approval a Permit modification request to amend Permit Attachment O, as it pertains to the affected area or unit, in accordance with all the closure, post-closure, and financial responsibility requirements that apply to landfills, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.310), pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.112(c)(3) and 264.197(b)).~~

~~This Permit modification request shall be submitted no later than 60 calendar days after the Permittee or Secretary has determined that the affected unit must close as a landfill, or no later than 30 calendar days if the determination is made during partial or final closure of the affected unit.~~

8.1.2.c Receipt of Non-Hazardous Waste

The Permittee may request a modification to receive nonhazardous waste for disposal in the Landfill ~~or the Surface Impoundment~~ after the final receipt of hazardous waste ~~at either unit~~, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.113(d)).

8.1.2.d Modification Required by the Secretary

The Secretary may require Closure Plan modification under the conditions described at Permit Condition 8.1.2.a, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.112(c)(4)).

8.1.3 Closure Schedule

8.1.3.a Notification of Closure

The Permittee shall notify the Secretary of the start of Closure Plan implementation at least 60 calendar days prior to the date on which the Permittee expects to commence closure of ~~any the~~the ~~f~~Facility ~~unit~~ as specified at Permit Attachment O, Section 8.1, *Closure Activities*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.112(d)(1)).

8.1.3.b Time Schedule for Closure

Within 90 calendar days after receiving the final volume of hazardous wastes, or the final volume of non-hazardous wastes if receipt of non-hazardous wastes is approved by the Secretary in accordance with Permit Condition 8.1.2.d, the Permittee shall ~~remove all hazardous wastes from the unit to be clean closed and shall~~ meet the conditions for closure contained at 20.4.1.500 NMAC (incorporating 40 CFR 264.113). ~~Such removed hazardous wastes shall be treated, if appropriate, and properly disposed of in the Landfill or at an off-site permitted hazardous waste disposal facility.~~

The Secretary may approve a longer closure period if the Permittee complies with all applicable requirements for requesting a Permit modification for this purpose and submits the demonstrations to justify a time extension required at 20.4.1.500 NMAC (incorporating 40 CFR 264.113(a)(1) and 264.113(a)(2)).

8.1.4 Closure Activities

8.1.4.a Proper Disposal of Equipment, Structures, and Soils

During closure, ~~the partial and/or final closure periods,~~ the Permittee shall properly dispose of or decontaminate all contaminated equipment, structures, and soils as specified at Permit Attachment O, Section 8.1; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.114).

By removing any hazardous wastes or hazardous constituents during closure activities, the Permittee may become a generator of hazardous waste, and shall handle that waste in accordance with all applicable requirements of 20.4.1.300 NMAC (incorporating 40 CFR Part 262). ~~Closure of the Facility units by removal or decontamination shall include removal of all hazardous waste and contaminated media.~~

The soil performance standard for closure shall be based upon background analyte soil concentrations.

8.1.4.b Clean Closure Confirmation

~~The Permittee shall confirm that contamination is no longer present at, beneath, or outside the boundaries of any the permitted unit(s) undergoing clean closure in accordance with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR Part 264.115). Confirmation of the removal of all waste and contaminated media shall include sampling of surface water, ground water, and other fluids beneath or outside the boundaries of the Facility or the unit(s) being closed; and collecting surface soil samples within the unit(s) at intervals of one per every 500 square feet and one per every 20 linear feet and/or at unit-specific intervals, depths, and locations specified by the Secretary. Sampling shall be conducted at the locations specified at Permit Attachment O and at any additional locations that may be required under Permit Parts 9 and 10.~~

8.1.4.c Updated Sampling Plan

Ninety days prior to implementation of the Closure Plan ~~for the Facility or for anyand the permitted unit at the Facility undergoing closure~~, the Permittee shall submit to the Secretary for approval, as part of the Closure Plan, an updated Sampling and Analysis Plan, as specified at Permit Attachment O, Section 8.1.1.2, *Decontamination of equipment and Dismantling of Building Structure*. The Sampling Plan shall meet the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.112(b)(4)).

8.1.5 Closure Certification

Within 60 calendar days following completion of closure, ~~of the Facility or of anythe permitted unit at the Facility,~~ the Permittee shall submit to the Secretary, by registered mail, hand delivery, or special delivery service, a certification that the Facility ~~or and the permitted unit undergoing closure~~ has been closed in accordance with the specifications contained in

Permit Attachment O, this Permit Part, and 20.4.1.500 NMAC (incorporating 40 CFR 264.110 through 116). The certification shall be signed by the Permittee and by an independent professional engineer registered in New Mexico, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.115). Documentation supporting the independent registered professional engineer's certification, in the form of a Final Closure Report specified at Permit Condition 8.1.7.c, must be furnished to the Secretary concurrent with the certification. The closure certification and the Final Closure Report must be delivered to the Secretary, and the Secretary must verify the closure certification before he releases the Permittee from the financial assurance requirements for closure under 20.4.1.500 NMAC (incorporating 40 CFR 264.143(i)).

8.1.6 Survey Plat

No later than the date of submission of the closure certification, ~~of each~~ ~~the permitted unit that has not attained clean closure,~~ the Permittee shall submit a survey plat of the closed permitted unit to the local zoning authority or the authority with jurisdiction over local land use, and to the Secretary, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.116). The survey plat shall indicate the location and dimensions of Landfill cells or any other waste disposal units with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a New Mexico registered, professional land surveyor. The plat filed with the local zoning authority, or the authority with jurisdiction over local land use, must contain a note, prominently displayed, which states the Permittee's obligation to restrict disturbance of any hazardous waste disposal unit which is not clean closed, in accordance with the applicable regulations found at 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart G).

8.1.7 Recordkeeping and Reporting Requirements

8.1.7.a Sampling Records

The Permittee shall ensure that the records for sampling and analysis activities of all media required in accordance with Permit Conditions 8.1.4.b and 8.1.4.c are maintained by the Facility. This documentation must include records for sampling of soil, surface water, and groundwater (including vadose zone). Vadose zone monitoring records shall be maintained as specified at Permit Attachment I, *Vadose Zone Monitoring System Work Plan*, Section 6.1, *Field Documentation*. The sampling record shall include the monthly Well Inspection Logs and Monitoring Field Logs.

8.1.7.b Quarterly Reports

During closure, ~~the partial and final closure periods,~~ the Permittee shall submit Quarterly Status Reports on closure activities for the Facility ~~or a permitted unit undergoing closure~~ until closure certification for the Facility or the permitted unit undergoing closure is submitted to the Secretary in accordance with Permit Condition 8.1.5. These reports are in addition to the applicable Quarterly Reports requirements at Permit Condition 2.12.2.b. The reports must summarize:

- closure activities during the previous quarter;
- activities planned for the next quarter; and
- any variance from the approved Closure Plan and the reason for the variance.

8.1.7.c Final Closure Report

Within 60 calendar days following completion of closure of the ~~Facility or any~~ permitted unit at the facility, the Permittee shall submit a Final Closure Report to the Secretary, with submittal of the closure certification required under Permit Condition 8.1.5, as required by 20.4.1.500 NMAC, (incorporating 40 CFR 264.115). The Report must contain, at a minimum:

- a summary of activities conducted under closure;
- a summary of variances from the approved Closure Plan;
- laboratory sample analysis sheets for all analysis conducted during closure, including raw data;
- laboratory analysis summary tables;
- site plans displaying the locations where all media samples were obtained during closure activities;
- sampling and analysis quality assurance/quality control (QA/QC) documentation; and

- types, amounts, and disposal locations of all hazardous wastes placed in the Landfill.

~~**8.1.8 Closure Requirements for Containers**~~

~~The Permittee shall conduct closure activities for the Drum Handling Unit and the Roll-Off Container Storage Unit as specified at Permit Attachment O, Sections 8.1.1, *Drum Handling Unit*, and 8.1.5, *Roll-Off Storage Area*, and other pertinent sections; and as required by this Permit Part and 20.4.1.500 NMAC (incorporating 40 CFR 264.111 through 264.116 and 264.178). The Drum Handling Unit and the Roll-Off Storage Area shall be clean closed as specified at Permit Attachment O, Section 8.3 through removal, decontamination, and proper disposal of remaining containers, liners, bases, buildings, ancillary equipment and soil, in accordance with Permit Condition 8.1.1.b.~~

~~**8.1.9 Closure Requirements for Tanks**~~

~~The Permittee shall conduct closure activities for the hazardous waste storage and treatment units, as specified at Permit Attachment O, Sections 8.1.3, *Liquid Waste Receiving and Storage Unit*, and 8.1.4, *Stabilization Unit*, and other pertinent sections; and as required by this Permit Part and 20.4.1.500 NMAC (incorporating 40 CFR 264.111 through 264.116 and 264.197).~~

~~The Permittee shall achieve the clean closure performance standard specified at Permit Attachment O, Section 8.3, for all tank areas or tank units, in accordance with Permit Condition 8.1.1.b, through removal or decontamination of all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste. If a tank storage or treatment area or a tank system cannot be clean closed, the Permittee shall submit a request for Permit modification to the Secretary to close the unit as a landfill, in accordance with Permit Condition 8.1.2.c. The Permit modification must contain plans and specifications for a final cover, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.310(a)).~~

~~**8.1.10 Closure Requirements for the Surface Impoundment**~~

~~**8.1.10.a Surface Impoundment Closure Activities**~~

~~The Permittee shall conduct closure activities for the Surface Impoundment in compliance with Permit Attachment O, Section 8.1.2, *Evaporation Pond*, and other pertinent sections; and the~~

~~modified Closure Plan required at Permit Condition 8.1.10.b; and as required by this Permit Part and 20.4.1.500 NMAC, (incorporating 40 CFR 264.111 through 264.116 and 264.228). The Permittee shall achieve the clean closure performance standard identified at Permit Condition 8.1.1.b.~~

~~8.1.10.b Surface Impoundment Permit Modification~~

~~Prior to closure, the Permittee shall submit a request for Permit modification of the Closure Plan as it pertains to the Surface Impoundment to the Secretary in accordance with Permit Condition 8.1.2.b. The Permit modification must describe closure activities to meet the clean closure standard specified at Permit Condition 8.1.1.b.~~

~~8.1.10.c Permit Modification for Closure as a Landfill~~

~~If the Surface Impoundment cannot be clean closed, the Permit modification required in accordance with Permit Condition 8.1.10.b must include closure and post-closure care activities and financial responsibility requirements to close the Surface Impoundment as a Landfill, in accordance with Permit Condition 8.1.2.c. This Permit modification request shall be submitted no later than 90 days after the Permittee or Secretary has determined that the Surface Impoundment must close as a landfill.~~

~~8.1.10.d Removal of Hazardous Waste~~

~~At clean closure of the Surface Impoundment, the Permittee shall eliminate free liquids by evaporation of the liquid wastes and solidification of all remaining hazardous wastes and hazardous waste residues, as specified at Permit Attachment O, Section 8.1.2, *Evaporation Pond*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.228(a)).~~

~~8.1.10.e Decontamination~~

~~At closure of the Surface Impoundment, the Permittee shall remove or decontaminate all waste residue, contaminated containment systems and LDRS and VZMS sump components, contaminated subsoils, and any contaminated structures and equipment at the Surface Impoundment, as specified at Permit Attachment O, Section 8.1.2.3, *Removal and Disposal of Liner and Leachate Collection System*; and in accordance with Permit Condition 8.1.4.a; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.228(a)). Liners and sump systems may be disposed of as hazardous debris.~~

~~**8.1.10.f Restoration**~~

~~At closure, the Permittee shall ensure that the Surface Impoundment area is restored to the approximate original grade, and revegetated, as specified at Permit Attachment O, Section 8.1.2.5, *Filling and Revegetating*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.228).~~

~~**8.1.10.g Surface Impoundment Well Monitoring**~~

~~The Permittee shall continue the Surface Impoundment vadose zone well monitoring required at Permit Condition 5.6.2 on a monthly basis during the closure period, as specified at Permit Attachment I, Section 4.1, *Monitoring Frequency*. The Permittee shall sample at each monitoring point containing fluid, and shall otherwise comply with the requirements of Permit Conditions 7.4.3 through 7.4.9. If a release has occurred, the Permittee shall comply with all the release assessment requirements contained at Permit Condition 7.5.~~

8.1.8 Closure Requirements for the Landfill

8.1.8.a Landfill Closure Activities

The Permittee shall conduct closure activities as specified at Permit Attachment O, Section 8.1.6, *Landfill*, and other pertinent sections; and the modified Closure Plan required at Permit Condition 8.1.11.b; and as required by this Permit Part and 20.4.1.500 NMAC (incorporating 40 CFR 264.111 through 264.116 and 264.310).

8.1.8.b Landfill Permit Modification

Prior to closure, the Permittee shall submit a request for Permit modification of the Closure Plan as it pertains to the Landfill to the Secretary, in accordance with Permit Condition 8.1.2.b. The Permit modification shall provide details on a final Landfill cover and revegetation that meet all the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.310(a)).

8.1.8.c Landfill Cover

The Permittee shall cover the Landfill at closure with a final cover as specified at Permit Attachments L, *Engineering Report*, Section 3.1.~~5~~6, *Final Cover*; and O, Section 8.1.6; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.310(a)).

8.1.8.d Landfill VZMS Monitoring

The Permittee shall continue the vadose zone monitoring required at Permit Condition 6.6.2 on a monthly basis during the closure period, as specified at Permit Attachment I, Section 4.0, *Monitoring Procedures*. The Permittee shall sample at each monitoring point containing fluid, and shall otherwise comply with the requirements of Permit Conditions 7.4.2. If waste analysis shows that a release has occurred, the Permittee shall comply with the release assessment requirements contained at Permit Condition 7.5. Recordkeeping shall be performed in accordance with Permit Condition 2.12.1.k.i.

8.2 POST-CLOSURE CARE

8.2.1 General Post-Closure Care Requirements

8.2.1.a Landfill

The Permittee shall ensure that post-closure care activities at the Landfill are conducted as specified at Permit Attachment P, *Post-Closure Care Plan*, Section 8.2, *Post-closure Activities*; and as required by this Permit Part and 20.4.1.500 NMAC (incorporating 40 CFR 264.117 through 264.120). The Permittee shall keep Permit Attachments P, and P1, *Financial Assurance for Post-Closure Care*, at the Facility or at a location approved by the Secretary until the completion of post-closure care has been approved by the Secretary.

8.2.1.b Other Permitted Units Which Cannot Clean Close

~~The Permittee shall provide post-closure care through Permit modification, in accordance with Permit Condition 8.2.2, for any permitted unit where clean closure of the units by decontamination and removal is not accomplished.~~

8.2.2 Post-Closure Care Plan Modification

8.2.2.a Amendment When Necessary

The Permittee shall submit an updated or amended Post-Closure Care Plan to the Secretary for approval, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.118(d)), whenever:

- changes in operating plans or Facility design affect the Post-Closure Care Plan;

- there is a change in the expected year of final closure;
- events that occur during the active life of the Facility, including partial and final closures, affect the approved Post-Closure Care Plan;
- changes in statutory or regulatory requirements; or
- changes in available technology.

The Permittee shall submit a written request for a Permit modification at least 60 calendar days prior to the proposed change in Facility design or operation, or no later than 60 calendar days after an unexpected event has occurred which has affected the Post-Closure Care Plan, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.118(d)(3)).

The updated Post-Closure Care Plan shall be approved by the Secretary, in writing, prior to implementation, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.118(d)(3)). If the Secretary does not approve the updated Post-Closure Care Plan, the Secretary will notify the Permittee, in writing, of the Post-Closure Care Plan deficiencies, and will specify a due date for submittal of a revised Post-Closure Care Plan. Upon approval by the Secretary, the updated or amended Post-Closure Care Plan will be incorporated into this Permit by modification or replacement of Permit Attachment P, and made an enforceable part of this Permit.

~~8.2.2.b Surface Impoundment Post-Closure Care Plan Modification~~

~~If the Permittee or the Secretary determines that the Surface Impoundment must be closed as a landfill, the Permittee shall, within 90 days of such determination, submit to the Secretary for approval a revised Post-Closure Care Plan detailing post-closure care requirements for the Surface Impoundment, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.117 through 264.120, 264.228(b), and 264.310); and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.118(a)).~~

~~8.2.2.c Tank System Post-Closure Care Plan Modification~~

~~If the Permittee determines that any hazardous waste tank treatment or storage units cannot clean close in accordance with Permit Condition 8.1.1.a, the Permittee shall submit to the~~

~~Secretary for approval a revised Post-Closure Care Plan detailing post-closure care requirements, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.117 through 264.120, 264.197, and 264.310), for the affected tank area or unit, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.197(b)). The Permittee shall initiate the Permit modification process required by Permit Condition 8.2.1.b.~~

8.2.2.b Modification Requested by the Secretary

The Secretary may request Post-Closure Care Plan modification under the conditions described at Permit Condition 8.2.2.a, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.118(d)(4)).

8.2.3 Post-Closure Care Time Schedules

The Permittee shall implement post-closure care requirements for 30 years after completion of closure of the Landfill~~ or any permitted unit(s) closed with contamination in place,~~ as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.117(a)(1)).

At any time, the Secretary may, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.117(a)(2)):

- shorten the post-closure period if the Secretary finds that human health and the environment are protected sufficiently (e.g., leachate or ground water monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment or re-use techniques indicate that the unit or Facility is secure); or

- extend the post-closure care period if the Secretary determines that this is necessary to protect human health and the environment (e.g., leachate or ground water monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health or the environment).

8.2.4 Post-Closure Care Requirements for the Landfill

The Permittee shall comply with the post-closure care requirements for the Landfill specified at Permit Attachment P, Section 8.2.2, *Landfill Final Cover*, and 20.4.1.500 NMAC (incorporating 40 CFR 264.310(b)). The Permittee shall maintain and monitor the leachate and vadose zone monitoring systems (and ground water monitoring system, if one is required by the Secretary), the Landfill cover, and the storm water collection system, and shall comply with all other applicable requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart F and 264.310(b)), during the post-closure care period, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.117(a)(1)).

8.2.4.a Cover Maintenance

The Permittee shall maintain the integrity and effectiveness of the final Landfill cover, including making repairs to the cover as necessary to correct the effects of settling, subsidence, erosion, or other events, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.310(b)(1)).

8.2.4.b Leak Detection Systems Monitoring

The Permittee shall continue to operate the LDRS and LCRS until leachate is no longer detected, as determined by the Secretary, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.310(b)(2)).

8.2.4.c Landfill VZMS Monitoring

The Permittee shall maintain and monitor the Landfill VZMS sump and wells semi-annually throughout the post-closure period, as specified at Permit Attachment I, Section 4.1, *Monitoring Frequency*, and comply with all other applicable requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart F and 264.310(b)).

8.2.4.d Run-On/Runoff Control

Surface water diversions or surface drainage ditches shall be installed as necessary to prevent gullies from forming. The Permittee shall maintain the run-on and runoff control system for the Landfill to prevent erosion or other damage to the final cover, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.310(b)(4)).

8.2.4.e Surveyed Benchmarks

The Permittee shall protect and maintain surveyed benchmarks used in complying with the surveying and recordkeeping requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.309), and pursuant to 20.4.1.500 NMAC (incorporating 40 CFR 264.310(b)(6)).

~~8.2.5 Surface Impoundment VZMS Monitoring~~

~~The Permittee shall maintain and monitor the Surface Impoundment VZMS sump and wells semi-annually throughout the post-closure care period, as specified at Permit Attachment I, Section 4.1.~~

8.2.5 Security

8.2.5.a Security Requirements

The Permittee shall comply with all security requirements during the post-closure care period specified at Permit Attachment P, Section 8.2.1, *Security Systems*, and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.117(b)).

8.2.5.b Property Use

The Permittee shall not allow any use of the Facility property that will disturb the integrity of the final cover, liners, any components of the containment system, or the function of the Facility's monitoring systems, during the post-closure care period, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.117(c)).

8.2.6 Inspections

The Permittee shall inspect the Landfill cover, run-on/runoff controls, the LDRS, LCRS, and VZMS sumps at the Landfill, and the Landfill ~~and Surface Impoundment~~ monitoring wells during the post-closure care period in accordance with the inspection schedules contained at Permit Attachments D, *Inspection Procedures*; D1, *Inspection Schedules and Checklists*; O, Section 8.1.6,; and P, Sections 8.2.1, *Security Systems*, 8.2.4.3, *Leak Detection System*, and 8.2.5.2, *Inspection and Maintenance*; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.117(a)(1)).

8.2.7 Reporting

The Permittee shall submit annual reports to the Secretary throughout the post-closure care period that summarize inspection and maintenance activities and monitoring results, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.31(b)).

8.2.8 Certification of Post-Closure Care Completion

No later than 60 calendar days after completion of the established post-closure care period for the Facility ~~or any unit undergoing post-closure care~~, the Permittee shall submit to the Secretary, by registered mail, hand delivery, or special delivery service, a certification that the post-closure care for the hazardous waste unit was performed in accordance with the specifications contained in the approved Post-closure Plan. The certification shall be signed by the Permittee and an independent, professional engineer registered in New Mexico. Documentation supporting the engineer's certification shall be furnished to the Secretary upon request, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.120), until the Secretary releases the Permittee from the financial assurance requirements for post-closure care contained at Permit Condition 8.3.2, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.145(i)).

8.2.9 Verification of Post-Closure Care Completion

The Secretary will, within 60 calendar days of receipt of the certification of post-closure care completion from the Permittee, verify through a site visit and examination of documents that post-closure care was completed as required under the approved Post-Closure Care Plan, in accordance with 20.4.1.900 NMAC (incorporating 40 CFR 270.32(b)(2)).

8.2.10 Post-Closure Notices

8.2.10.a Hazardous Waste Records

No later than 60 days after certification of closure of ~~each~~ the hazardous waste disposal unit, the Permittee must submit to the local zoning authority, or the authority with jurisdiction over local land use, and to the Secretary a record of the type, location, and quantity of hazardous wastes disposed of within each cell ~~or other~~of the disposal unit of the facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.119(a)).

8.2.10.b Notation on Property Deed

8.2.10.b.i Record of Notation

Within 60 days of certification of closure of the ~~first~~ hazardous waste disposal unit ~~and within 60 days of certification of closure of the last hazardous waste disposal unit~~, the Permittee must record, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.119(b)(1)), a notation on the deed to the facility property, or on some other instrument which is normally examined during title search, that will in perpetuity notify any potential purchaser of the property that:

- the land has been used to manage hazardous wastes;
- its use is restricted, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264 Subpart G) regulations; and
- the survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.116 and 264.119(a)), have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Secretary.

8.2.10.b.ii Certification of Deed Notification

Within 60 days of certification of closure of the ~~first~~ hazardous waste disposal unit~~ and within 60 days of certification of closure of the last hazardous waste disposal unit~~, the Permittee must submit a certification, signed by the Permittee, that he has recorded the notation specified in Permit Condition 8.2.11.b.i, including a copy of the document in which the notation has been placed, to the Secretary, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.119(b)(2)).

8.2.11 Removal of Hazardous Materials

If the Permittee or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, (if any), or contaminated soils, then the Permittee or the subsequent owner or operator shall request a modification to this Permit in accordance with the applicable requirements contained at 20.4.1.900 and 901 NMAC (incorporating 40 CFR Parts 124 and 270).

The Permittee or the subsequent owner or operator, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.119(c)), shall demonstrate that the removal of hazardous wastes will satisfy all HWA and RCRA requirements for generation and transport of hazardous waste, and that such an action, in accordance with 20.4.1.500 NMAC (incorporating 40 CFR 264.117(c)):

- is necessary to the proposed use of the property and will not increase the potential hazard to human health and the environment; or

- is necessary to reduce a threat to human health or the environment.

8.3 FINANCIAL RESPONSIBILITY

8.3.1 Cost Estimates for Closure and Post-Closure Care

The Permittee shall maintain financial assurance for both closure and post-closure care costs, and comply with all applicable requirements of 20 4.1.500 NMAC (incorporating 40 CFR Part 264, Subpart H). The Permittee shall demonstrate continuous compliance with financial assurance requirements by providing documentation of financial assurance as required by 20 4.1.500 NMAC (incorporating 40 CFR 264.143, 264.145 and 264.151), in at least the amount of the closure and post-closure care cost estimate required by 20 4.1.500 NMAC (incorporating 40 CFR 264.142 and 264.144). Changes in financial assurance mechanisms must be approved by the Secretary pursuant to 20 4.1.500 NMAC (incorporating 40 CFR 264.145). The closure and post-closure cost estimates, prepared in accordance with 20 4.1.500 NMAC (incorporating 40 CFR 264.142 and 144), are specified at Attachments O2, *Financial Assurance for Closure*, and P1, *Financial Assurance for Post-Closure Care*, respectively.

8.3.1.a Most Recent Cost Estimates

The NMED's cost estimates for closure and post-closure care, prepared in accordance with 20.4.1.500 NMAC, (incorporating 40 CFR 264.142 and 264.144), respectively, are specified at Permit Attachment O2, and Permit Attachment P1, respectively. When closure or post-closure care cost estimates are adjusted or revised in accordance with Permit Conditions 8.3.1.b and 8.3.1.c, respectively, the Permittee shall submit these adjusted or revised cost estimates to the Secretary by the anniversary date of the establishment of the financial instrument(s) used to comply with Permit Condition 8.3.2.

The latest closure cost estimates will be inserted as replacement pages in Attachment O2. The latest post-closure care cost estimates will be inserted as replacement pages in Attachment P1.

8.3.1.b Adjustment for Inflation

The Permittee shall adjust the closure and post-closure care cost estimates for inflation within 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with Permit Condition 8.3.2, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.142(b) and 264.144(b)).

8.3.1.c Cost Estimate Revisions

No later than 30 days after the Secretary has approved a request to modify the Closure Plan or Post-Closure Care Plan, the applicable cost estimate shall be revised if the change increases the cost of closure or of post-closure care, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.142(c) and 264.144(c)), respectively.

8.3.1.d Recordkeeping - Cost Estimates for Closure and Post-Closure Care

The Permittee shall keep at the Facility the latest closure and post-closure care cost estimates during the operating life of the Facility, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.142(d) and 264.144(d)).

8.3.2 Financial Assurance for Closure and Post-Closure Care

8.3.2.a Continuous Compliance with Financial Assurance Requirements

The Permittee shall demonstrate continuous compliance with 20.4.1.500 NMAC (incorporating 40 CFR 264.143, 264.145, and 264.146) by providing documentation of financial assurance, in at least the amount of the cost estimates required by Permit Condition 8.3.1.d, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.143 and 264.151). This demonstration shall be submitted to the Secretary for approval so that it may be implemented at least 60 days prior to the initial receipt of waste at the Facility as specified at Permit Attachments O2, Section 8.8.1, *Financial Assurance for Closure*, and P1, Section 8.8.2, *Financial Assurance for Post-Closure Care*; and in accordance with Permit Condition 1.10; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.143(f)(3), 264.143(f)(5), 264.145(f)(3), and 264.145(f)(5)).

Changes in financial assurance mechanisms for closure and/or post-closure care must be approved by the Secretary, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.143(f)(6) and 264.145(f)(6)).

PERMIT PART 9

CORRECTIVE ACTION FOR REGULATED UNITS

HIGHLIGHTS

Introduction

This Part contains permit conditions that ensure an appropriate response in the event of a release of hazardous wastes or constituents from a regulated unit at the Triassic Park Hazardous Waste Disposal Facility (the Facility). Nothing herein shall be construed to prevent or limit the Secretary from requiring corrective action at the Facility pursuant to an administrative order or other authority.

Corrective action permit conditions in this Permit Part include initial response actions, notification requirements, release verification procedures, ground water monitoring requirements, and recordkeeping and reporting requirements for regulated units. Longer-term response actions, such as release investigation, remedy selection, interim measures, and others, are also required under this Permit Part.

The principal method of detecting a release of waste from a regulated unit is the Vadose Zone Monitoring System (VZMS). Permit conditions associated with the VZMS are described in Permit Part 7.

The corrective action permit conditions of this Permit Part address significant contaminant releases from regulated units that generally originate subsurface or escape secondary containment and cannot be appropriately managed and ultimately resolved through Permit Attachment C, *Contingency Plan*, and/or Permit Attachment J, *Action Leakage Rate and Response Action Plan*.

Regulated Units

Regulated units are those land-based units that received hazardous wastes after July 26, 1982. There ~~are two~~is one regulated unit~~s~~ at the Facility, the Landfill ~~and the Surface Impoundment~~.

The Landfill is a final disposal unit for hazardous wastes and is therefore subject to corrective action permit conditions throughout the post-closure care period addressed at Permit Part

8. Potential releases from the Landfill are anticipated to be in the form of leachates escaping through a breach in the liner system. Although no free liquids will be placed in the Landfill, fluids will enter the Landfill in the form of precipitation that will inevitably leach hazardous constituents and accumulate in a Landfill sump. Engineered controls to address the accumulated leachates and to preclude a release outside the Landfill liner system include a Leachate Collection and Removal System (LCRS) and a Leak Detection and Removal System (LDRS). Requirements for these controls are contained at Permit Part 6.

~~The Surface Impoundment is a treatment unit that is not expected to leave hazardous wastes in place after closure and will therefore not be subject to corrective action permit conditions under this Part after the closure period if the clean closure performance standard identified at Permit Part 8 is attained. Potential releases from the Surface Impoundment are anticipated to be in the form of leachates escaping through a breach in the liner system. The engineered control to address accumulated fluids and to preclude a release outside the Surface Impoundment's primary liner is a Leak Detection and Removal System (LDRS). Requirements for these controls are contained at Permit Part 5.~~

Regulatory Background

Corrective action for all solid waste management units (SWMUs) is required in New Mexico's Hazardous Waste Management Regulations, 20.4.1.500 NMAC, (incorporating 40 CFR Part 264, Subpart F) (*Releases from Solid Waste Management Units*). The regulated unit~~s~~ of this Permit Part ~~are~~ is considered a subset of SWMUs, and as such ~~are~~ is subject to the corrective action requirements contained at 20.4.1.500 NMAC (incorporating 40 CFR 264.101). Regulated units must comply also with the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.91 through 264.101) for purposes of detecting, characterizing, and responding to releases from any solid waste management unit. Ground water monitoring is conditionally waived at the Facility for reasons specified at Permit Attachment H, *Ground water Monitoring Waiver Request and Approval*. The corrective action requirements for the regulated unit~~s~~ stipulated in this Permit Part are also conditions of the Ground Water Monitoring Waiver approval.

9.1 APPLICABILITY

Permit Conditions in this Part apply to regulated unit~~s~~ (i.e., ~~the Surface Impoundment and~~ the Landfill).

9.2 ACTION LEVELS

Vadose zone fluid action levels shall be used by the Permittee to determine when the corrective action requirements of this Permit Part will be both initiated and terminated. Upon significant exceedance of a vadose zone fluid action level, the Permittee shall initiate the corrective actions contained in this Permit Part. Significance shall be determined, unless otherwise specified, using the procedures at Permit Attachment Q, *Statistics for Release Determination*. The Permittee shall continue to implement corrective action to ensure that released contaminants are removed or otherwise mitigated to below action levels.

Vadose zone fluid action levels are established in this Permit for both anthropogenic hazardous constituents and non-anthropogenic constituents. The methods of establishing and monitoring for vadose zone fluid action levels are described at Permit Part 7, *Vadose Zone Monitoring*, Permit Condition 7.5, *Release Assessment*. Action levels will be incorporated into this Permit as they are developed at Permit Attachment U, *Action Levels for Corrective Action.* Baseline chemical concentrations (i.e., action levels) for non-leachates are maintained in Permit Appendix U2, *Background Values for Non-Leachates.*

9.3 IMMEDIATE RESPONSE ACTIONS UPON DETERMINATION OF A RELEASE

When the Permittee identifies evidence of a release (i.e., exceedance of an action level) in accordance with Permit Condition 9.2, the Permittee shall comply with the requirements of Permit Conditions 9.3.1 through 9.3.8.

9.3.1 Notification of Release

The Permittee shall notify the Secretary verbally within 24 hours and shall provide the Secretary a written report within seven calendar days of discovery of a release.

9.3.2 Verification Sampling

For any substances found in an original analysis obtained in accordance with Permit Condition 7.4, the Permittee shall resample and repeat the analysis using the same methodology used for the original analysis. If evidence of an obvious release exists, the Permittee shall immediately initiate the response actions required at Permit Condition 9.3.3, and shall proceed with verification sampling. The Permittee shall furthermore comply with the following requirements:

- a written Verification Sampling Report shall be submitted to the Secretary as soon as possible, but in no case shall the verification sampling results be reported to the Secretary later than 15 calendar days after the Permittee's receipt of the original results. The report must describe the sampling and analysis procedures and must include all pertinent laboratory analytical and quality assurance documentation;

- if the results of the second analysis confirm the original analysis, the verified constituents, as well as all other constituents listed at 20.4.1.500 NMAC (incorporating 40 CFR 264, Appendix IX) detected in accordance with Permit Condition 9.3.5, shall form the basis for further corrective action in accordance with the requirements contained in this Permit Part;

- if the results of the second analysis do not confirm the original analysis, a third sampling and analysis of the impacted medium shall be performed. The Permittee shall provide the Secretary an opportunity to be present during the third sampling event through advance notice as soon as the second analysis results are received, so that the New Mexico Environment Department (NMED) may obtain split samples;

- if the results of the third analysis do not confirm the existence of contamination as demonstrated by the original analysis, the Secretary will assume that the original analysis was in error and the Permittee shall return to the original monitoring process and schedule identified in Permit Condition 7.4.2; and

- if the results of the third analysis do confirm the existence of a release as demonstrated by the original analysis, the verified constituents, as well as all other constituents listed at 20.4.1.500 NMAC (incorporating 40 CFR 264, Appendix IX) detected in accordance with Permit Condition 9.3.5, shall form the basis for further corrective action in accordance with this Permit Part.

9.3.3 Response Actions

When the Permittee identifies evidence of a release, the Permittee shall immediately (i.e., within 24 hours after the release is first detected and before verification sampling has been completed) initiate the following response actions at the unit associated with the release:

- determine whether the contamination can be attributed to some operational disturbance such as an equipment or power failure;
- verify that the VZMS is working as designed;
- verify that the associated leak detection system(s) is working as designed;
- evaluate the need to increase the pumping rate on the LDRS and LCRS pumps, as appropriate;
- repair any damage to exposed portions of the liner;
- investigate alternative sources of liquids, leachates, or contamination; and
- ~~(Landfill only)~~ review the analysis of the contamination, compare it to the Landfill Operating Record for the previous five years, and attempt to match fingerprint or indicator parameters, generator analyses, and waste placement records, to determine the source of the leaks.

9.3.3.a Immediate Response Action Report

The Permittee shall submit a written assessment of the immediate response actions to the Secretary within 14 days of the Permittee’s verification of the release. The report shall contain, at a minimum, the amount and nature of the contamination; available information on size, location, and cause of the leak; and any immediate and short-term actions to be taken.

9.3.3.b Response Action Effectiveness Report

The Permittee shall submit a follow-up Response Action Effectiveness Report to the Secretary within 30 calendar days of the Permittee's determination of the release. The Report shall describe how effective the response actions have been in stopping the migration of hazardous wastes or constituents out of the associated regulated unit. This report shall also describe the verification sampling required at Permit Condition 9.3.2.

9.3.4 Independent Assessment

The Permittee shall have a third-party assessment of the immediate response actions conducted by an independent professional engineer registered in New Mexico, or other qualified professional approved by the Secretary. Should the verification sampling determine that a release has occurred, the assessment shall include a determination of whether waste receipt should be temporarily discontinued, or if waste should be removed for liner inspection, repair, or controls.

A written summary of the assessment shall be submitted to the Secretary within 45 days following the initiation of the immediate response actions.

9.3.5 40 CFR, Part 264, Appendix IX Sampling

Upon verification of a release from a regulated unit in accordance with Permit Condition 9.3.2, but no later than 30 calendar days after the verification, the Permittee shall analyze the fluids in all VZMS wells for concentrations of the constituents identified at 20.4.1.500 NMAC (incorporating 40 CFR 264, Appendix IX).

9.3.6 Monthly Progress Reports

The Permittee shall, upon verification of a release, initiate the submittal of monthly Corrective Action Progress Reports.

9.3.7 Submittal of Regulated Unit Investigation Work Plan

The Permittee shall, within 45 calendar days of the verification of a release from a regulated unit as specified at Permit Condition 9.3.2, submit to the Secretary an Investigation Work Plan that conforms with the investigation requirements of Permit Condition 10.7.

9.3.8 Submittal of Ground Water Monitoring Work Plan

The Permittee shall, within 90 calendar days of the verification of a release as specified at Permit Condition 9.3.2, submit to the Secretary an application for a Permit modification to establish a ground water monitoring program meeting the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.97) and the detection monitoring requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264.98), and shall establish the ground water action levels as specified at Permit Condition 10.3.3.

9.4 CORRECTIVE MEASURES STUDY

Based on the results of the reports submitted in accordance with Permit Conditions 9.3.3.b, 9.3.4, 9.3.5 and 9.3.7, the Secretary will determine the need for a Corrective Measures Study. The Secretary will inform the Permittee of his decision in writing. If the Secretary determines that further action is necessary, the Permittee may be required to comply with the requirements of Permit Condition 10.9, *Corrective Measures Study*.

9.4.1 Financial Assurance

If the Secretary requires a Corrective Measures Study in accordance with Permit Condition 9.4, the Permittee shall submit to the Secretary evidence of financial responsibility for completing the corrective actions in Permit Condition 10.10.2; and as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.90(a)(2)).

9.5 RECORDKEEPING

For a unit undergoing corrective action under this Part, the Permittee shall retain, until completion of the corrective action has been approved by the Secretary, records of all monitoring information and all other pertinent data and information used to prepare the appropriate documents required by this Part.

9.6 REPORTING

The Permittee shall submit reports to the Secretary for approval in accordance with the schedule contained at Table 9-1, *Compliance Schedule for Regulated Units.*

9.7 DISPUTE RESOLUTION

The dispute resolution procedure contained at Permit Condition 10.14 shall apply to this Permit Part.

9.8 INTERIM MEASURES

If the Secretary determines that a release or potential release of hazardous wastes or constituents poses a threat to human health and the environment, the Secretary may require interim measures that shall conform to the requirements of Permit Condition 10.8. The Secretary shall determine the specific measure(s) or require the Permittee to propose a measure(s). The Secretary shall notify the Permittee in writing of the requirement to perform interim measures. The Permittee may propose interim measures at any time.

TABLE 9-1

COMPLIANCE SCHEDULE FOR REGULATED UNITS

DOCUMENT OR INFORMATION	DUE DATE
Release - Oral report (Permit Condition 9.3.1)	24 hours following Permittee's determination of a release above action levels
Release - Written report (Permit Condition 9.3.1)	Seven days following Permittee's determination of a release above action levels
Verification Sampling Report (Permit Condition 9.3.2)	15 days following the Permittee's receipt of original analysis results for sample above action levels
Immediate Response Action Report (Permit Condition 9.3.3.a)	14 days following verification of a release
Response Action Effectiveness Report (Permit Condition 9.3.3.b)	30 days following Permittee's determination of a release
Third Party Immediate Response Assessment (Permit Condition 9.3.4)	45 days following initiation of immediate response actions
Regulated Unit Investigation Work Plan (Permit Condition 9.3.7)	45 days following Permittee's verification of a release
Permit modification request to initiate Ground Water Monitoring Program (Permit Condition 9.3.8)	90 days following verification of a release

PERMIT PART 10

CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

HIGHLIGHTS

This Permit Part contains conditions for necessary corrective action for hazardous waste or hazardous constituent releases that occur at solid waste management units (SWMUs) and areas of concern (AOCs) at the Triassic Park Waste Disposal Facility (the Facility). Permit conditions include the development of action levels, release identification, notification and investigation requirements, interim measures, remedy selection and implementation, ground water monitoring, and recordkeeping and reporting requirements.

The corrective action permit conditions of this Permit Part address significant contaminant releases from SWMUs that generally extend to greater depths and cannot be appropriately managed through Permit Attachment C, *Contingency Plan*. The corrective action process is a phased process and the Permittee may petition the Secretary to alter the sequence of the phases or omit a phase.

Regulatory Background

Section 3004(u) of the Resource Conservation and Recovery Act (RCRA), Sections 74-4-4.A.5.h and 74-4-4.2 of the New Mexico Hazardous Waste Act (HWA), and 20.4.1.500 NMAC (incorporating 40 CFR 264.101), require that RCRA permits issued after April 8, 1987, address corrective action as necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any SWMU at a treatment, storage, or disposal facility, regardless of the time at which the waste was placed in the SWMU.

Section 3004(v) of RCRA, Section 74-4-4.A.5.i of the HWA, and 20.4.1.500 NMAC (incorporating 40 CFR 264.101(c)), require corrective action beyond the Facility border where necessary to protect human health and the environment unless the Permittee demonstrates to the satisfaction of the Secretary that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions.

10.1 APPLICABILITY

This Permit Part applies to the following:

10.1.1 Existing SWMUs and AOCs

The Permittee shall implement corrective actions at existing SWMUs and AOCs when the Secretary determines the need for investigations at the SWMU or AOC as specified in Permit Condition 10.4.4, or as otherwise specified by this Permit. Existing SWMUs and AOCs at the Facility are identified at Table 10-1, *Solid Waste Management Units and Areas of Concern at the Triassic Park Waste Disposal Facility*. Table 10-1 identifies SWMUs (permitted and non-permitted) and AOCs currently planned for construction at the Facility under Phase IA. Regulated units (i.e., the Landfill~~ and Surface Impoundment~~) are SWMUs and are thus subject to the conditions of this Permit Part in addition to the regulated unit specific conditions of Permit Part 9. The SWMUs and AOCs identified in Table 10-1 require no corrective action at the time of Permit issuance.

10.1.2 Newly Discovered SWMUs and AOCs

The Permittee shall implement corrective actions at newly discovered SWMUs and AOCs when the Secretary determines the need for investigations at the SWMU or AOC as specified in Permit Condition 10.4.4, or as otherwise specified by this Permit. The Permittee shall notify the Secretary in writing in accordance with Permit Condition 10.4 of any additional SWMUs or AOCs discovered during the course of ground water monitoring, field investigations, environmental audits, or other means. As used in this Permit Part, the terms “discover”, “a discovery”, or “discovered” refer to the date on which the Permittee (1) visually observes evidence of a new SWMU or AOC, (2) visually observes evidence of a previously unidentified release of hazardous waste or hazardous constituents to the environment, or (3) receives information which suggests the presence of a new release of hazardous waste or hazardous constituents to the environment.

10.1.3 Contamination Beyond the Facility Boundary

The Permittee shall implement corrective actions beyond the Facility boundary where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Secretary that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.101(c)).

The Permittee is not relieved of responsibility to clean up a release that has migrated beyond the Facility boundary where off-site access is denied. On-site measures to address such releases shall be determined on a case-by-case basis. The Permittee shall provide assurances of financial responsibility for completion of such off-site corrective action.

10.2 FACILITY CORRECTIVE ACTION WORK PLAN

The Permittee shall have in place standard procedures for conducting an investigation of the nature, rate, and extent of a hazardous waste or hazardous constituent release. To document these procedures, the Permittee shall submit a Facility Corrective Action Work Plan (FCAWP) to the Secretary for approval within 180 calendar days of the effective date of this Permit, in accordance with Permit Condition 1.10. Development of the FCAWP shall be based on Attachment R, *Facility Corrective Action Work Plan Outline*. The approved FCAWP will be inserted into Permit Attachment R.

The Permittee shall submit to the Secretary all appropriate revisions to the FCAWP on an annual basis within 90 calendar days after the anniversary date of this Permit. After approval, these revisions will be inserted into Permit Attachment R as replacement pages.

10.3 ACTION LEVELS

Action levels shall be used by the Permittee to determine when the corrective action requirements of this Permit will be both initiated and terminated. Upon significant exceedance of an action level, the Permittee shall initiate the corrective actions contained in this Permit Part. Significance shall be determined, unless otherwise specified, using the procedures at Permit Attachment Q, *Statistics for Release Determination*. The Permittee shall continue to implement corrective action to ensure that released contaminants are removed or otherwise mitigated to below action levels.

Action levels are established in this Permit for three media: vadose zone fluids, soils, and ground water. Action levels shall be incorporated into this Permit as they are developed at Permit Attachment U, *Action Levels for Corrective Action.*

10.3.1 Vadose Zone Fluids Action Levels

Vadose zone fluid action levels shall be used by the Permittee to both initiate and terminate corrective action associated with vadose zone fluids. It is anticipated that vadose zone fluids are most apt to be impacted by a release from a regulated unit and detected in the vadose zone monitoring system. The methods of establishing and monitoring for vadose zone fluid action levels are described at Permit Part 7, *Vadose Zone Monitoring*, Permit Condition 7.5, *Release Assessment*. Vadose zone fluid action levels are established in this Permit for both anthropogenic hazardous constituents and non-anthropogenic constituents. Baseline chemical concentrations (i.e., action levels) for non-leachate fluids shall be maintained in Permit Attachment U2, *Vadose Zone Baseline Values for Non-Leachates.*

10.3.2 Soil Action Levels

Soil action levels shall be used by the Permittee to both initiate and terminate corrective action associated with surface and subsurface soils. Any detection of an anthropogenic hazardous constituent in soil, or any significant increase over approved background inorganic soil constituent concentrations, shall be considered indicative of a release and a soil action level.

10.3.2.a Background Soil Concentrations Work Plan

The Permittee shall submit a Background Soil Concentrations Work Plan to establish background concentrations (i.e., action levels) for metals and radionuclides in soil to the Secretary for approval in accordance with Permit Condition 1.10. The background soil concentrations shall be established as specified at Permit Attachment O, *Closure Plan*, Section 8.3, *Closure Performance Standard*. The Permittee shall notify the Secretary at least 15 calendar days prior to the implementation of the Background Soil Concentrations Work Plan.

10.3.2.b Approval for Background Soil Concentrations

The Permittee shall submit the background soil concentrations to the Secretary for approval no less than 30 calendar days prior to acceptance of waste at the Facility, in accordance with Permit Condition 1.10. The approved background soil concentrations will be incorporated into this Permit at Permit Attachment U, *Action Levels for Corrective Action,* Appendix U1*, Background Concentrations for Soil.*

10.3.3 Ground Water Action Levels

Ground water action levels shall be used by the Permittee to both initiate and terminate corrective action associated with ground water. Any detection of an anthropogenic hazardous constituent in ground water, or any significant increase over approved background inorganic ground water constituent concentrations, shall be considered indicative of a release and a ground water action level.

The regulatory requirement to monitor ground water is currently waived by the Secretary for the reasons specified in Permit Attachment H, *Ground Water Monitoring Waiver Request and Approval*. If either a release from a regulated unit is verified as specified at Permit Condition 9.3.2, or a release from a SWMU results in the presence of hazardous constituents in the vadose zone monitoring system, the Secretary will revoke the Ground Water Monitoring Waiver. Upon revocation of the Ground Water Monitoring Waiver, the Permittee shall submit a Permit modification request to the Secretary for approval to initiate compliance with 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart F), and shall establish background ground water concentrations (i.e., action levels).

10.3.4 Detection Limits

Analytical detection limits shall in all cases be below the more stringent of the following two criteria: 1) universal treatment standards (UTS) contained at 20.4.1.800 NMAC, (incorporating 40 CFR 268.40); or 2) lowest detection limits specified in *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*: *(SW-846), Third Edition, Update IV 2008~~1986~~*, or the most recent edition.

10.4 NOTIFICATION AND ASSESSMENT REQUIREMENTS FOR NEWLY IDENTIFIED SWMUS AND AOCS

10.4.1 Notification of Newly Discovered SWMUs or AOCs

The Permittee shall notify the Secretary in writing, within 15 calendar days of discovery, of any new SWMU or suspected AOC discovered as described at Permit Condition 10.1.2. The notification shall include, at a minimum, the location of the SWMU or AOC and all available information pertaining to the nature of the release (e.g., media affected, hazardous constituents released, magnitude of release). The Secretary may conduct, or require the Permittee to conduct, further assessment (i.e., confirmatory sampling), in order to determine the status of the SWMU or suspected AOC.

The Secretary will notify the Permittee in writing of the final determination as to the status of the SWMU or suspected AOC. If the Secretary determines that further investigation of the SWMU or AOC is required, the Permit will be modified in accordance with 20.4.1.900 NMAC (incorporating 40 CFR 270.41) to include the SWMU or suspected AOC in this Permit and to place the SWMU or suspected AOC on Table 10-2, *Solid Waste Management Units and Areas of Concern Requiring Corrective Action*.

10.4.2 Notification of Release

The Permittee shall notify the Secretary orally of the discovery of a SWMU or AOC and its associated release within 24 hours, and shall notify the Secretary in writing within 15 calendar days of discovery of any contamination identified at a newly discovered SWMU or suspected AOC.

10.4.3 SWMU Assessment Report

The Permittee shall prepare and submit to the Secretary, within 90 calendar days of the notification required in Permit Condition 10.4.1, a SWMU Assessment Report (SAR) for each SWMU or suspected AOC identified under Permit Condition 10.4. At a minimum, the SAR shall provide the following information:

- location of unit(s) on a topographic map of appropriate scale, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.14(b)(19));
- designation of type and function of unit(s);
- general dimensions, capacities, and structural description of unit(s). Any available plans/drawings shall be included;
- dates that the unit(s) was operated;
- specification of all wastes that have been managed at/in the unit(s), to the extent available. Any available data on hazardous constituents in the wastes shall be included; and
- all available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (e.g., ground water data, soil analyses, air quality data, and surface water quality data).

10.4.4 Requirement to Proceed

Based on the information contained in the SAR, the Secretary will determine the need for further investigations at the SWMU or AOC covered in the SAR. If the Secretary determines that such investigations are needed, the Permittee shall prepare a Work Plan for such investigations in accordance with Permit Conditions 10.6 and/or 10.7.

10.5 NOTIFICATION REQUIREMENTS FOR NEWLY DISCOVERED RELEASES

10.5.1 Notification of Newly Discovered Releases

The Permittee shall notify the Secretary verbally of any newly discovered release(s) of hazardous waste or hazardous constituents discovered during the course of ground water monitoring, field investigations, environmental audits, or other means. The Permittee shall notify the Secretary in writing within 15 calendar days of the discovery. Such newly discovered releases may be from newly identified SWMUs or AOCs, newly constructed SWMUs, or from SWMUs or AOCs for which, based on the findings of the RFA, completed RFI, or investigation of an AOC(s), the Secretary had previously determined no further investigation was necessary.

10.5.2 Requirement to Proceed

If the Secretary determines that further investigation of the SWMU or AOC is needed, the Permittee shall prepare a plan for such investigation, as outlined at Permit Condition 10.7.

10.6 CONFIRMATORY SAMPLING

10.6.1 CS Work Plan Submittal

Upon the notification by the Secretary specified at Permit Condition 10.4.4, the Permittee shall prepare and submit a Confirmatory Sampling (CS) Work Plan for each unit identified as required under Permit Condition 10.4.1 or newly identified SWMU or AOC identified as specified at Permit Condition 10.4.4. The CS Work Plan shall be submitted within 45 calendar days of notification by the Secretary that a CS Work Plan is required. The CS Work Plan shall include schedules of implementation and completion of specific actions necessary to determine whether a release has occurred. It shall also address applicable requirements and affected media. In order to partly or wholly satisfy the CS requirement, previously existing data may be submitted with the Work Plan for the Secretary's consideration.

10.6.2 CS Work Plan Approval by the Secretary

The CS Work Plan must be approved by the Secretary in writing prior to implementation. The Secretary will specify the start date of the CS Work Plan schedule in a letter approving the CS Work Plan. The Secretary will approve, disapprove, or modify and approve the Work Plan in accordance with the procedures contained at Permit Condition 10.13.6.

10.6.3 CS Implementation

The Permittee shall implement confirmatory sampling in accordance with the approved CS Work Plan.

10.6.4 CS Report Submittal

The Permittee shall prepare and submit to the Secretary for approval, in accordance with the schedule in the approved CS Work Plan, a CS Report identifying all SWMUs or AOCs that have released hazardous waste or hazardous constituents into the environment. The CS Report shall include all data, including raw data, and a summary and analysis of the data that support the above determination. If submittal of the CS Report coincides with submittal of the RCRA Facility Investigation (RFI) Report required at Permit Condition 10.7.3.a, the CS Report and the RFI Report may be combined into one submittal.

10.6.5 Requirement to Proceed

The Secretary will approve, disapprove, or modify and approve the CS Report in accordance with Permit Condition 10.13.2. Based on the results of the CS Report, the Secretary will determine the need for further investigations at the SWMU(s) or AOC(s) covered in the CS Report. If the Secretary determines that such investigations are needed, the Permittee shall prepare an RFI Work Plan for such investigations in accordance with Permit Condition 10.7. The Secretary will notify the Permittee of any no further action decision.

10.7 RCRA FACILITY INVESTIGATION

10.7.1 RFI Work Plan Submittal

If the Secretary determines that an RFI Work Plan is necessary in accordance with Permit Conditions 10.4.4, 10.5.2, and/or 10.6.5, the Permittee shall prepare and submit to the Secretary, within 90 calendar days of notification by the Secretary, an RFI Work Plan for the required unit(s).

The primary purpose of the RFI Work Plan is to specify the procedure for determining the nature, rate, and extent of all released constituents and to determine the source location. The Permittee shall develop the RFI Work Plan to meet the requirements of Permit Condition 10.7.1.a.

10.7.1.a RFI Work Plan Requirements

The RFI Work Plan shall meet the requirements specified at Permit Attachment S, *RCRA Facility Investigation – Scope of Work*, Task I, *RFI Work Plan*, and shall reference Permit Attachment R, *Facility Corrective Action Work Plan Outline*, as appropriate. The RFI Work Plan shall describe the objectives of the investigation and the overall technical and analytical approach to completing all actions necessary to characterize the source, movement, and concentrations of released hazardous wastes and hazardous constituents; provide details of all proposed activities and procedures to be conducted; include the qualifications of personnel (including contractors) performing or directing the investigations; and the overall management of the investigations.

The RFI Work Plan shall include schedules of implementation and completion of specific actions necessary to determine the nature and extent of contamination and the potential pathways of contaminant releases to the air, soil, surface water, and ground water. If a unit, or a medium/pathway associated with a unit (ground water, surface water, soil, subsurface gas, or air), is not included in the RFI Work Plan, the Permittee shall provide sufficient justification and associated documentation that a release is not probable or has already been characterized. Such deletion of a unit, medium, or pathway from the RFI Work Plan is subject to the approval of the Secretary. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements of Permit Attachment S, Task I. Such omissions or deviations are subject to the approval of the Secretary. In addition, the scope of the RFI Work Plan shall include all investigations necessary to ensure compliance with 20.4.1.500 NMAC (incorporating 40 CFR 264.101(c)).

Development of the RFI Work Plan and reporting of the associated data shall be consistent with the latest editions of the following US Environmental Protection Agency (EPA) guidance documents or the equivalents:

- RCRA Facility Investigation Guidance Document, EPA/SW-89-031, Vols. I-IV, May 1989;

- RCRA Ground-Water Monitoring: Draft Technical Guidance, EPA, /530-R-93-001, November 1992;

- RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, EPA, Office of Solid Waste and Emergency Response (OSWER) Directive 9950.1, September 1986;

- Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods, EPA publication SW-846, 3rd edition, update IV 2008~~1996~~;

- RCRA Corrective Action Plan, Final, EPA, OSWER Directive 9902.3-2A, May 1994; and

- Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring Wells, EPA 600/4-89/034.

10.7.1.b RFI Work Plan Approval by the Secretary

The RFI Work Plan must be approved by the Secretary in writing prior to implementation. The Secretary will specify the start date of the RFI Work Plan schedule in the letter approving the RFI Work Plan. The Secretary will approve, disapprove, or modify and approve the RFI Work Plan in accordance with Permit Condition 10.13.6.

10.7.2 RFI Work Plan Implementation

The Permittee shall implement the RFI Work Plan in accordance with the approved RFI Work Plan. The Permittee shall notify the Secretary at least 15 calendar days prior to any field sampling, field-testing, or field monitoring, to provide NMED personnel the opportunity to observe investigation procedures and/or to split samples.

10.7.3 RFI Reports

10.7.3.a RFI Report Submittal

The Permittee shall prepare and submit to the Secretary an RFI Report and Summary for the investigations conducted in accordance with the RFI Work Plan. The RFI Report shall meet the requirements of Permit Attachment S, Task III, *RCRA Facility Investigation Final Report and Summary*. The RFI Report shall be submitted to the Secretary for review in accordance with the schedule in the approved RFI Work Plan.

The RFI Report must include an analysis and summary of all required investigations and their results. The summary must describe the type and extent of contamination, including sources and migration pathways; identify all hazardous constituents present in all media; and describe actual or potential receptors. The RFI Report must also describe the extent of contamination (qualitative/quantitative) in relation to action levels specified at Permit Condition 10.3. The Report must contain adequate information to support further corrective action decisions. The Summary shall summarize the RFI Report.

If the RFI is phased, an Interim RFI Report shall be submitted to the Secretary for approval. The Interim RFI Report must include a summary of the initial phase investigatory work and a Work Plan for the final phase investigatory actions required, based on the initial findings. The objective of this report must be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination in relation to action levels and the potential threat to human health and/or the environment, and to support a Corrective Measures Study (CMS), if necessary.

If the Secretary determines that the RFI Report and Summary do not fully meet the objectives of the approved RFI Work Plan and Permit Attachment S, Task III, *Report*, the Secretary may disapprove the Report and/or Summary in accordance with Permit Condition 10.13.6. Once approved, the Permittee shall mail the Executive Summary to all individuals, organizations, and agencies on the Facility mailing list as required by 20.4.1.1102 NMAC (incorporating 40 CFR 124.10(c)(1)(ix)), within 15 calendar days of receipt of approval.

10.7.4 Requirement to Proceed

After review of the RFI Report, the Secretary will notify the Permittee of the need for further investigative action, if necessary, and, if appropriate at this time, inform the Permittee, if not already notified, of the need for a CMS which meets the requirements of Permit Condition 10.9.1.b and 20.4.1.500 NMAC (incorporating 40 CFR 264.101). If the Secretary determines that no further action is necessary, the Secretary will notify the Permittee.

The Permittee shall prepare and submit a work plan for any further investigative action required by the Secretary in accordance with a schedule specified by the Secretary and approved in accordance with Permit Condition 10.7.1.b.

10.7.5 Quarterly Reports

If the time required to conduct the RFI is greater than 180 calendar days, the Permittee shall provide the Secretary with quarterly RFI Progress Reports, beginning 90 calendar days from the start date specified by the Secretary in the RFI Work Plan approval letter. The Progress Reports shall contain the following information at a minimum:

- a description of the portion of the RFI completed;
- a summary of findings;
- a summary of any deviations from the approved RFI Work Plan during the reporting period;
- a summary of any significant contacts with local community public interest groups, the New Mexico Environment Department (NMED), or other federal or State agencies;
- a summary of any problems or potential problems encountered during the reporting period;
- actions taken to rectify problems;
- changes in relevant personnel;
- projected work for the next reporting period; and
- copies of reports, inspection reports, data, including raw data, and other pertinent information.

10.8 INTERIM MEASURES

10.8.1 Interim Measures Work Plan

10.8.1.a Interim Measures Required by the Secretary

If the Secretary determines that a release or potential release of hazardous wastes or constituents poses a threat to human health or the environment, the Secretary may require interim measures (IM). IM may be necessary to minimize or prevent the further migration of contaminants or potential human and environmental exposure to contaminants while long-term corrective actions are evaluated and, if necessary, implemented.

The IM Work Plan shall be submitted within 30 calendar days of such notification and shall include the elements listed at Permit Condition 10.8.1.c. Such IM may be conducted concurrently with other investigations required under this Permit.

The following factors will be considered by the Secretary in determining the need for IM:

- the time required developing and implementing a final corrective measure;
- actual and potential exposure to human and environmental receptors;
- actual and potential contamination of drinking water supplies and sensitive ecosystems;
- the potential for further degradation of the impacted medium in the absence of IM;
- the presence of hazardous wastes in containers that may pose a threat of release;
- the presence and concentration of hazardous wastes, including soil contaminated with hazardous constituents, that have the potential to migrate to ground water or surface water;
- weather conditions that may affect the current levels of contamination;
- the risk of fire, explosion, or accident; and
- other situations that may pose or aggravate threats to human health or the environment.

10.8.1.b Permittee-Initiated IM

The Permittee may initiate IM at a SWMU or AOC by submitting an IM Work Plan to the Secretary. The Secretary will process Permittee-initiated IM by approving or conditionally approving the IM, or imposing an IM Work Plan in accordance with Permit Condition 10.8.1.a. A Permittee-initiated IM is considered conditionally approved unless the Secretary specifically imposes an IM Work Plan within 30 calendar days of receipt of the IM Work Plan submitted by the Permittee.

The scope and success of conditionally approved Permittee-initiated IM is subject to subsequent in-depth review; the Secretary will then approve, disapprove, or approve with conditions the IM in accordance with Permit Condition 10.15.

A Permittee-initiated IM must follow the progress and final reporting requirements of Permit Condition 10.8.3.

10.8.1.c IM Work Plan Requirements

The IM Work Plan shall ensure that the IM are designed to mitigate any current or potential threat to human health or the environment and are consistent with and integrated into any long-term solution at the Facility, including attainment of action levels in all media. The IM Work Plan shall include the IM objectives; procedures for implementation, including any designs, plans, or specifications; and schedules for implementation.

10.8.1.d IM Work Plan Approval

The IM Work Plan imposed under Permit Condition 10.8.1.a must be approved by the Secretary in writing prior to implementation. The Secretary will specify the start date of the IM Work Plan schedule in the letter approving the IM Work Plan. The Secretary will approve, approve with conditions, or disapprove the IM Work Plan in accordance with Permit Condition 10.13.6.

10.8.2 IM Implementation

10.8.2.a Implementation of Approved IM Work Plan

The Permittee shall implement the IM imposed under Permit Condition 10.8.1.a in accordance with the approved IM Work Plan.

10.8.2.b Notification of Changes

The Permittee shall give notice to the Secretary as soon as possible of any planned changes, reductions, or additions to the approved IM Work Plan imposed under Permit Conditions 10.8.1.a or initiated by the Permittee under 10.8.1.b.

10.8.3 IM Reports

10.8.3.a Progress Reports

If the time required for completion of IM is greater than one year, the Permittee shall provide the Secretary with Progress Reports at intervals specified in the approved IM Work Plan required by the Secretary, or semi-annually for Permittee-initiated IM. The Progress Reports shall contain the following information, at a minimum:

- a description of the portion of the IM completed;
- a summary of findings;
- a summary of any deviations from the IM Work Plan during the reporting period;
- a summary of any problems or potential problems encountered during the reporting period; and
- projected work for the next reporting period.

10.8.3.b Final IM Report

The Permittee shall prepare and submit an IM Report to the Secretary within 90 calendar days following completion of IM conducted in accordance with Permit Condition 10.8.2. The IM Report shall contain, at a minimum, the following information:

- a description of IM implemented;
- a summary of results;
- a summary of all problems encountered;
- a summary of accomplishments and/or effectiveness of IM; and
- copies of all relevant laboratory/monitoring data.

10.8.4 Permit Modification

If the Secretary determines that the interim action completes corrective action required at 20.4.1.500 NMAC, (incorporating 40 CFR 264.101), and the Secretary determines that no further action is necessary, the Permittee shall submit a Permit modification in accordance with 20.4.1.900 NMAC (incorporating 40 CFR 270.41) to remove the unit undergoing corrective action from Table 10-2 of this Permit.

10.9 CORRECTIVE MEASURES STUDY

10.9.1 CMS Work Plan

10.9.1.a Submittal of CMS Work Plan

The Permittee shall prepare and submit a Corrective Measures Study (CMS) Work Plan for those units requiring a CMS within 90 calendar days of notification by the Secretary that a CMS is required. The CMS Work Plan shall be developed to meet the requirements of Permit Condition 10.9.1.b. The Permittee may seek approval from the Secretary for concurrent RFI/CMS. The CMS may be performed concurrently with the RFI process if the Secretary determines that sufficient investigative details are available to allow concurrent action.

10.9.1.b CMS Work Plan Requirements

The scope of the CMS Work Plan shall include the identification of all possible remedial alternatives, and the Permittee's recommended alternative that ensures protection of human health and the environment, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.101) and 20.4.1.900 NMAC (incorporating 40 CFR 270.32(b)(2)). The Permittee shall, when necessary, expand the scope of the CMS Work Plan beyond the Facility boundary in accordance with Permit Condition 10.1.3.

The CMS Work Plan shall meet, at a minimum, the requirements of Permit Attachment T, *Corrective Measures Study Outline*, Task I, *Corrective Measures Study Work Plan*. The CMS Work Plan shall include schedules of implementation and completion of specific actions necessary to complete the CMS.

The Permittee shall provide sufficient written justification and documentation for any unit deleted, or any omissions or deviations from the minimum requirements of Permit Attachment T, Task I. Such omissions or deviations are subject to the approval of the Secretary.

The scope of the CMS Work Plan shall include:

- a description of current conditions;
- a definition of the objectives of the study;
- specific plans for evaluating remedies, to ensure compliance with corrective measure standards; and

- the proposed format for the presentation of information.

10.9.1.c CMS Work Plan Approval

The Secretary will approve, disapprove, or modify and approve the CMS Work Plan in writing in accordance with Permit Condition 10.13.6.

10.9.2 Corrective Measures Study Implementation

The Permittee shall begin to implement the CMS according to the schedule specified at the CMS Work Plan no later than 15 calendar days after the Permittee has received written approval from the Secretary for the CMS Work Plan. The CMS shall be conducted in accordance with the approved CMS Work Plan.

10.9.3 CMS Report

10.9.3.a Submittal of CMS Report

The Permittee shall prepare and submit to the Secretary for approval a CMS Report and Executive Summary for the study conducted in accordance with the approved CMS Work Plan. The report shall be prepared in accordance with Permit Attachment T, Task III, *Corrective Measures Study Final Report and Summary*. The CMS Report shall be submitted to the Secretary in accordance with the schedule in the approved CMS Work Plan.

The CMS Report shall, at a minimum:

- summarize any bench-scale or pilot tests conducted;
- present all information gathered under the approved CMS Work Plan;
- include an evaluation of each remedial alternative;
- recommend a remedial alternative in accordance with Permit Condition 10.10; and
- contain adequate information to support the Secretary's decision on the recommended remedy.

In the CMS Report, the Permittee shall propose a corrective action program that attains the following:

- compliance with action levels for hazardous constituents in each medium, as established in Permit Condition 10.3;

- control of the source of the release;

- acceptable waste management requirements; and

- protection of human health and the environment.

10.9.3.b CMS Report Approval

Based on preliminary results and the CMS Final Report, the Secretary may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

If the Secretary determines that the CMS Final Report and Summary do not fully satisfy the information requirements specified under Permit Condition 10.9.3.a, the Secretary may disapprove the CMS Final Report in accordance with Permit Condition 10.13.6. If the Secretary determines that no further action is necessary, the Secretary will notify the Permittee.

Once approved, the Permittee shall mail the Summary to all individuals, organizations, and agencies on the Facility mailing list, as required by 20.4.1.1102 NMAC, (incorporating 40 CFR 124.10(c)(1)(ix)), within 15 calendar days of receipt of approval.

10.10 REMEDY APPROVAL AND PERMIT MODIFICATION

10.10.1 Remedy Selection

The Secretary shall select a remedy from the remedial alternatives evaluated in the CMS. The remedy shall be based at a minimum on protection of human health and the environment, and shall result in hazardous waste and hazardous constituent concentrations at or below action levels, in accordance with specific site conditions and existing regulations. The selected remedy may include any IM implemented to date.

10.10.2 Financial Assurance for Corrective Action

The Permittee shall submit to the Secretary evidence of financial responsibility for completing the corrective actions identified in the approved CMS Final Report, as required by 20.4.1.500 NMAC (incorporating 40 CFR 264.101(b) and (c)). A

Financial Assurance Report shall be submitted to the Secretary within 120 calendar days of completion of the Permit modification incorporating the approved remedy. The Financial Assurance Report shall address the corrective action cost considerations provided at Permit Attachment T, Task II.d.2, *Cost Estimate*.

10.10.3 Permit Modification for Remedy Identification

As required by 20.4.1.900 NMAC (incorporating 40 CFR 270.41), a Permit modification will be initiated by the Secretary after recommendation of a remedy under Permit Condition 10.10.1. This modification will serve to incorporate a final remedy into this Permit and to establish the financial cost of the remedy.

10.10.4 Permit Modification for Completion of Corrective Action

Upon completion of the approved remedial alternative, the Permittee shall submit a Permit modification request to remove the affected unit from the requirements of this Permit Part to the Secretary for approval, as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.42).

10.11 GROUND WATER MONITORING

If a release from a SWMU results in the presence of fluids containing hazardous constituents in the vadose zone monitoring system, the Ground Water Monitoring Waiver will be revoked by the Secretary. Within 90 days of revocation of the Ground Water Monitoring Waiver, the Permittee shall submit a Ground Water Monitoring Work Plan to the Secretary for approval to initiate compliance with 20.4.1.500 NMAC (incorporating 40 CFR 264.97), *General ground-water monitoring requirements*, and 40 CFR 264.98, *Detection monitoring program*. The Permittee shall establish background ground water concentrations in accordance with Permit Condition 10.3.3.

10.12 RECORDKEEPING

For each unit undergoing corrective action under this Part, the Permittee shall retain, until completion of the corrective action for that unit has been approved by the Secretary, records of all monitoring information and all other pertinent data and information used to prepare the appropriate documents required by this Part.

10.13 PROCEDURES

10.13.1 Modification of the Corrective Action Compliance Schedule

If at any time the Secretary determines that modification of Table 10-3, *Corrective Action Compliance Schedule for Solid Waste Management Units and Areas of Concern,* is necessary, the Secretary may initiate a modification to Table 10-3. The Permittee may also request a Permit modification to change Table 10-3.

Modifications to change Table 10-3 will be in accordance with the applicable provisions of 20.4.1.900 NMAC (incorporating 40 CFR 270.41 or 270.42).

10.13.2 Modification for Necessary Change

If the Permittee or the Secretary determines that this Permit Part no longer satisfies the requirements of 20.4.1.500 NMAC (incorporating 40 CFR 264, Subpart F), the Permittee shall, within 90 calendar days of determination, submit an application for a Permit modification to make any appropriate changes to this Permit Part as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.42).

10.13.3 Work Plan and Report Requirements

The Permittee shall submit work plans and reports to the Secretary according to the schedule contained at Table 10-3.

Work plans and reports listed at Table 10-3 shall be signed and certified as required by 20.4.1.900 NMAC (incorporating 40 CFR 270.11).

10.13.3.a Approval of the Secretary for Work Plans and Schedules

All work plans and schedules shall be subject to approval by the Secretary prior to implementation to assure that such work plans and schedules are consistent with the requirements of this Permit and with applicable regulations. The Permittee shall revise all submittals and schedules as specified by the Secretary. Upon approval, the Permittee shall implement all work plans and schedules as written.

10.13.3.b Schedule for Submittals

All work plans and reports shall be submitted in accordance with the schedule contained at Table 10-3. Extensions of the due date for submittals may be granted by the Secretary in writing based on the Permittee's written request and demonstration that sufficient justification for the extension exists. The Permittee must request the change at least 15 days before the due date contained in the schedule.

10.13.4 Work Plan Amendment

If the Permittee at any time determines that the work plans required under this Part no longer satisfy the requirements of 20.4.1.500 NMAC, (incorporating 40 CFR 264.101), or this Permit, for prior or continuing releases of hazardous waste or hazardous constituents from SWMUs and/or AOCs, the Permittee shall submit an amended Work Plan to the Secretary within 90 calendar days of such determination. The submittal of an amended Work Plan does not alleviate the Permittee from abiding with any Work Plan schedule previously approved by the Secretary.

10.13.5 Submittals to the Secretary

The Permittee shall provide two copies of all reports and work plans to the Secretary in accordance with Permit Condition 1.7.

10.13.6 Approval/Disapproval of Submittals

The Secretary will review all submittals (e.g., work plans, reports, schedules, and other documents which require the Secretary's approval) in accordance with the conditions of this Permit. If the Secretary does not approve the submittal, he or she may issue a Request for Supplemental Information (RSI), which will detail the document's deficiencies. The Permittee shall respond to the RSI within 60 calendar days. If the Secretary has further concerns after reviewing the Permittee's response, he or she may issue a Notice of Deficiency (NOD), which will detail the document's remaining deficiencies. The Permittee shall respond to the NOD within 60 calendar days. The Secretary will then approve, approve with conditions, modify and approve, or disapprove each submittal in writing.

If the Secretary approves the submittal with conditions or modifies the submittal, the Secretary will provide justification for the conditions or modifications in writing. If the Secretary disapproves a document, he or she will notify the Permittee in writing of the basis for the disapproval.

10.14 DISPUTE RESOLUTION

This Permit Condition shall apply only to submittals that have been disapproved and revised by the Secretary, or that have been disapproved by the Secretary, then revised and resubmitted by the Permittee, and again disapproved by the Secretary.

Notwithstanding any other provision of this Permit, in the event the Permittee disagrees, in whole or in part, with the Secretary's revision of a submittal or disapproval of any revised submittal required by the Secretary, the following may, at the Permittee's discretion, apply:

10.14.1 Notification to the Secretary

In the event that the Permittee chooses to invoke the provisions of Permit Condition 10.14, the Permittee shall notify the Secretary in writing within 30 calendar days of receipt of the Secretary's revision or disapproval of a submittal or revised submittal. Such notice shall set forth the specific matters in dispute, the position the Permittee asserts should be adopted as consistent with the requirements of the Permit, the basis for the Permittee's position, and any matters considered necessary for the Secretary's determination.

10.14.2 Resolution Conference

The Secretary and the Permittee shall have an additional 30 calendar days from the Secretary's receipt of the notification provided for at Permit Condition 10.14.1 to meet or confer to resolve any disagreement.

In the event agreement is reached, the Permittee shall comply with the terms of such agreement, or, if appropriate, submit a revised submittal and implement the same in accordance with and within the time frame specified in such agreement.

10.14.3 Decision by the Secretary

If agreement is not reached within the 30-day period specified at Permit Condition 10.14.2, the Secretary will notify the Permittee in writing of his or her decision on the dispute, and the Permittee shall comply with the terms and conditions of the Secretary's decision in the dispute. For the purposes of this provision, the responsibility for making this decision shall not be delegated below the NMED Director of Water and Waste Management Division.

10.14.4 Compliance with Requirements Not in Dispute

With the exception of those conditions under dispute, the Permittee shall proceed to take any action required by those portions of the submittal and of the Permit that the Secretary determines are not affected by the dispute.

TABLE 10-1

SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN[1]

AT THE TRIASSIC PARK WASTE DISPOSAL FACILITY

SWMU/AOC[1]	DESCRIPTION	COMMENTS
~~SWMU 1~~	~~Drum Storage Unit~~	~~Permitted unit~~
~~SWMU 2~~	~~Roll-Off Container Storage Unit~~	~~Permitted unit~~
~~SWMU 3a~~	~~Liquid Waste Tank~~	~~Permitted unit~~
~~SWMU 3b~~	~~Liquid Waste Tank~~	~~Permitted unit~~
~~SWMU 3c~~	~~Liquid Waste Tank~~	~~Permitted unit~~
~~SWMU 3d~~	~~Liquid Waste Tank~~	~~Permitted unit~~
~~SWMU 4a~~	~~Stabilization Tank~~	~~Permitted unit~~
~~SWMU 4b~~	~~Stabilization Tank~~	~~Permitted unit~~
~~SWMU 4c~~	~~Stabilization Tank~~	~~Permitted unit~~
~~SWMU 4d~~	~~Stabilization Tank~~	~~Permitted unit~~
~~SWMU 5~~	~~Surface Impoundment – Ponds IA and IB~~	~~Permitted unit~~
SWMU 6	Landfill Phase 1A	Permitted unit
~~SWMU 7~~	~~Truck Wash Facility~~	
SWMU 8	Maintenance Shop	
SWMU 9	Chemical Laboratory	
SWMU 10	Stormwater Retention Basin	
SWMU 13	Untarping, Sampling and Weigh Scales Area	

SWMU/AOC[1]	DESCRIPTION	COMMENTS
SWMU 14	Truck Staging Area	
AOC 1	Roads	
AOC 2	Clay processing area	
AOC 3	Dust control/clay processing area water basin	

1. SWMUs 6~~1~~-14 and AOCs 1-3 were originally identified in the 1995 RCRA Facility Assessment.

TABLE 10-2

SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN REQUIRING CORRECTIVE ACTION[1]

SWMU/AOC	DESCRIPTION	COMMENTS

[1] At the time of permit issuance, no SWMUs or AOCs requiring corrective action have been identified.

TABLE 10-3

CORRECTIVE ACTION COMPLIANCE SCHEDULE

FOR SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

SCHEDULE OF COMPLIANCE	DUE DATE
Notification of newly identified SWMUs and AOCs (Permit Conditions 10.4.1)	Within 15 calendar days of discovery
SWMU Assessment Report (Permit Condition 10.4.3)	Within 90 calendar days of notification
Notification for newly discovered releases at previously identified SWMUs and AOCs (Permit Condition 10.4.2)	Within 15 calendar days of discovery
Confirmatory Sampling Work Plan for SWMUs or AOCs (Permit Condition 10.6.1)	Within 45 calendar days after effective date of Permit
Confirmatory Sampling Report (Permit Condition 10.6.4)	In accordance with the approved CS Work Plan
RFI Work Plan (Permit Condition 10.7.1)	Within 90 calendar days from effective date of Permit
RFI Report (Permit Condition 10.7.3)	In accordance with the approved RFI Work Plan
RFI Progress Reports (Permit Condition 10.7.5)	Quarterly, beginning 90 calendar days from the start date specified by the Secretary[1]
Interim Measures Work Plan (Permit Condition 10.8.1.a)	Within 30 calendar days of notification by the Secretary
Interim Measures Progress Reports (Permit Condition 10.6.3.a)	In accordance with the approved Interim Measures Work Plan[2] or semi-annually for Permittee-initiated IM

SCHEDULE OF COMPLIANCE	DUE DATE
Final Interim Measures Report (Permit Condition 10.8.3.a)	Within 90 calendar days of completion
CMS Work Plan (Permit Condition 10.9.1.a)	Within 90 calendar days of notification by the Secretary that a CMS is required
Implementation of CMS Work Plan (Permit Condition 10.9.2)	Within 15 calendar days after receipt of the Secretary's approval of CMW Work Plan
CMS Report (Permit Condition 10.9.3.a)	In accordance with the schedule in the approved CMS Work Plan
Demonstration of Financial Assurance (Permit Condition 10.10.2).	Within 120 calendar days after Permit modification for remedy

1 This applies to Work Plan execution that requires more than 180 calendar days.

2 This applies to Work Plan execution that requires more than one year.