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## **PART 1: GENERAL PERMIT CONDITIONS**

### **1.1 Authority**

This Permit is issued pursuant to the authority of the New Mexico Environment Department (NMED) under the New Mexico Hazardous Waste Act (HWA), NMSA 1978, §§ 74-4-1 to -14, in accordance with the New Mexico Hazardous Waste Management Regulations (HWMR), 20.4.1 NMAC.

Pursuant to the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 to 6992k, and 40 CFR Part 271 and Part 272 Subpart GG, the State of New Mexico, through the NMED, is authorized to administer and enforce the state hazardous waste management program under the HWA in lieu of the federal program.

This Permit contains terms and conditions that the NMED has determined are necessary to protect human health and the environment at the Triassic Park Waste Disposal Facility (*see* 40 CFR § 270.32(b)(2)).

### **1.2 Permittee**

The Secretary of the NMED issues this Permit to Gandy Marley, Inc., hereinafter referred to as the Permittee, the owner and operator of Triassic Park Waste Disposal Facility (the Facility), EPA ID No. NM 0001002484, located in Chaves County, New Mexico.

### **1.3 Permitted Activity**

This Permit authorizes the Permittee to dispose of hazardous waste at the Facility. This Permit also requires the Permittee to conduct monitoring and corrective action activities and other tasks in accordance with a schedule of compliance. This Permit establishes the general and specific standards for these activities, pursuant to the HWA and the HWMR. This Permit also establishes standards for closure and post-closure care of the permitted unit at the Facility pursuant to the HWA and the HWMR.

### **1.4 Citations**

For the purpose of this Permit, and enforcement of its terms and conditions, all references to provisions of federal regulations that have been incorporated into the State regulations shall be deemed to include the State incorporation of those provisions.

### **1.5 Effect of Permit**

As to those activities specifically authorized or otherwise specifically addressed under this Permit, compliance with this Permit during its term shall constitute compliance, for purposes of enforcement, with Subtitle C of RCRA and the HWA, and the implementing regulations at 40 CFR Parts 264, 266, and 268 except for those requirements that become effective by statute after the

Permit has been issued (*see* 40 CFR § 270.4). The Permittee must also comply with all applicable self-implementing provisions imposed by statute or rule, including 40 CFR Parts 260, 261, 262, 263, 264, 266, and 268.

Compliance with this Permit shall not constitute a defense to any order issued or any action brought under: §§ 74-4-10, 74-4-10.1, or 74-4-13 of the HWA; §§ 3008(a), 3008(h), 3013, 7002(a)(1)(B), or 7003 of RCRA; §§ 104, 106(a), or 107, of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601 to 9675; or any other federal, state or local law providing for protection of public health or the environment.

This Permit does not convey any property rights of any sort 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. Compliance with this Permit does not relieve Permittees from the responsibility of complying with all applicable state or federal laws and regulations (*see* 40 CFR §§ 270.4, 270.30(g) and 270.32(b)(1)).

## **1.6 Effect of Inaccuracies in Permit Application**

This Permit is based on the information submitted in the Part A and B Permit Renewal Application for the Triassic Park Waste Disposal Facility, Revision 2, dated July 5, 2013 (Application). Any inaccuracies found in the Application may be grounds for the termination, revocation and reissuance, or modification of this Permit pursuant to 40 CFR § 270.43(a)(2). Where and when the Permittee becomes aware that it failed to submit any relevant facts in the Application, or submitted incorrect information in the Application or in any report to the NMED, it shall within 30 days submit such facts or information pursuant to 40 CFR § 270.30(l)(11).

## **1.7 Permit Actions**

### **1.7.1 Duration of Permit**

This Permit shall be effective for a period of ten years from the effective date. The effective date of this Permit shall be 30 days after notice of the NMED's decision has been served on the Permittee, or such later time as the NMED may specify. [40 CFR § 270.50(a)]

### **1.7.2 Permit Modification**

This Permit may be modified for both routine and significant changes as specified in 40 CFR §§ 270.41 through 270.43, and any modification shall conform to the requirements specified in those regulations. The filing of a permit modification request by the Permittee, or the notification by the Permittee of planned changes or anticipated noncompliance, does not stay the applicability or enforceability of any permit condition. [40 CFR § 270.30(f)]

- i. If at any time, for any of the reasons specified in 40 CFR § 270.41, the NMED determines that modification of this Permit is necessary, the NMED may initiate a Permit modification or require the Permittee to request a Permit modification.

- ii. The Permittee may request a permit modification in accordance with 40 CFR § 270.42. All applicable requirements specified in 40 CFR § 270.42 shall be followed.
- iii. Modifications to the Permit do not constitute a reissuance of the Permit.

### **1.7.3 Unclassified Permit Modifications**

Unless a permit modification is explicitly listed in Appendix I of 40 CFR § 270.42 as a Class 1 or 2 permit modification, the Permittee shall not submit the proposed permit modification as a Class 1 or 2 permit modification. The Permittee may only make such permit modification as a Class 3 modification, or may request a determination from the NMED as to whether the proposed permit modification should be reviewed and approved as a Class 1 or 2 modification in accordance with the requirements of 40 CFR § 270.42(d)(1).

### **1.7.4 Permit Modification, Suspension, Revocation, or Termination, and Reissuance**

This Permit may be modified, suspended, revoked and reissued, or terminated for cause in accordance with provisions of the HWA, NMSA 1978, § 74-4-4.2 and 40 CFR §§ 270.41 to 270.43.

### **1.7.5 Permit Renewal Application**

If the Permittee intends to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittee shall submit a renewal application at least one hundred eighty (180) calendar days before the expiration date of this Permit, unless permission for a later date has been granted by the NMED, pursuant to 40 CFR § 270.10(h) and 270.30(b). The NMED will not accept a renewal application that is submitted later than the expiration date of this Permit. [40 CFR § 270.10(h)] When reviewing the renewal application, the NMED shall consider improvements in the state of control and measurement technology and changes in applicable regulations.

### **1.7.6 Continuation of Expired Permit**

Pursuant to 40 CFR § 270.51(a), the conditions in this Permit shall continue in force and effect until the effective date of a new permit if:

- i. The Permittee has submitted a timely application for renewal of this Permit in compliance with 40 CFR § 270.13, 40 CFR § 270.14, and the applicable sections in 40 CFR § 270.15 through 270.29, which is a complete application under 40 CFR § 270.10(c) for a new permit in accordance with 40 CFR § 270.51(a)(1); and
- ii. The NMED, through no fault of the Permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit.

### **1.7.7 Transfer of Permit**

The Permittee shall not transfer this permit to any person without prior written approval from the NMED. The Permit may be transferred by the Permittee to a new owner or operator only if it has been modified or revoked and reissued (under 40 CFR § 270.40(b) and 270.41(b)(2)) to identify the new Permittee and incorporate such other requirements as may be necessary under the HWA, RCRA, and other implementing regulations in accordance with 40 CFR § 270.40(a).

The Permittee may make changes in ownership or operational control of the Facility as a Class 1 modification after obtaining prior written approval of the NMED in accordance with 40 CFR § 270.42. The new owner or operator shall submit a revised permit application no later than 90 (ninety) calendar days prior to the scheduled change and shall submit a written agreement containing a specific date for transfer of permit responsibility between the current and new Permittee. When a transfer of ownership or operations control occurs, the old owner or operator shall comply with the requirements of 40 CFR § 264, Subpart H (Financial Requirements) until the new owner or operator has demonstrated compliance with that subpart. The new owner or operator shall demonstrate compliance with 40 CFR § 264, Subpart H Requirements within six (6) months of the date of the change of ownership or operational control of the Facility. [40 CFR § 270.40(b)]

The Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Part 264, 40 CFR Part 270, and the HWA and shall provide the NMED with a copy of this notice. [40 CFR § 264.12(c)]

### **1.7.8 5-Year Permit Review by the NMED**

The NMED will review the closure and post-closure requirements associated with the land disposal units addressed in this Permit five (5) years after the effective date of Permit issuance or reissuance and may modify this Permit as necessary pursuant to § 74-4-4.2 of the HWA and 40 CFR §§ 270.41 and 270.50(d). Such modification shall not extend the effective term of this Permit. Nothing shall preclude the NMED from reviewing and modifying any portion of this Permit, in accordance with applicable requirements, at any time during its term.

### **1.7.9 Enforcement**

Any violation of a condition in this Permit may subject the Permittee and its officers, employees, successors, and assigns to:

- i. a compliance order under § 74-4-10 of the HWA or § 3008(a) of RCRA (42 U.S.C. § 6928(a));
- ii. an injunction under § 74-4-10 of the HWA or § 3008(a) of RCRA (42 U.S.C. § 6928(a)), or § 7002(a) of RCRA (42 U.S.C. § 6972(a));

- iii. civil penalties under § 74-4-10 of the HWA or §§ 3008(a) and (g) of RCRA (42 U.S.C. §§ 6928(a) and (g)), or § 7002(a) of RCRA (42 U.S.C. § 6972(a));
- iv. criminal penalties under § 74-4-11 of the HWA or §§ 3008(d), (e), and (f) of RCRA (42 U.S.C. §§ 6928(d), (e), and (f)); or
- v. some combination of the foregoing.

The list of authorities in this paragraph is not exhaustive and the NMED reserves the right to take any action authorized by law to enforce the requirements of this Permit.

### **1.7.10 Conflict in Language**

If there is a conflict between the language of a Permit Condition and the language of a Permit Attachment, where the Attachment includes text provided by the Permittee that is not expressly written by the NMED, then the language of the Permit Condition shall control the language in the Permit Attachment. This Permit and 40 CFR § § 264, 266 and 268 establish the minimum requirements for the design, construction, operation, and maintenance of the Facility. Any language in an Attachment that states or implies discretion to not comply with the minimum requirements of this Permit or 40 CFR § 270.32(b)(1) is not effective and the requirements of this Permit, the HWMR and 40 CFR § 270.32(b)(1) shall control.

## **1.8 Permit Construction**

### **1.8.1 Severability**

The provisions of this Permit are severable, and if any provision of this Permit or any application of any provision of this Permit is held invalid due to any circumstance, then 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)]

## **1.9 Definitions**

For the purposes of this Permit, terms used herein shall have the same meanings as those in the Hazardous Waste Act, the Resource Conservation and Recovery Act and their implementing regulations, unless this Permit specifically provides otherwise. Where a term is not defined in the Hazardous Waste Act, RCRA, corresponding regulations, U.S. Environmental Protection Agency guidelines or publications, or this Permit, the meaning associated with such a term shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

**Acceptable Knowledge** is defined in Permit Attachment F (Waste Analysis Plan), Section 1.3.1.

**Active Portion of the Facility** means that portion of the Facility property where construction has occurred or is routinely accessed by personnel for any Facility-related activity.

**Administrative Record** means the administrative record supporting and otherwise relating to the requirements of this Permit, compiled as of the issuance date of this Permit, which forms the basis for the terms of this Permit. The Administrative Record includes the full record and those documents submitted in writing by the NMED, the Permittee, EPA or the public, as of the effective date of the Permit for inclusion in the Administrative Record. The Administrative Record is available for review at the New Mexico Environment Department Hazardous Waste Bureau.

**Aquifer** means a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs.

**Area of Concern (AOC)** means any area having a known or suspected release of hazardous waste or hazardous constituents that is not from a solid waste management unit and that NMED has determined may pose a current or potential threat to human health or the environment. An area of concern may include buildings, structures at which releases of hazardous waste or constituents have not been remediated, including releases resulting from one time and accidental events.

**Contaminant** means any hazardous constituent listed in 40 CFR Part 261, appendix VIII and 40 CFR Part 264, appendix IX; any groundwater contaminant listed in the New Mexico WQCC Regulations at 20.6.2.3103 NMAC; any toxic pollutant listed in the WQCC Regulations at 20.6.2.7.WW NMAC; methyl tertiary-butyl ether; polychlorinated biphenyls (PCBs); dioxins and furans; perfluorooctane sulfonate and perfluorooctanoic acid; and any other substance present in soil, sediment, rock, surface water, groundwater, or air for which the NMED determines that monitoring, other investigation, or a remedy is necessary to carry out the purposes of this Permit.

**Corrective Action** means all corrective action as defined at 20.4.2.7.I NMAC necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents, or other contaminants defined by this Permit (Section (I.9), to the environment as required under HWA § 74-4-4.2(B) and 40 CFR § 264.101. Corrective Action may address releases to air, soil, sediment, surface water or groundwater.

**Corrective Action Complete** means the requirements for corrective action have been satisfied by the Permittee as determined by the NMED.

**Day** means a calendar day, unless specified as a business day. “Business day” means Monday through Friday, excluding all federal and New Mexico State holidays.

**Discharge** means the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of solid waste or hazardous waste into or onto any land or water.

**Disposal** means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous

waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwater.

**Disposal Unit** means any unit at the Facility at which hazardous waste is intentionally placed into or on any land or water and at which waste will remain after closure. The term disposal unit does not include corrective action management units into which remediation wastes are placed.

**EPA** means the United States Environmental Protection Agency and any successor or predecessor agencies.

**Extent of Contamination** means the horizontal and vertical area in which the concentrations of hazardous waste or constituents in the environmental media being investigated are above detection limits or background concentrations indicative of the region, whichever is appropriate, as determined by the NMED.

**Facility** means the Triassic Park Waste Disposal Facility, EPA ID Number NM 0001002484, owned by Gandy Marley, Inc. and located in Chaves County, New Mexico, including all contiguous land, and structures, other appurtenances, and improvements on the land, used for the management, storage or disposal of hazardous waste. For the purposes of implementing corrective action under 40 CFR § 264.101, or RCRA Section 3008(h), or the HWA, NMSA 1978, § 74-4-10(E), the Facility includes all contiguous property under the control of the owner or operator seeking a Permit under Subtitle C of RCRA, that is, 40 CFR Parts 260 through 273.

**Foreign Source** means an off-site source that is located outside of the United States.

**Groundwater** means interstitial water, which occurs in saturated earth material.

**Hazardous Constituent or Hazardous Waste Constituent** means: 1) any constituent identified in 40 CFR Part 261 Appendix VII that caused EPA to list a hazardous waste in 40 CFR Part 261 Subpart D; or 2) any constituent identified in 40 CFR Part 261, Appendix VIII. For purposes of closure, post-closure, or corrective action, “hazardous constituent” and “hazardous waste constituent” also means any contaminant as defined in this Permit Section (I.9) and any constituent identified in 40 CFR Part 264 Appendix IX, perchlorate, and nitrates.

**Hazardous Waste** for the purposes of corrective action for SWMUs and AOCs conducted pursuant to section 74-4-4.2(B) of the HWA, 40 CFR Part 264, subpart F, or 40 CFR § 270.32(b)(2), means a hazardous waste as defined in section 74-4-3(K) of the HWA. Hazardous waste, for the purposes of corrective action, includes, without limitation any “contaminant” defined in Section 1.9 of the Permit and hazardous waste as defined in 40 CFR § 261.3, any groundwater contaminant listed in the Water Quality Control Commission (WQCC) Regulations in 20.6.2.3103 NMAC, any toxic pollutant listed in 20.6.2.7 NMAC, any contaminant for which the EPA has promulgated a maximum contaminant level (MCL) at 40 CFR Parts 141 and 143, methyl tertiary butyl ether, polychlorinated biphenyls (PCBs), dioxins, and furans.

**Hazardous Waste** for all other purposes of this Permit, means a hazardous waste as defined in 40 CFR § 261.3.

**HWA** means the New Mexico Hazardous Waste Act, NMSA 1978, §§ 74-4-1 to 74-4-14.

**Hazardous Waste Management Regulations (HWMR)** means the New Mexico Hazardous Waste Management Regulations, 20.4.1 NMAC and all provisions of 40 CFR Parts 260 through 273 incorporated therein.

**Hazardous Waste Management Unit (HWMU)** means a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazard waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system, and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

**Interim Measures (IM)** means actions that can be implemented to minimize or prevent migration of contaminants and to minimize or prevent actual or potential human or ecological exposure to contaminants while long-term, final corrective action remedies are evaluated and, if necessary, implemented.

**Land Disposal** means placement of waste in or on the land, except in a corrective action management unit or staging pile, and includes without limitation, placement in a landfill such as a pit or a trench, surface impoundment, waste pile, or land treatment facility, or placement in a concrete vault or a shaft intended for disposal purposes.

**Maximum Contaminant Level (MCL)** means a maximum contaminant level under the Federal Safe Drinking Water Act, 42 U.S.C. §§ 300f to 300j-26, and the drinking water regulations promulgated thereunder.

**NMED** means the New Mexico Environment Department.

**Off-site source** means a generator of hazardous waste located outside the Permittee's Facility boundary but within the United States of America.

**Operator** means the person responsible for the overall operation of the Facility. Gandy Marley, Inc. is the operator of Triassic Park Waste Disposal Facility.

**Owner** means the person who owns the Facility or part of a Facility. Gandy Marley, Inc. is the owner of Triassic Park Waste Disposal Facility.

**Permit** means this document including all attachments hereto and all modifications to the Permit.

**Permittee** means Gandy Marley, Inc.

**RCRA** means the Federal Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901 to 6992k, also known as the Solid Waste Disposal Act.

**Release** means any accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or constituents).

**Representative Sample** means a sample of a universe or whole (e.g., waste pile, lagoon, groundwater) which can be expected to exhibit the average properties of the universe or whole.

**Secretary** means the NMED Secretary or his or her designee or authorized representative.

**Solid Waste Management Unit (SWMU)** means any discernable unit or area at the Facility at which solid waste has been placed at any time, and from which the NMED determines there may be a risk of a release of hazardous waste or constituents, irrespective of whether the unit was intended for the management of solid waste. Such units include any area at the Facility at which solid waste has been routinely or systematically released.

**Target Analyte List (TAL) Metals** means the list of 23 inorganic target analytes defined by the EPA Contract Laboratory Program Statement of Work. The list consists of the following: aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, selenium, silver, sodium, thallium, vanadium, and zinc.

**Upper Confidence Limit (UCL)** means the 95 percent upper confidence limit of the mean value. The UCL shall be calculated following the most current version of EPA's ProUCL or other method approved by NMED.

**Upper Tolerance Limit (UTL)** means the upper tolerance limit, which is a statistical estimate of the maximum concentration.

**Waste Stream** means waste material generated from a single process or activity that is similar in its physical form and hazardous constituents and is distinguishable from other wastes by EPA Hazardous Waste Numbers and Land Disposal Restriction (LDR) status.

**Water Quality Control Commission (WQCC)** means the New Mexico Water Quality Control Commission, and any successor agencies, boards, or commissions.

**Water Quality Control Commission Regulations** means the regulations at 20.6.2 NMAC promulgated by the New Mexico Water Quality Control Commission governing the quality of groundwater and surface water in New Mexico.

## **1.10 Duties and Requirements**

### **1.10.1 Duty to Comply**

The Permittee shall comply with all sections in this Permit, except to the extent and for the duration such noncompliance is authorized in an emergency permit, in accordance with the requirements of 40 CFR § 270.61. Any permit noncompliance, except under the terms of an emergency permit, constitutes a violation of the HWA and RCRA and may subject the Permittee, its successors and assigns, officers, directors, employees, parents, or subsidiaries, to an administrative or civil enforcement action (40 CFR § 270.30(a)), including civil penalties and injunctive relief, as provided in Permit Part 1.7.9, or permit modification, suspension, termination, or revocation, or denial of a permit application or modification request under § 74-4-4.2 of the HWA and 40 CFR §§ 270.41 and 270.43.

No delegation or assignment of the Permittee's responsibilities under this permit can be made to any person or entity, including a separately organized agency, without the written permission of the NMED; this prohibition does not preclude the Permittee's use of contractors for remediation.

The Permittee shall not allow any person or entity which currently exists or may be created, including a separately organized agency, to interfere with the performance of its obligations or responsibilities under this Permit.

### **1.10.2 Need to Halt or Reduce Activity Not a Defense**

The Permittee shall not use as a defense to an enforcement action that it would have been necessary for the Permittee to halt or reduce the permitted activities in order to maintain compliance with the conditions of this Permit. [40 CFR § 270.30(c)]

### **1.10.3 Duty to Mitigate**

In the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize releases of hazardous wastes and 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. [40 CFR § 270.30(d)]

### **1.10.4 Proper Operation and Maintenance**

The Permittee shall at all times properly operate and maintain all facilities and systems of 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 and quality control procedures. 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. [40 CFR § 270.30(e)]

### **1.10.5 Duty to Provide Information**

The Permittee shall furnish to the NMED, within a reasonable time as specified by the NMED, any relevant information which the NMED may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit.

The Permittee shall also furnish to the NMED, upon request, copies of records required to be kept by this Permit. Information and records requested by the NMED pursuant to this condition shall be provided in paper form or in an electronic format acceptable to the NMED or both as the NMED may specify. [40 CFR § 264.74(a) and 40 CFR § 270.30(h)]

This Permit condition shall not be construed to limit in any manner the NMED's authority under § 74-4-4.3 of the HWA, §3007(a) of RCRA, or any other applicable law or regulation.

### **1.10.6 Disclosure Statement**

If any information submitted by the Permittee in the disclosure statement required by Section 74-4-4.7 of the HWA changes, or if any information is added after filing the statement, the Permittee shall provide the new information to the NMED 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.

### **1.10.7 Inspection and Entry**

Pursuant to 40 CFR § 270.30(i) and NMSA 1978, § 74-4-4.3(A) the Permittee shall allow authorized representatives of the NMED, upon the presentation of credentials and at reasonable times, and under the conditions of this Permit, to:

- i. enter upon the Permittee's premises where the permitted unit or activity is located or conducted or where records must be kept;
- ii. have access to and photograph any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required;
- iii. inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required;
- iv. have access to, and copy, any records that must be kept; and
- v. sample or monitor, for the purposes of ensuring Permit compliance or as otherwise authorized by the HWA or RCRA, any substances or parameters at any location.

### **1.10.8 Representative Sampling**

All samples and measurements taken by the Permittee under any condition in this Permit shall be representative of the medium, waste, or other material being sampled. To obtain a representative waste sample, the Permittee shall use an appropriate sampling method from 40 CFR Part 261, Appendix I or an equivalent method approved by the NMED. Laboratory methods must be those specified in the most current edition of *Test Methods for Evaluating Solid Waste Physical/Chemical Methods (SW-846)*, or an equivalent method approved by the NMED, as specified in Attachment F (*Waste Analysis Plan*) and Permit Part 3.

### **1.10.9 Reporting Requirements**

#### **1.10.9.a Reporting Planned Changes**

The Permittee shall give advance written notice to the NMED as soon as possible, of any planned physical alterations or additions to any permitted unit at the Facility. [40 CFR § 270.30(1)(1)]

#### **1.10.9.b Reporting Anticipated Noncompliance**

The Permittee shall give advance written notice to the NMED of any planned changes to any permitted unit at the Facility or activity which may result in noncompliance with Permit requirements. [40 CFR § 270.30(1)(2)]

#### **1.10.9.c 24 Hour and Subsequent Reporting**

The Permittee shall report to the NMED, both orally and in writing, any noncompliance that may result in a release of contaminants, may endanger human health or the environment and any incident that requires implementation of Attachment C (*Contingency Plan*). [40 CFR § 270.30(1)(6) and 270.32(b)(2)] This report shall be submitted in accordance with Permit Sections 1.10.9.c.1 and 1.10.9.c.2.

##### **1.10.9.c.1 24 Hour Oral Report**

The Permittee shall make an initial oral report within 24 hours after the time the Permittee becomes aware of the noncompliance or the incident specified in Permit Section 1.10.9.c. The oral report shall include, at a minimum, the following information:

- i. description of the occurrence and its cause including:
  - a. name, address, and telephone number of the owner and operator;
  - b. name, address, and telephone number of the Facility;
  - c. date, time, and type of incident;
  - d. name and quantity of materials involved;

- e. the extent of injuries, if any;
  - f. an assessment of actual or potential hazards to the environment and human health outside the Facility, where this is applicable; and
  - g. the estimated quantity and disposition of recovered material that resulted from the incident [40 CFR § 270.30(l)(6)(ii)];
- ii. any information concerning the release of any hazardous waste or hazardous waste constituent which may endanger public drinking water supplies. [40 CFR § 270.30(l)(6)(i)(A)]; and
  - iii. any information of a release or discharge of hazardous waste or hazardous waste constituents, or of a fire or explosion at a permitted unit, which may threaten the environment or human health inside or outside the permitted unit. [40 CFR § 270.30(l)(6)(i)(B)]

The oral report shall be made by calling the NMED's Hazardous Waste Bureau's main telephone number during regular business hours, or by calling the New Mexico Department of Public Safety dispatch telephone number during non-business hours, and requesting that the report be forwarded to the NMED spill number.

#### **1.10.9.c.2 Five Day Written Report**

The Permittee shall submit a written report within five (5) days after the time the Permittee becomes aware of the noncompliance or incident under Permit Section 1.10.9.c. The Permittee must include in the written report the information required in Permit Section 1.10.9.c.1 and the following information:

- i. the period of the noncompliance or incident including exact dates and times, and, if the noncompliance or incident has not been corrected, the anticipated time when it is expected to be corrected; and
- ii. steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, incident or imminent hazard. [40 CFR § 270.30(l)(6)(iii)]

The Permittee shall include in the report a description of the spill response activities as required in Permit Part 2.11.9.

The NMED may allow submittal of the written report within 15 calendar days in lieu of the five day requirement above, if good cause is provided to NMED in advance of the five-day reporting deadline.

#### **1.10.9.d Written Reporting of a Non-threatening Release**

The Permittee shall report to the NMED in the submittal referenced in Permit Section 1.10.9.f any release from or at a permitted unit that the Permittee does not deem a threat to human health or the environment. The written report shall include a description of the occurrence and its cause including the following information:

- i. name, address, and telephone number of the owner and operator;
- ii. name, address, and telephone number of the Facility;
- iii. date, time, and type of incident;
- iv. name and quantity of materials involved; and
- v. the estimated quantity and disposition of recovered material that resulted from the incident.

The Permittee shall include in the report a description of the spill response activities as required in Permit Section 2.11.9 implemented to protect human health and the environment. [40 CFR § 270.32(b)(2)]

#### **1.10.9.e Contingency Plan Implementation**

If Permit Attachment C, Contingency Plan, is implemented, the Permittee shall comply with the reporting requirements of Permit Condition 2.12.6 and 40 CFR § 264.56(i).

#### **1.10.9.f Other Noncompliance**

The Permittee shall report all instances of noncompliance not otherwise required to be reported under Permit Section 1.10.9.b. This report shall be submitted to the NMED on a quarterly basis (within 60 days after the end of the reporting period). The quarterly reports shall contain the information listed in Permit Section 1.10.9.c.2 and 40 CFR § 270.30(1)(10). The Permittee shall notify the NMED in writing if there were no instances of noncompliance during the reporting period. This notice shall be submitted to the NMED quarterly (within 60 days after the end of the reporting period).

#### **1.10.9.g Omissions or Misstatements in Applications or Other Reports**

Whenever the Permittee becomes aware that they have failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or a report to the NMED, the Permittee shall promptly report such facts or information in compliance with 40 CFR § 270.30(1)(11).

### **1.11 Signatory Requirement**

The Permittee shall sign and certify all applications, reports, or information submitted to the NMED and required by this Permit in compliance with 40 CFR §§ 270.11 and 270.30(k).

### **1.12 Submissions to the NMED**

The Permittee shall submit all written reports, notifications, or other submissions required by this Permit to be submitted to the NMED by certified mail, hand-delivery, or special delivery service to:

Bureau Chief  
Hazardous Waste Bureau  
New Mexico Environment Department  
2905 Rodeo Park Drive East, Building 1  
Santa Fe, NM 87505-6303

Any notice, deliverable, or other requirement that under the terms of this Permit would be due on a Saturday, Sunday, or a state or federal holiday shall be due the first business day following the Saturday, Sunday, or state or federal holiday.

#### **1.12.1 Approval of Submittals**

All documents that the Permittee prepares under the terms of this Permit and submits to the NMED that are subject to the requirements of 20.4.2 NMAC shall be subject to the procedures set forth therein. Documents requiring NMED approval that are subject to the requirements of 20.4.2 NMAC will be reviewed and approved, approved with modifications or directions, disapproved, denied, or rejected by the NMED.

Upon the NMED's written approval, all submittals and associated schedules shall become enforceable as part of this Permit in accordance with the terms of the NMED's written approval, and such documents, as approved, shall control over any contrary or conflicting requirements of this Permit. This provision does not affect any public process that is otherwise required by this Permit, the HWA, or its implementing regulations.

Failure to submit any of the work plans, schedules, reports, or other deliverable documents that the Permittee is required to prepare under this Permit according to the schedules or deadlines in this Permit, may subject the Permittee to enforcement action under § 74-4-10 of the HWA, or other applicable provisions of law, which may include fines, civil penalties, or suspension or revocation of the Permit.

Any noncompliance with approved plans and schedules shall cause the Permittee to be noncompliance with this Permit. The NMED may grant extensions of written requests for due dates for submittals of reports and other deliverables, provided that the Permittee includes a

written justification showing good cause and a proposed schedule for submittal in accordance with Permit Section 1.12.2.

### **1.12.2 Extensions of Time**

The Permittee may seek an extension of time in which to perform a requirement of this Permit, for good cause, by sending a written request for extension of time and proposed revised schedule to the NMED prior to the scheduled deadline. The request shall state the length of the requested extension and describe the basis for the request. The NMED will respond in writing to any request for extension following receipt of the request. If the NMED denies the request for extension, it will state the reasons for the denial.

### **1.12.3 Confidential Information**

The Permittee may claim that specific information required by this Permit or otherwise submitted to the NMED is confidential pursuant to the provisions of §§ 74-4-4.3(D) and (F) of the HWA and 40 CFR §§ 260.2 and 270.12. Any claim must include justification satisfactory to NMED that such records, reports or information, or a particular part thereof, if made public, would divulge information entitled to protection under Section 1905 of Title 18 of the United States Code. Such information deemed by NMED to be confidential information may be disclosed to officers, employees or authorized representatives of NMED or the United States concerned with carrying out the Resource Conservation and Recovery Act of 1976, or when relevant in any proceedings under the Hazardous Waste Act.

### **1.12.4 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 or dispose of hazardous waste in the modified portion of the Facility, until the following conditions have been satisfied:

#### **1.12.4.a Submittal of Construction Certification and As-Built Specifications**

The Permittee has submitted to the NMED, 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 1.14; and

#### **1.12.4.b Inspection by the NMED**

The NMED has inspected the newly constructed Facility or the modified portion of the Facility and:

- i. finds it is in compliance with the conditions of this Permit; or
- ii. has waived the inspection; or,

- iii. within 15 calendar days from the date of submission of the letter required under Permit Condition 1.12.4.a has not notified the Permittee of its intent to inspect. [40 CFR § 270.30(l)(2)]

### **1.13 Documents to be Maintained at the Facility**

#### **1.13.1 Documents to be Maintained until Completion of Closure**

The Permittee shall maintain at the Facility, until final completion of closure as specified by Permit Part 5 has been approved by the NMED, the following documents and all subsequent amendments, revisions, and modifications to these documents:

- i. Permit Attachment B, Procedures to Prevent Hazards [Permit Condition 2.11];
- ii. Permit Attachment 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. [40 CFR § 264.53(a) and Permit Condition 2.12.2];
- iii. Permit Attachment D, Inspection Procedures; and D1, Inspection Schedules and Checklists. [40 CFR § 264.15(b)(2) and Permit Condition 2.8];
- iv. Permit Attachment E, Personnel Training, and personnel training documents and records. [40 CFR § 264.16(d) and (e) and Permit Condition 2.9];
- v. Permit Attachments F, Waste Analysis Plan; F1, Rationale for Analytical Parameter Selection; F2, Waste Profile Form; and F3, Chain-of-Custody Form. [40 CFR § 264.13(b) and Permit Condition 2.6.1];
- vi. The Operating Record. [40 CFR § 264.73 and Permit Condition 2.13.1.a];
- vii. Permit Attachment J, Action Leakage Rate and Response Action Plan. [Permit Condition 2.11.7];
- viii. Permit Attachment N, Operations and Maintenance Plan. [Permit Condition 2.11.8];
- ix. Permit Attachments O, Closure Plan; O1, Compliance Schedules for Closure; and O2, Financial Assurance for Closure. [Permit Conditions 5.2.1 and 5.4.1.d].

#### **1.13.2 Documents to be Maintained until Completion of Post-Closure Care**

The Permittee shall maintain at the Facility or other appropriate location approved by the NMED, until completion of post-closure care as specified in Permit Part 5 has been approved by the NMED, the following documents and all subsequent amendments, revisions, and modifications to these documents:

- Permit Attachments P, Post-Closure Care Plan; and P1, Financial Assurance for Post-Closure Care. [Permit Conditions 5.3.1 and 5.4.1.d]

#### **1.14 Compliance Schedule**

The Permittee shall submit documents, plans, certifications, and as-built specifications under this Permit to the NMED for approval in accordance with the schedule provided in Table 1-1, *Compliance Schedule*, as required in 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. If the action is not itself the submittal of a written document, the Permittee shall submit to the NMED a written notification of its compliance with the schedule no later than fourteen (14) days following the scheduled date. The notification shall include a full description of all activities completed to achieve such compliance.

All plans and schedules required to be submitted by the conditions of this Permit are, upon approval of the NMED, incorporated into the 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 NMED in accordance with 40 CFR § 270.41 or § 270.42 or both.

**Table 1-1  
 Compliance Schedule**

<b>PERMIT CONDITION</b>	<b>DOCUMENT/INFORMATION</b>	<b>DUE DATE</b>
1.12.4.a	Submittal of Construction Certification and As-Built Specifications	30 days prior to first receipt of waste
2.8.1.c	Submittal of Inspection Forms for Emergency Equipment	30 days prior to first receipt of waste
2.11.6	Notification of Agreements with Local Authorities	30 days prior to first receipt of waste
2.12.5	Updated Contingency Plan	15 days prior to first receipt of waste
2.12.5.a	List of Emergency Coordinators	15 days prior to first receipt of waste
2.12.5.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
4.3.1	Vadose Zone Monitoring Wells Installation	Prior to the first receipt of waste
5.4.2.a	Demonstration of Continuous Compliance With Financial Assurance for Closure and Post-Closure Care	60 days prior to first receipt of waste
7.3.2.b	Background Soil Concentrations for Approval	30 days prior to the first receipt of waste

## **PART 2: GENERAL FACILITY CONDITIONS**

### **2.1 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 permitted as a commercial Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste disposal landfill. The Facility is permitted to only dispose of hazardous waste in the permitted landfill. Permit Conditions for this unit are contained at Permit Part 3. This unit itself is further identified in Permit Attachment H, Table H-1, Hazardous Waste Management Unit. Other non-permitted units at the Facility are 90-day generator storage units or satellite accumulation points for waste generated onsite during operation of the Facility. These units are not permitted, but are subject to regulation under 40 CFR § 262.

Permit Conditions for vadose zone monitoring in lieu of groundwater monitoring are contained in Permit Part 4. Conditions for closure and post-closure care of the Facility are contained at Permit Part 5. Permit Parts 6 and 7 contain conditions for corrective action. Investigation and sampling methods and procedures are contained in Permit Part 8, monitoring well construction requirements are contained in Permit Part 9, and corrective action reporting requirements are contained in Permit Part 10.

General information regarding the Facility and Facility operations is contained in Permit Attachment A, General Facility Description and Information; Attachment L, Engineering Report, Section 2.1, General Facility Design Elements; and Attachment L1, Engineering Drawings. The Facility layout is provided in Permit Attachment L1, Drawing No. 4.

Hazardous wastes that may be disposed of at this Facility are listed in Permit Part 2, Table 2-1, Permitted Hazardous Wastes. The Hazardous wastes are listed by EPA Hazardous Waste Number as identified at 40 CFR § 261, Subparts C and D. The Facility may also manage certain PCB-contaminated wastes.

### **2.2 Construction and Operation**

The Permittee shall construct, maintain, and operate the Facility as specified in Permit Attachment A, Section 2, Disposal Process; Attachments L; L1; L2, Specifications for the Landfill and Associated Facilities Liner and Cover System Construction; Attachment M, Construction Quality Assurance Plan for the landfill; and Attachment N, Operations and Maintenance Plan; as required by 40 CFR §§ 260 through 273 and this Permit. The Permittee shall adhere to the specifications contained in Permit Attachment L2; and Attachment M; for construction of the Landfill, as required by 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 non-sudden release of hazardous waste to air, soil, or surface water which could threaten human health or the environment, as required by 40 CFR § 264.31.

### **2.3 Run-on/Run-off Controls**

The Permittee shall construct the Stormwater Detention Basin and Facility run-on diversion ditches and run-off collection ditches as specified at Permit Attachment L, Section 2.1.4, Facility Stormwater Control; and Attachment L.1, Engineering Drawings.

### **2.4 Permitted and Prohibited Waste Sources**

#### **2.4.1 Hazardous Waste from an Off-Site Source**

The Permittee shall only accept hazardous waste from off-site sources (i.e., generators of hazardous waste located within the United States of America), as defined at 40 CFR § 270.2, in accordance with Permit Attachment F, Waste Analysis Plan, Section 1.3, Pre-Acceptance Procedures for Off-Site Waste, and Section 1.4, Procedures for Incoming Waste Acceptance.

#### **2.4.2 Hazardous Waste from a Foreign Source**

The Permittee shall only accept hazardous waste from generators of hazardous waste located outside of the United States of America (i.e., foreign waste) in accordance with Permit Condition 2.4.1, Hazardous Waste from an Off-site Source and Permit Condition 2.6.3.d, Waste Acceptance from Foreign Generators, and shall notify both the EPA Regional Administrator and the NMED in accordance with 40 CFR § 264.12(a)(1).

#### **2.4.3 Hazardous Waste Generated at the Facility**

The Permittee shall manage hazardous waste generated at the Facility in accordance with Permit Attachment F, Section 1.5.6, Waste Analysis Requirements for Waste Generated On-Site; and Permit Section 3.2.

### **2.5 Permitted and Prohibited Waste**

#### **2.5.1 Permitted Waste**

##### **2.5.1.a Permit Application, Part A**

The Permittee shall accept only the hazardous wastes that meet Land Disposal Restrictions (LDRs) at the Landfill as identified in Table 2-1 of this Permit Part. [40 CFR § 268]

##### **2.5.1.b Other Permitted Waste**

###### **2.5.1.b.1 Certain PCB-Contaminated Soils**

The Permittee may only accept soils containing PCBs with concentrations of less than 50 ppm.

### **2.5.1.b.2 Bulk PCB-contaminated remediation waste**

The Permittee may accept bulk PCB-contaminated remediation waste. PCB-contaminated remediation waste includes, but is not limited to, the following: soil, sediments, dredged materials, muds, PCB sewage sludge, and industrial sludge. The Permittee shall use EPA SW-846 method 9095B to confirm the absence of free liquids in the waste; the waste must pass the paint filter test prior to disposal in the landfill. [40 CFR §§ 761.61(a) (4)(i) and 761.3]

### **2.5.1.c Acceptance of Waste on an Emergency Basis**

The Permittee may accept hazardous waste that is not identified in Permit Conditions 2.5.1.a or 2.5.1.b or that is prohibited in Permit Condition 2.5.2 only if the waste has been approved for receipt by the NMED on an emergency basis and the Facility has obtained an Emergency Permit in accordance with Permit Condition 1.10.1 and as required by 40 CFR § 270.61.

## **2.5.2 Prohibited Waste Streams**

### **2.5.2.a General Prohibition**

The Permittee is prohibited from accepting or disposing the following wastes at the Facility: wastes not listed in Part A of the Permit Application, and the wastes specified in Permit Attachment F, Section 1.1.2, Prohibited Waste.

Wastes prohibited from acceptance at the Facility include, but are not limited to:

- i. any hazardous wastes that do not meet the LDR treatment standards contained in 40 CFR § 268;
- ii. **liquid waste** – Bulk or non-containerized liquid hazardous waste or hazardous waste containing free liquids as defined in 40 CFR § 260.10 and described in Permit Sections 3.11.1.a and 3.11.1.b;
- iii. **certain hazardous debris** - Hazardous debris means debris that contains a hazardous waste listed in 40 CFR § 261, Subpart D, or that exhibits a characteristic or hazardous waste identified in 40 CFR § 261, Subpart C. Any deliberate mixing of prohibited hazardous waste with debris that changes its treatment classification (i.e., from waste to hazardous debris) is not allowed under the dilution prohibition of 40 CFR § 268.2(h). The Permittee shall not accept hazardous debris that does not meet the LDR treatment standards;
- iv. **certain lab packs** - Lab packs which contain wastes excluded from lab packs (identified at 40 CFR § 268, Appendix IV) under the alternative treatment standards contained at 40 CFR § 268.42(c);

- v. **certain soils containing PCBs** - Soils with polycarbonated biphenyl (PCB) concentrations greater than or equal to 50 parts per million (ppm), except for those soils (and other solids) defined as bulk PCB-contaminated remediation waste;
- vi. **compressed gases** - Gases stored at pressures higher than atmospheric;
- vii. **dioxin-contaminated waste** - Waste listed in 40 CFR § 268.31 (i.e., wastes with EPA Hazardous Waste Nos. F020, F021, F022, F023, F026, F027, and F028);
- viii. **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. This includes materials defined as explosives in 40 CFR § 143;
- ix. **infectious waste** - Infectious waste, defined at 20.9.2.7.I(5) NMAC means a limited class of substances that carry a probable risk of transmitting disease to humans, including but not limited to:
  - 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;
  - pathological wastes, including human or animal tissues, organs, and body parts, removed during surgery, autopsy, or biopsy;
  - disposable equipment, instruments, utensils, and other disposable materials which require special precautions because of contamination by highly contagious diseases;
  - human blood and blood products, including waste blood, blood serum, and plasma;
  - used sharps, including hypodermic needles, syringes, scalpel blades, Pasteur pipettes and broken glass; and
  - 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.
- x. **medical wastes** - Medical wastes including infectious/ biologic/pathogenic 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;

- xi. **municipal solid wastes** - Municipal solid wastes mean, normally, residential and commercial solid wastes generated within a community. [40 CFR § 240.200 and 20.9.2.7 NMAC];
- xii. **radioactive/nuclear materials** - Radioactive/nuclear materials means materials regulated by the NMED and defined in 20.3.14.7 NMAC; or other naturally occurring materials which contain radioactivity concentrations above the concentration levels regulated under 20.3.14 NMAC, as specified in Permit Attachment F1, Rationale for Analytical Parameter Selection; 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);
- xiii. **uncharacterized wastes** – Uncharacterized wastes cannot be accepted at the Facility except by special provision and direction from the Secretary of NMED (e.g., emergency clean-up operations) under an Emergency Permit or until full characterization has been performed; and
- xiv. waste containing biodegradable sorbents.
- xv. waste containing asbestos subject to regulation under the Toxic Substance Control Act.

## **2.6 Waste Analysis Plan**

### **2.6.1 General Waste Characterization Requirements**

The Permittee shall keep copies of Permit Attachments F, F1: Rationale for Analytical Parameter Selection, F2: Waste Profile Form, and F3: Chain-of-Custody Form, at the Facility, as required by 40 CFR § 264.13, until the completion of closure has been approved by the NMED.

The Permittee shall follow the waste analysis procedures required by 40 CFR § 264.13 and 40 CFR § 268.7, and specified in Permit Attachment F. The Permittee shall use the applicable analytical methods contained in 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 methods may be approved by the NMED if the request is in writing and submitted at least 15 days prior to the sample collection event. If the Permittee wishes to use an alternative method not contained in SW-846 or Permit Attachment F, the Permittee shall demonstrate to the NMED that such alternative method is equivalent or superior to the approved method contained in SW-846 or Permit Attachment F. Such demonstration shall be provided through a Permit modification request requiring the approval of the NMED. [40 CFR § 270.42]

At a minimum, the Permittee shall maintain properly functioning instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations as specified in Attachment F, Section 1.7.2, Facility Laboratory QA/QC Plan.

## **2.6.2 Specific Waste Characterization Requirements**

The Permittee shall perform the following waste analyses as presented in Permit Attachment F, Section 1.5, Waste Analysis:

- i. pre-shipment characterization of a representative sample from each waste stream prior to shipment as described in Permit Condition 2.6.2.a;
- ii. fingerprint analysis of a representative portion of waste upon arrival and continued fingerprint analysis of waste as specified in Permit Condition 2.6.2.b;
- iii. first five shipments and annual re-analysis as specified in Permit Condition 2.6.2.c;
- iv. additional analysis as specified in Permit Condition 2.6.2.d; and
- v. characterization of waste generated on-site as specified in Permit Condition 2.6.2.e.

Analytical parameters for each waste analysis requirement are specified in Permit Conditions 2.6.2.a through 2.6.2.e and shall be selected, as applicable, to meet waste characterization requirements and to ensure compliance with LDR treatment standards and regulations and operational limits specified in Permit Attachment F.

The Permittee shall use analytical methods contained in Permit Attachment F, Section 1.7, Analytical Methods, and Tables F-1 through F-3; or Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods EPA publication SW-846, latest edition). If the Permittee wishes to use an alternative method, the Permittee shall demonstrate to the NMED that such alternative method is equivalent or superior to the approved method contained in EPA publication SW-846.

### **2.6.2.a Representative Sample Analysis**

Following Permittee's 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 an off-site contract chemical analytical laboratory for analysis as described in Permit Attachment F, Section 1.3.3, Representative Sample Assessment, and Section 1.5.2, Representative Sample Analysis. Representative sample analysis shall include, at a minimum, testing for each hazardous waste code contained in the waste stream and the parameters listed in Permit Attachment F, Table F-1, Parameters and Methods for Pre-Acceptance Representative Sample Analysis, as well as applicable analyses presented in Tables F-2, Tests and Analytical Methods for Fingerprint Samples; and Table F-3, Additional Tests and Analytical Methods. Representative samples shall be submitted to an off-site contract analytical laboratory for analysis on a waste stream basis and as required to ensure complete analysis, as specified at Permit Attachment F. Additional parameters not listed on Tables F-2 and F-3 may

also be selected. The Permittee shall assess the resulting data as required at Permit Condition 2.6.3.a.2.

#### **2.6.2.b Fingerprint Sampling and Analysis**

Fingerprint sampling and analysis shall be performed upon acceptance of each waste stream shipment prior to disposal, as specified in Permit Attachment F, Section 1.4.3.a, Fingerprint Test Procedures, and Section 1.5.4, Fingerprint Analysis. All waste, except for debris waste (which is subject to visual inspections as specified at Permit Attachment F, Section 1.4.2), is subject to fingerprint sampling and analysis upon waste acceptance. Fingerprint analyses shall include, at a minimum, the parameters listed in Permit Attachment F, Table F-2, and shall be sampled and analyzed following protocols and analytical frequencies specified in Permit Attachment F, Section 1.4.3.a. Reduction in fingerprint sampling and analysis frequency shall occur in accordance with waiver provisions presented in Permit Attachment F, Section 1.4.3.a, or through Permit modification in accordance with Permit Condition 1.7.2. If discrepancies between fingerprint analysis and waste stream characterization information exist upon completion of discrepancy resolution as presented in Permit Attachment F, Section 1.4.4.a, 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.

#### **2.6.2.c First Five Shipments and 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 2.6.2.a. In addition, the Permittee shall sample the initial five shipments of each incoming waste stream from each generator and compare the results with generator supplied data to ensure that there are no discrepancies between the waste received and information supplied by the generator in accordance with Permit Attachment F, and annually thereafter, as specified at Permit Attachment F, Section 1.5.3, First Five Shipments and Annual Analysis. The annual analysis shall include, at a minimum, the parameters presented in Permit Attachment F, Table F-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 such changes in the waste stream that would require the hazardous waste code assignment and/or LDR determination to be modified, a new Waste Profile Form shall be requested of the generator. The annual analysis shall be conducted as part of the Facility quality assurance program, as specified at Permit Attachment F, Section 1.4.3.b, Annual Analysis Procedure.

#### **2.6.2.d Additional Sampling and Analysis**

Additional sampling and analysis shall be performed to assess chemical characteristics of wastes in the Landfill as presented in Permit Attachment F, Section 1.5.5, Additional Analysis for the

Landfill. Sampling and analysis required for the Landfill includes, but is not limited, to the following:

Waste analysis for wastes to be landfilled is specified in Attachment F, Section 1.5.5.b. All waste placed into the Landfill shall undergo pre-acceptance representative sample analysis as specified at Permit Condition 2.6.2.a. In addition to the fingerprint analysis performed on all incoming waste as required in Permit Condition 2.6.2.b and the analysis of initial five shipments of each incoming waste stream from each generator as required in Permit Condition 2.6.2.c, a minimum of 10 percent of incoming wastes shall be randomly sampled to verify conformance with LDR requirements, as specified in Permit Attachment F, Section 1.5.5.b.

#### **2.6.2.e Waste Analysis Requirements for Waste Generated On-Site**

The Permittee shall comply with the waste analysis requirements for waste generated on-site specified in Permit Attachment F, Section 1.5.6.

#### **2.6.2.f Compatibility Analysis**

The Permittee shall include a compatibility determination on all pre-acceptance representative sample analyses, initial five shipment analyses, annual analyses, and additional sampling analyses conducted as required in Permit Conditions 2.6.2.a, 2.6.2.c, and 2.6.2.d, and at Permit Attachment F1 to ensure that potentially incompatible waste are not disposed of in the same location.

### **2.6.3 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 1.2, Criteria for Waste Management at the Facility. These criteria include characterization to acquire all information that must be known to properly dispose of the waste as required by 40 CFR§ 264 and 40 CFR § 268.

#### **2.6.3.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 1.3 and 1.4, and Permit Attachment N, Section 3, Operations.

##### **2.6.3.a.1 Waste Profile Form**

The Permittee shall use the Waste Profile Form included in 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 in Permit Attachment F, Section 1.3.1, 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 any existing waste stream that has been modified.

The Permittee shall evaluate information provided by the generator as specified in Permit Attachment F, Section 1.3, Pre-Acceptance Procedures for Off-Site Waste, and Permit Attachment F, Section 1.3.2, Paperwork Evaluation. The Permittee shall provide acceptable knowledge evaluation criteria prior to waste acceptance to ensure that consistent evaluations are performed when using acceptable knowledge information.

Any revision of the Waste Profile Form included in Permit Attachment F2 and associated characterization information shall be accomplished through a Permit modification.

#### **2.6.3.a.2 Representative Sample Evaluation**

Following Permittee's 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 an off-site laboratory, other than the laboratory used by the generator, for analysis.. The Permittee shall assess the sample data with respect to the Waste Profile Form and characterization information, as specified in Permit Attachment F, Section 1.3.3.

Discrepancy analysis shall include, but not be limited to, items listed in Permit Attachment F, Section 1.3.3.a, 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 in Permit Attachment F, Section 1.3.3.a, and must address the discrepant information in accordance with Permit Attachment F, Section 1.3.3.a, Major Discrepancies, and Section 1.3.3.b, 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 in Permit Attachment F, Section 1.3.3.c, Additional Waste Acceptance Conditions, are appropriately addressed.

#### **2.6.3.b Incoming Waste Acceptance**

Incoming waste shipments shall be evaluated in accordance with Permit Attachment F, Section 1.4, Procedures for Incoming Waste Acceptance. 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 disposal, and the waste will either be returned to the sender or disposed at an appropriate 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 in 40 CFR § 268.7.

#### **2.6.3.c Other Waste Management Requirements**

The Permittee shall ensure that all waste analyses, reports, documentation, notifications, and certifications required under 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.

#### **2.6.3.d Waste Acceptance from Foreign Generators**

The Permittee shall only accept hazardous waste from foreign generators in accordance with Permit Attachment F4, Waste Characterization Using Acceptable Knowledge, and Permit Attachment F, Section 1.7.4, Laboratory Requirements for Foreign Generators, as required in part by the Final Order from the Secretary dated March 18, 2002, through the authority granted in 40 CFR 270.32(b)(2). All hazardous waste from foreign generators must also meet the requirements for off-site generators, as found in Permit Attachment F, Sections 1.3 and 1.4 and Permit Attachment N, Section 3, Operations]. The Permittee must notify the NMED in writing at least four weeks in advance of the date the waste is expected to arrive at the Facility as required by 40 CFR § 264.12(a)(1). In addition, the Permittee must mail a copy of the import consent documentation that confirms EPA's consent for that import along with a copy of the RCRA manifest to EPA as specified in 40 CFR § 264.71(a)(3).

#### **2.6.4 Sampling Plan**

The Permittee shall follow the Sampling Plan specified in Permit Attachment F, Section 1.6, Sampling Plan. Modifications to this Sampling Plan are expected to be necessary, and revised sampling methods shall be EPA-approved methodologies included in SW-846. If alternative methods are selected, the Permittee must include these methods in a Permit modification, with full method description and justification, for the NMED's approval. No alternative methods may be utilized without a Permit modification submitted pursuant to 40 CFR § 270.42. Additionally, sampling quality assurance/quality control (QA/QC) shall be included as a Quality Assurance Project Plan (QAPP) in the modification and shall include the requirements specified in Permit Attachment F, Section 1.6.5, Sampling QA/QC, and additional requirements specified in the guidance document Guidance for Quality Assurance Project Plans, EPA QA/G-5 (the most current guidance). All necessary example forms shall be included in the modification. The modification may also include changes to the individual sampling and analysis protocols specific to individual waste streams presented in Attachment F, Section 1.6, which identify the fingerprint analysis to be used and sampling and analytical requirements prior to acceptance of an individual waste stream, as specified in Permit Attachment F, Section 1.3.4, Notification and Approval of Waste Shipment.

#### **2.6.5 Laboratory Quality Assurance/Quality Control Plan**

The Permittee shall follow the Laboratory Quality Assurance/Quality Control (QA/QC) Plan described in Permit Attachment F, Section 1.7.2, Facility Laboratory QA/QC Plan.

## **2.6.6 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 in Permit Attachment F, Section 1.3.4, Notification and Approval of Waste Shipment.

## **2.6.7 Quality Assurance Objectives**

The Permittee shall review, validate, and verify all analytical data; reconcile analytical results with quality assurance objectives; satisfy data reporting requirements; and identify, document, and report all non-conformances and operational variances.

## **2.6.8 Quality Control Checks**

The Permittee shall take additional samples as quality control checks as specified in Permit Attachment F, Section 1.7.2.c, Laboratory QA/QC Samples. Upon request, the Permittee shall split samples with NMED.

## **2.6.9 Disposal of Laboratory Samples**

The Permittee shall dispose of on-site laboratory samples with compatible waste batches.

## **2.6.10 Contract Laboratory Requirements**

The Permittee shall inform each contract laboratory in writing that it shall operate under the waste analysis conditions set forth in Permit Attachment F, Section 1.7.3, Requirements for Off-Site Laboratories.

## **2.7 Security**

The Permittee shall comply with the security provisions specified in Permit Attachment B, Section 1.1, Security Procedures to Prevent Hazards. [40 CFR § 264.14]

### **2.7.1 Means to Control Entry**

Access to the Facility shall be only through a controlled access point that is manned by security guards, as specified in Permit Attachment B, Section 1.1.1, Barrier and Means to Control Entrance. [40 CFR § 264.14(b)(2)(ii)]

### **2.7.2 Barriers**

In order to prevent unknowing entry and minimize the possibility for unauthorized entry of persons, livestock, or wildlife which may enter the active portion of the Facility, the Permittee shall maintain a six-foot high chain-link fence topped with barbed wire around the active portion

of the Facility as specified in Permit Attachment B, Section 1.1.1, Barrier and Means to Control Entrance. [40 CFR § 264.14(b)(2)(i)]

### **2.7.3 Warning Signs**

Warning signs in English and Spanish stating, for example, "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 in Permit Attachment B, Section 1.1.2, 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 in sufficient numbers to be seen from any approach. [40 CFR § 264.14(c)]

## **2.8 General Inspection Requirements**

The Permittee shall keep Permit Attachments D, Inspection Procedures, and D1, Inspection Schedules and Checklists, at the Facility until final closure of the Facility is initiated.

### **2.8.1 Inspection Frequencies**

#### **2.8.1.a Inspection Schedules**

The Permittee shall implement the Inspection Schedules contained in Permit Attachment D1, Inspection Schedules and Checklists. [40 CFR § 264.15(b)]

#### **2.8.1.b Additional Inspection Requirements**

The Permittee shall inspect areas subject to spills, such as loading and unloading areas, daily when in use. [40 CFR § 264.15(b)(4)]

#### **2.8.1.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 to detect any malfunctions and deterioration, operator errors, and discharges, as specified in Permit Attachment D, Section 1.5, Safety and Emergency Response Equipment Inspection Procedures, and as required by 40 CFR § 264.33, in order to assure proper operation in time of emergency.

The Permittee shall develop inspection forms for each unit that address the emergency equipment stored at that unit. The inspection forms shall indicate the frequency of inspections, including the time and date of inspections, and shall be signed by the inspector. The Permittee shall submit the forms to the NMED for approval 30 days prior to the initial acceptance of waste in accordance with Permit Condition 1.14.

After approval by the NMED, the forms will be placed in Permit Attachment D1.

### **2.8.1.d Inspection Logs and Checklists**

The Permittee shall use the inspection logs or checklists contained in Permit Attachment D1 as specified in Permit Section 2.8.1.c. 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 40 CFR § 264.15(b).

### **2.8.2 Remedial Action**

The Permittee shall remedy any deterioration or malfunction of equipment or structures that an inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard, as specified in Permit Attachment D, Section 1.1.2, Remedial Action and as required by 40 CFR § 264.15(c). When the hazard is imminent or has already occurred, the Permittee shall take remedial action immediately.

### **2.8.3 Recordkeeping - Inspection Logs**

The Permittee shall keep a copy of Permit Attachment D at the Facility, and shall maintain all inspection logs in the Operating Record required under Permit Condition 2.13.1.a. Inspection logs shall be retained for a period of at least three years from the date of inspection, in accordance with 40 CFR §§ 264.15(d) and 264.73(b)(5).

## **2.9 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 in Permit Attachment E, Section 1, Personnel Training Program and as required by 40 CFR §§ 270.14(b)(12) and 40 CFR § 264.16.

### **2.9.1 Personnel Training Requirements**

As specified at Permit Attachment E and Attachment F, Section 1.6.5.a, Training Requirements for Personnel Responsible for Sample Collection and as required by 40 CFR § 264.16, the Permittee shall provide appropriate and adequate training to all persons involved in the management of hazardous waste in procedures relevant to the positions in which they are employed.

#### **2.9.1.a Personnel Training Procedures**

The Personnel Training Program shall include the material and procedures outlined in Permit Attachment E, Section 1.2, Training Content and Frequency, and otherwise comply with the requirements of 40 CFR § 264.16(a)(3).

The Permittee shall ensure that Facility personnel successfully complete the Personnel Training Program within six months after their start of employment at the Facility, and after their assignment to a new position at the Facility. Employees shall not work in unsupervised positions

until they have successfully completed the training requirements for their positions, as required by 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 40 CFR § 264.16(c).

### **2.9.1.b Recordkeeping - Personnel Training Documents and Records**

The Permittee shall maintain training documents and personnel training records, as specified in Permit Attachment E, Section 1.3, Record Keeping, and as required by 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 40 CFR § 264.16(e).

## **2.10 Special Provisions for Ignitable, Reactive, or Incompatible Waste**

### **2.10.1 Precautions**

The Permittee shall manage ignitable, reactive, or incompatible wastes as specified in Permit Attachment B, Section 1.5, Precautions to Prevent Ignition or Reaction of Ignitable, Reactive, or Incompatible Wastes, and shall otherwise comply with the requirements of 40 CFR § 264.17(a) and (b).

### **2.10.2 Recordkeeping – Precautions for Ignitable, Reactive, or Incompatible Waste**

The Permittee shall document compliance with Permit Condition 2.10.1 in the Operating Record, in accordance with Permit Condition 2.13.1.a, and as required by 40 CFR § 264.73(b)(3).

## **2.11 Preparedness and Prevention**

The Permittee shall maintain Permit Attachment B, Procedures to Prevent Hazards, at the Facility until the final completion of closure has been approved by the NMED.

### **2.11.1 Required Equipment**

At a minimum, the Permittee shall maintain at the Facility the equipment identified in Permit Attachment C1, Emergency Equipment, as required by 40 CFR § 264.32.

### **2.11.2 Testing and Maintenance of Equipment**

The Permittee shall inspect the monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment identified in Permit Attachment C1 to detect any malfunctions and deterioration, operator errors, and discharges, as specified in Permit Attachment D, Section 1.5, Safety and Emergency Response Equipment Inspection Procedures, and as required by 40 CFR § 264.33, in order to assure proper operation in time of emergency.

### **2.11.3 Access to Communications or Alarm System**

The Permittee shall provide immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee during operations as specified in 40 CFR § 264.34 and Permit Attachment B, Section 1.3, Preparedness and Prevention Procedures.

### **2.11.4 Roadways**

The Permittee shall maintain roadways within the Facility as specified in Permit Attachment L, Section 2.1.3, Facility Traffic Plan, to allow for the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in an emergency.

### **2.11.5 Agreements with Local Authorities**

The Permittee shall maintain preparedness and prevention agreements with, at a minimum, State and local authorities, contractors, and other governmental agencies, as specified at Permit Attachment C, Sections 1.3.1.a, Life-Threatening Situations, and 1.3.4, Off Site Notification and Evacuation Criteria, and as required by 40 CFR §§ 264.37(a) and 264.52(c). The Permittee shall keep such agreements in the Facility Operating Record and at appropriate locations at the Facility.

### **2.11.6 Notification of Arrangements with Local Authorities**

The Permittee shall submit signed copies of the preparedness and prevention arrangements with local authorities listed at Permit Attachment C3, Coordinating Agreements, or documentation of refusal to enter into preparedness and prevention arrangements, to the NMED 30 days prior to initiation of operations at the Facility in accordance with Permit Condition 1.14 and 40 CFR § 264.37(b).

If a local authority with which the Permittee has an agreement terminates the agreement, the Permittee shall document the termination in the Operating Record, as required by 40 CFR § 264.37(b). The Permittee shall provide a copy of this documentation and alternative emergency response arrangements to the NMED within 15 days after the termination.

### **2.11.7 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 NMED.

### **2.11.8 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 NMED.

### **2.11.9 Spill Response**

The Permittees shall ensure that spills of hazardous wastes, including small localized spills that can be managed without the assistance of emergency management personnel, are managed utilizing, at a minimum, the following procedures:

- i. isolate the immediate area and deny entry to all unauthorized personnel;
- ii. identify the spilled materials, to the extent possible
- iii. contain the spill with appropriate equipment (*e.g.*, spreading sorbents, forming temporary dikes);
- iv. define the nature and extent of the spilled waste;
- v. package the spilled waste and contaminated materials in appropriate containers; and
- vi. decontaminate the area, all clean-up equipment, and personnel.

## **2.12 Contingency Plan**

### **2.12.1 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 40 CFR § 264.51(b). The Permittee shall notify NMED within 24 hours of implementing the Contingency Plan.

If the Permittee implements the Contingency Plan as a result of a spill or release to the environment and after 30 days the Permittee has not been able to remove all contaminated soil or water to appropriate action levels, the Permittee shall comply with the requirements of either Permit Part 6 and 7, as appropriate.

### **2.12.2 Copies of the Contingency Plan**

The Permittee shall maintain copies of the Contingency Plan and all correlated revisions and amendments at all locations where documents are maintained throughout the Facility until the completion of closure for the Facility is approved by the NMED. The Permittee shall also submit a copy of the Contingency Plan and all correlated revisions and amendments to all federal, State, and local entities that may be called upon to provide emergency services or with which the Permittee has entered into a preparedness and prevention agreements, as required by 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.

### **2.12.3 Amendments to the Contingency Plan**

The Permittee shall regularly review and immediately amend, if necessary, the Contingency Plan upon Facility certification as required by 40 CFR § 264.54. The Permittee shall submit all revisions and amendments to the Plan to the NMED through a Permit modification before implementation of such revisions and amendments pursuant to 40 CFR § 270.42.

### **2.12.4 Emergency Coordinator**

A trained Emergency Coordinator (EC) or an alternate EC, as identified at Permit Attachment C, Section 1.1, General Responsibilities of the Emergency Coordinator, shall be available 24 hours a day, seven days a week, in case of an emergency. The EC and 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 40 CFR § 264.55.

In the event of an imminent or actual emergency, the EC shall implement the emergency procedures specified at 40 CFR § 264.56.

### **2.12.5 Updated Contingency Plan**

The Permittee shall submit an updated Contingency Plan to the NMED for approval at the time of Facility certification, as specified at Permit Attachment C, Contingency Plan, and in accordance with Permit Condition 1.14. The updated Contingency Plan shall include, at a minimum, the following:

#### **2.12.5.a List of Emergency Coordinators**

The Permittee shall submit to the NMED a list of the names, addresses, and phone numbers of all persons designated to act as ECs no less than 15 days prior to initiation of operations in accordance with Permit Condition 1.14, and as required by 40 CFR § 264.52(d).

This list of ECs shall be inserted into this Permit at Permit Attachment C2, Emergency Coordinators.

The Permittee shall inform the NMED in writing of changes to the list of emergency coordinators and telephone numbers within 15 days from the date of the changes, as required by 40 CFR § 264.52(d);

#### **2.12.5.b Emergency Response Team Members**

The Permittee shall submit to the NMED 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, Section 1.4.6, Prevention of Undue Exposure of Personnel to Hazardous Waste. This list shall be provided to the NMED 15 days prior to initiation of operations at the site;

### **2.12.5.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 40 CFR § 264.52(f). The Plan shall be provided to the NMED 15 days prior to initiation of operations at the site. This plan shall be inserted at Permit Attachment C4, Evacuation Plans.

### **2.12.5.d Decontamination of Personnel and Equipment**

The Permittee shall include in the updated Contingency Plan a description of procedures that address the decontamination of personnel and equipment during and after an emergency. The procedure shall address the establishment of a personnel decontamination zone, removal of PPE, and procedures used to ensure that contaminants are not spread, as specified in Permit Attachment C, Section 1.3.8, Equipment and Personnel Decontamination.

### **2.12.6 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 NMED within 5 days, as specified in Permit Section 1.10.9.c (24Hour and Subsequent Reporting), Permit Attachment C, Section 1.4.2, Required Reports and Notification, and as required by 40 CFR § 264.56(j).

## **2.13 Recordkeeping and Reporting**

### **2.13.1 Recordkeeping Requirements**

The Permittee shall maintain at the Facility all the records, data, certifications, and other information listed in Table 2-2, Recordkeeping Requirements. Records kept shall include, but are not limited to, the following:

#### **2.13.1.a Operating Record**

The Permittee shall maintain a written operating record at the Facility as required by Permit Attachment N, Section 3.4.1, Records and 40 CFR § 264.73. The operating record shall include all information required in 40 CFR § 264.73(b). Information placed in the operating record shall be kept until final closure of the Facility is approved by the NMED, except as noted elsewhere in this Permit;

### **2.13.1.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), for, and will accept, the waste the generator is shipping, as required by 40 CFR § 264.12(b);

### **2.13.1.c Generator Notifications and Certifications**

The Permittee shall keep copies of the notices, certifications and demonstrations, if applicable, required by the generator or the Permittee, as required by 40 CFR §§ 264.73(b)(11) through (b)(16);

### **2.13.1.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 40 CFR § 264.71(b)(5);

### **2.13.1.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 40 CFR § 264.73(b)(3) and 40 CFR § 268.7;

### **2.13.1.f 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 in Permit Attachment F, Section 1.8, Waste Tracking, and maintained in the Operating Record or at another location approved by the NMED until completion of post-closure care has been approved by the NMED, as required by 40 CFR § 264.73(b)(1).

The information to be maintained shall describe the waste, the hazard characteristics, the basis for hazard designation, the date deposited in 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 disposal at the Facility, as required by 40 CFR § 264, Appendix I;

### **2.13.1.g Waste Minimization Program**

Annually, by December 1 for the previous year ending September 30, the Permittee shall enter into the Operating Record a certified statement specifying that the Permittee has a program in place, in accordance with Permit Condition 2.14, 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 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 40 CFR § 264.73(b)(9).

A current description of the program shall also be maintained in the Operating Record;

### **2.13.1.h Monitoring Records**

#### **2.13.1.h.1 Monitoring Information**

The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or other 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 40 CFR § 270.30(j)(2). This period may be extended by the NMED at any time.

The Permittee shall retain records in the operating record for the Landfill Leachate Collection and Removal System (LCRS), Leak Detection and Removal System (LDRS), and Vadoze Zone Monitoring System (VZMS), required by Permit Part 3.7.2, until the completion of post-closure care for the Landfill is approved by the NMED. These records shall be retained until the completion of post-closure care of the Landfill is approved by the NMED.

#### **2.13.1.h.2 Record Information**

Records for monitoring information shall include, as required by 40 CFR § 270.30(j)(3):

- i. the date, exact place, and time of sampling or measurements;
- ii. the individual(s) who perform the sampling or measurements;
- iii. the date(s) analyses are performed;
- iv. the individual(s) who perform the analyses;
- v. the sample collection procedures and analytical techniques or methods used; and
- vi. the result of such analyses.

#### **2.13.1.i Corrective Action Records**

For a unit undergoing corrective action under Permit Part 7 and 40 CFR § 264.101, the Permittee shall retain, until completion of the corrective action has been approved by the NMED, records of all monitoring information (40 CFR § 270.31(b)), 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 40 CFR § 270.30(j)(2), and 40 CFR § 270.32(b), requiring terms and conditions necessary to protect human health and the environment.

### **2.13.1.j Grid Map**

The Permittee shall maintain in the Operating Record until closure of the Facility a grid map of the Landfill that includes the location and quantity of the waste placed in the Landfill and identifies the waste by manifest document number if the waste is accompanied by a manifest, in accordance with Permit Conditions 3.8.1.a and as required by 40 CFR § 264.73(b)(2) and 40 CFR § 264.309;

### **2.13.1.k 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 40 CFR § 270.30(j)(2). The NMED may extend this period at any time.

## **2.13.2 Reporting Requirements**

.In addition to the documents, certifications, and other information required under Permit Condition 1.14 before the initiation of operations at the Facility, the Permittee shall submit to the NMED all the reports, documents, certifications, notifications, and other submittals required in Table 2-3, Reporting/Notification/Certification Requirements, as applicable during the operating life and closure and post-closure care periods of the Facility

### **2.13.2.a Biennial Report**

The Permittee shall submit to the NMED a single copy of a biennial report by March 1 of each even-numbered year. The biennial report shall include the information required in 40 CFR § 264.75, including a copy of the annual certified statement as required by 40 CFR § 264.73.(b)(9) regarding the Waste Minimization Program required in Permit Condition 2.14, and shall be submitted on EPA form 8700-13B.

### **2.13.2.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 NMED. The reports shall be due February 28, May 31, August 31, and November 30 of each calendar year for the preceding quarter. The report shall provide an update on activities carried out during the reporting period, including:

- i. quantities of hazardous wastes disposed in the Landfill (including waste generated on-site) by EPA Hazardous Waste Number;
- ii. a discussion of spills and releases which have occurred during the reporting period, and subsequent actions taken;
- iii. any variances or discrepancies from this Permit;

- iv. monitoring results, as required by 40 CFR § 270.30(1)(4) and 40 CFR § 270.31(c);  
and
- v. a summary of operation and maintenance activities for the VZMS, in accordance with Permit Condition 4.7, and for the LCRS and LDRS.

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.

#### **2.13.2.c Waste Minimization Program Certification**

The Permittee shall prepare an annual certified statement regarding the Waste Minimization Program required at Permit Condition 2.14 and submit it to the NMED by March 1 of each even numbered year for the activities during previous two years ending December 31, as required by 40 CFR § 264.75.or § 264.73(b)(9).

#### **2.14 Waste Minimization Program**

The Permittee shall institute a program, as specified at Permit Attachment A, Section 4, 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:

- i. any written policy or statement that outlines goals, objectives, and/or methods for source reduction and recycling of hazardous waste at the Facility;
- ii. any employee training or incentive program designed to identify and implement source reduction and recycling opportunities;
- iii. any source reduction and/or recycling measures implemented in the last five years or planned for the near future;
- iv. itemized lists of the dollar amounts of capital expenditure (plant and equipment) and operating costs devoted to source reduction and recycling of hazardous waste;
- v. factors that have prevented of source reduction and/or recycling;
- vi. investigations of additional waste minimization efforts which could be implemented at the Facility. The investigations should analyze the potential for reducing the quantity and toxicity of each waste stream through recycling and all other appropriate means. The analyses should include assessments of the technical feasibility, cost, and potential waste reduction for each option;
- vii. a flow chart or matrix detailing all hazardous wastes produced by quantity, type, and building or area;

- viii. demonstrations 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;
- ix. 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
- x. a description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years.

## **2.15 Transportation of Hazardous Waste**

### **2.15.1 Transportation of Hazardous Waste to the Facility**

#### **2.15.1.a Manifest Requirements**

The Permittee shall comply with the manifest requirements of 40 CFR § 264.71.

#### **2.15.1.b Manifest Discrepancies**

Upon discovering a significant discrepancy, as identified at Permit Attachment F, Section 1.3, Pre-Acceptance Procedures for Off-Site Waste, and in 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 15 days after receiving the waste, the Permittee shall immediately submit to the NMED a letter describing the discrepancy, attempts to resolve the discrepancy, and a copy of the manifest at issue, as required by 40 CFR § 264.72(c).

#### **2.15.1.c Unmanifested Waste Report**

If the Permittee accepts for 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 40 CFR § 261.5, then the Permittee shall prepare and submit to the NMED an unmanifested waste report within 15 days after receipt of the waste. The unmanifested waste report shall contain the information required at 40 CFR § 264.76(a).

### **2.15.2 Transportation of Hazardous Waste On-Site at the Facility**

#### **2.15.2.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).

## **2.15.2.b Dust Control Procedures**

### **2.15.2.b.1 Dust Suppression**

The Permittee shall not use waste, used oil or produced water 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 40 CFR § 266.23(b).

### **2.15.2.b.2 Other Dust Control Procedures**

The Permittee shall apply the dust control procedures specified at Permit Attachment A, Section 2.2.1.g, Wind Dispersal Control Procedures, to control the dust generated by the vehicles carrying hazardous waste at the Facility.

## **2.15.3 Decontamination of Equipment and Vehicles**

The Permittee shall ensure that any vehicles or equipment 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. Wash water generated from truck or equipment decontamination shall be collected, tested, treated, and disposed as specified at Permit Attachment F, Section 1.5.6, Waste Analysis Requirements for Waste Generated On-Site.

## **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 5 and 40 CFR § 264.110 through 40 CFR § 264.116.

## **2.17 General Post-Closure Care Requirements**

The Permittee shall conduct post-closure care for the Landfill, as specified at Permit Attachment P, Post-Closure Care Plan; and as required by Permit Part 5 and 40 CFR § 264.117 through 40 CFR § 264.120.

## **2.18 Liability Coverage**

### **2.18.1 Sudden Accidental Coverage**

#### **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 40 CFR § 264.147(a).

### **2.18.1.b Documentation of Liability Coverage for Sudden Accidental Occurrences**

The Permittee shall demonstrate to the NMED, for approval, continuous compliance with the liability coverage required under Permit Condition 2.18.1.a, in accordance with Permit Condition 1.14, at least 60 days prior to receiving any hazardous waste for disposal at the Facility, as required by 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 40 CFR § 264.147(b).

#### **2.18.2.b Documentation of Liability Coverage for Nonsudden Accidental Occurrences**

The Permittee shall demonstrate to the NMED, for approval, continuous compliance with the liability coverage required under Permit Condition 2.18.2.a, at least 60 days before receiving any hazardous waste at the Facility, in accordance with Permit Condition 1.14. The liability coverage shall be as required in 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 1.14.

### **2.19 Financial Incapacity of Owners or Operators, Guarantors, or Financial Institution**

#### **2.19.1 Bankruptcy**

Pursuant to 40 CFR § 264.148(a), the Permittee must notify the NMED by certified mail of the commencement of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming the Permittee as debtor, within 10 days after commencement of the proceeding. A guarantor of a corporate guarantee as specified in 40 CFR § 264.143(f) and 40 CFR § 264.145(f) must make such a notification if he is named as debtor, as required under the terms of the corporate guarantee.

#### **2.19.2 Other Financial Assurance**

If the Permittee fulfills the requirements of 40 CFR § 264.143, 40 CFR § 264.145, or 40 CFR § 264.147 by obtaining a trust fund, surety bond, letter of credit, or insurance policy, the Permittee will be deemed to be without the required financial assurance or liability coverage in the event of

bankruptcy of the trustee or issuing institution, or a suspension or revocation of the authority of the trustee institution to act as trustee or of the institution issuing the surety bond, letter of credit, or insurance policy to issue such instruments. The Permittee must establish other financial assurance or liability coverage within 60 days after such an event, as required by 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 40 CFR Part 264, Subpart H, and Permit Condition 5.4.

**Table 2-1  
Permitted Hazardous Wastes**

<b>D Codes<sup>1</sup></b>	<b>F Codes<sup>2</sup></b>	<b>K Codes<sup>3</sup></b>	<b>P Codes<sup>4</sup></b>	<b>U Codes<sup>5</sup></b>
D001 –Ignitability	F001-F012	K001-K011	P001-P018	U001-U012
D002 –Corrosivity	F019	K013-K052	P020-P024	U014-U039
D003 –Reactivity	F024-F025	K060-K062	P026-P031	U041-U053
D004-D043	F028	K064-K066	P33-P034	U055-U064
	F032	K069	P036-P051	U066-U099
	F034-F035	K071	P054	U101-U103
	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

- 1 D-coded wastes must meet LDR treatment standards prior to waste acceptance.
- 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 Coded wastes identified as toxic wastes.

**Table 2-2  
 Record Keeping Requirements**

PERMIT PART NUMBER	PERMIT CONDITION
1.13.1	Documents to be Maintained until Completion of Closure
1.13.2	Documents to be Maintained until Completion of Post-Closure Care
2.6.1	General Waste Analysis Requirements
2.6.3.a.2	Representative Sample Evaluation
2.6.6	Individual Sampling and Analysis Protocols
2.8.3	Recordkeeping – Inspection Logs
2.9.1.b	Recordkeeping – Personnel Training Documents and Records
2.10.2	Recordkeeping – Precautions for Ignitable, Reactive, or Incompatible Waste
2.11.5	Arrangements with Local Authorities
2.12.2	Copies of the Contingency Plan
2.12.6	Reporting and Recordkeeping – Contingency Plan Implementation
2.13.1	Recordkeeping Requirements
2.13.1.a	Operating Record
2.13.1.b	Facility Notification to Off-Site Generators
2.13.1.c	Generator Notifications and Certifications
2.13.1.d	Manifest Records
2.13.1.e	Waste Analysis for Waste Acceptance
2.13.1.f	Waste Stream Tracking
2.13.1.g	Waste Minimization Program

PERMIT PART NUMBER	PERMIT CONDITION
2.13.1.h.i	Monitoring information
2.13.1.i	Corrective Action Records
2.13.1.j	Grid Map
2.13.1.k	Other Records
3.8.1	Recordkeeping Requirements
3.8.1.a	Grid "Cell" Location
3.8.1.b	Inspection Logs
3.8.1.c	LDRS, LCRS, and VZMS Monitoring Data
4.3.4	Well Surveys
4.3.6	Continuous Core
4.3.9	Well Completion Logs
4.4.2	Leachates
4.5.10	Sampling Record
4.8.1	Recordkeeping
5.2.7.a	Sampling Records
5.2.8.d	Landfill VZMS Monitoring
5.4.1.d	Recordkeeping – Cost Estimates for Closure and Post-Closure Care
6.6	Recordkeeping for Corrective Action at HWMU
7.17	Recordkeeping for Corrective Action at SWMUs

**Table 2-3**  
**Reporting/Certification/Notification Requirements**

PERMIT PART NUMBER	PERMIT CONDITION
1.7.5	Permit Re-Application
1.7.7	Transfer of Permit
1.10.5	Duty to Provide Information
1.10.6	Disclosure Statement
1.10.9.a	Reporting Planned Changes
1.10.9.b	Reporting Anticipated Noncompliance
1.10.9.c	Twenty-Four Hour and Subsequent Reporting
1.10.9.c.1	Oral Report
1.10.9.c.2	Written Submission
1.10.9.d	Written Report of a Non-threatening Release
1.10.9.e	Contingency Plan Implementation
1.10.9.f	Other Noncompliance
1.10.9.g	Omissions or Misstatements in Applications or Other Reports
1.12.4.a	Submittal of Construction Certification and As-Built Specifications
2.4.2	Notification of Receiving Waste from a Foreign Source
2.11.6	Notification of Agreements with Local Authorities
2.12.1	Implementation of Contingency Plan
2.12.2	Copies of the Contingency Plan
2.12.3	Amendments to the Contingency Plan
2.12.5	Updated Contingency Plan

PERMIT PART NUMBER	PERMIT CONDITION
2.12.5.a	List of Emergency Coordinators
2.12.5.b	Emergency Response Team Members
2.12.5.c	Evacuation Plan
2.12.5.d	Decontamination of Personnel and Equipment
2.12.6	Reporting and Recordkeeping – Contingency Plan Implementation
2.13.2	Reporting Requirements
2.13.2.a	Biennial Report
2.13.2.b	Quarterly Report
2.13.2.c	Waste Minimization Program Certification
2.15.1.b	Manifest Discrepancies
2.15.1.c	Unmanifested Waste Report
2.18	Liability Coverage
2.19	Financial Incapacity
3.3.1.f	Landfill South Access Ramp Construction Notification
3.3.1.g.1	Landfill Stormwater Collection Basin Construction and Removal
3.3.1.g.2	Landfill Contaminated Water Collection Basin Construction and Removal
3.8.2.a	Waste Identification and Location within the Landfill
3.8.2.c	Response Actions
4.2.2	Duty to Initiate Corrective Action
4.2.3	Duty to Remove Non-Leachates
4.3.1	VZMS Construction and Locations
4.4.1.a	Time-Frame for Establishment of a Non-Leachate Indicator Parameter List and Baseline Concentrations

PERMIT PART NUMBER	PERMIT CONDITION
4.4.1.b	Reporting – Baseline Values for Non-Leachates
4.4.1.c	Additional Non-Leachates
4.4.2.a	Monthly Sampling
4.4.2.b	Biennial Sampling
4.6	Release Assessment
4.7	VZMS Maintenance
4.8.2.a	First Quarterly Report
4.8.2.b	Quarterly Reports
4.8.2.c	Biennial Report
4.8.2.d	Special Reports
5.2.2.b	Modification Prior to Closure
5.2.3.a	Notification of Closure
5.2.5	Closure Certification
5.2.6	Survey Plat
5.2.7.a	Sampling Records
5.2.7.b	Quarterly Reports
5.2.7.c	Final Closure Report
5.2.8.b	Permit Modification of the Closure Plan
5.3.2	Post-Closure Care Plan Modification
5.3.2.a	Amendment when necessary
5.3.7	Annual Reports
5.3.8	Certification of Post-Closure Care Completion

PERMIT PART NUMBER	PERMIT CONDITION
5.3.10.a	Post-Closure Notices, Hazardous Waste Records
5.3.10.b.1	Record of Notation
5.3.10.b.2	Certification of Deed Notification
5.3.11	Removal of Hazardous Materials
5.4.1.a	Latest Closure Cost Estimates
5.4.2	Financial Assurance
6.4.1	Notification of Release
6.4.3.a	Immediate Response Action Report
6.4.3.b	Response Action Effectiveness Report
6.4.4	Independent Assessment
6.4.6	Monthly Corrective Action Progress Report
6.4.7	Regulated Unit Investigation Work Plan
7.2.2	Newly Identified SWMUs and AOCs
7.3.2.a	Background Soil Concentrations Work Plan
7.7.1	Notification of Newly Discovered SWMUs and AOCs
7.7.2	Notification of Release
7.7.3	SWMU Assessment Report
7.8	Notification of Newly Discovered Release
7.10.1	Interim Measures Work Plan
7.10.3	Emergency Interim Measures Notification
7.10.7.b	Interim Measures Final Report
7.11.1	Investigation Work Plan

PERMIT PART NUMBER	PERMIT CONDITION
7.11.2	Investigation Report
7.11.2.a	Quarterly Reports
7.12	Risk Assessment Report
7.13	Corrective Measures Evaluation
7.13.1	Corrective Measures Evaluation Report
7.14.1	Remedy Selection
7.14.2	Financial Assurance for Corrective Action
7.14.3	Permit Modification for Remedy Identification
7.15.1	Corrective Measures Implementation Plan
7.15.4	Progress Reports for Corrective Measures Implementation Plan
7.15.5.a	Remedy Completion Report
7.16	Groundwater Monitoring

## **PART 3: HAZARDOUS WASTE DISPOSAL IN THE LANDFILL**

### **3.1 Highlights**

This Part contains conditions for disposal of hazardous waste in the Landfill at 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 in Permit Attachment L1, Engineering Drawings, Drawing No. 4. Landfill operations and design are discussed in Permit Attachment A, General Facility Description and Information, Section 2.2, Landfill, and Permit Attachment L, Engineering Report, Section 3, Landfill.

This Permit only authorizes Phase 1A of the Landfill, shown in Permit Attachment L1, Engineering Drawings, Drawing No. 8. Phase 1A includes approximately 47 acres (outside dimensions) with a fill area of 35 acres, and a capacity of approximately 553,200 cubic yards.

Phase 1B, Phase 2 and Phase 3 of the Landfill, shown in Permit Attachment L1, Engineering Drawings, Drawing No. 25 or described in Permit Attachment L, Section 3.1.2, Landfill Layout and Phasing, are planned for future development. Reference to the Landfill in this Permit means Phase 1A only. The Landfill Phase 1A is considered one permitted unit. This permit does not authorize Phase 1B, Phase 2 or Phase 3 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 40 CFR, § 268, Subpart D. 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 base, as shown in Permit Attachment L1, Engineering Drawings, Drawing No. 10, to collect runoff from sloped areas. Both basins are considered part of the permitted Landfill unit.

The Landfill liner consists of primary and secondary systems. 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 primary Landfill liner 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 that contains 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 Landfill liner 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 is underlain by 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 in Permit Attachment L1, Engineering Drawings, Drawing No. 17.

Leachate collected in the sumps will be pumped to the Leachate Storage Tank, shown in Permit Attachment L1, Engineering Drawings, Drawing No. 19, prior to being disposed of in the Landfill.

The VZMS also includes 15 vadose zone monitoring wells and two (2) neutron probe access tubes, shown in Permit Attachment I, Vadose Zone Monitoring System Work Plan, Figure No. 2. The wells are located east and west of the Landfill and at locations outside the facility to 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 to monitor for releases migrating as unsaturated flow.

The VZMS is described in Permit Part 4. Corrective Action requirements for leakage from the Landfill to the VZMS are described in Permit Part 6.

### **3.2 General Requirements for the Landfill**

#### **3.2.1 Permitted Disposal in the Landfill**

##### **3.2.1.a Hazardous Waste Disposal**

The Permittee shall dispose of hazardous waste only in the Landfill, as identified in Table 3-1, Permitted Landfill Unit, and as specified in Permit Attachment A, General Facility Description and Information, Section 2.2, Landfill. The volume of hazardous waste that may be disposed in the Landfill is limited to the maximum capacity identified in Table 3-1, and as specified in Permit Attachment A, Section 2.2.1.a, Nature and Quantity of Waste.

### **3.2.1.b Polychlorinated Biphenyls**

The Permittee may dispose of soils with PCB concentrations of less than 50 ppm and bulk PCB-contaminated remediation waste, as defined in 40 CFR § 761.3 and 40 CFR § 761.61(a)(4)(i), in the Landfill.

### **3.2.2 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 40 CFR § 268 Subpart D.

## **3.3 Landfill Construction**

### **3.3.1 Construction Requirements**

The Permittee shall construct the Landfill, including liner systems, water collection basins and ditches, access ramps, and ancillary equipment in compliance with the requirements of 40 CFR § 264.301 and this Permit, and as follows:

#### **3.3.1.a Landfill Excavation**

The Permittee shall excavate and prepare the Landfill floor and subsurface sides as specified in Permit Attachment A, Section 2.2.2.b, Excavation and Preparation of Landfill Bottom and Subsurface Sides, and Permit Attachment L1, Engineering Drawings, Drawings 7 and 8;

#### **3.3.1.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 groundwater, as specified in Permit Attachment A, Section 2.2.1.b, Liner Systems; Attachment L, Section 3.1.3.b; Liner System; Attachment L1, Engineering Drawings, Drawings No. 5 through 12 and 15 through 20; Attachment L2, Specifications for Landfill Liner and Cover System Construction; and Attachment M, Construction Quality Assurance Plan; and as required by 40 CFR § 264.301(c)(1), 40 CFR § 264.301(d)(1), and 40 CFR § 264.301(d)(2).

The Landfill liner systems shall include the following components, from top to bottom:

- i. a two foot layer of protective soil;
- ii. a geocomposite drainage layer;
- iii. a 60-mil HDPE geomembrane liner;
- iv. a geocomposite drainage layer;
- v. a 60-mil HDPE geomembrane liner;

- vi. a geosynthetic clay liner, consisting of at least three feet of compacted clay having a permeability not greater than  $10^7$  cm/sec; and
- vii. six inches of prepared subgrade.

The Permittee shall stage the construction of the Landfill liner as specified in Permit Attachment L, Engineering Report, Section 3.1.5, Waste Filling Sequence.

### **3.3.1.c Leachate Collection and Removal System**

The Permittee shall install and maintain an Leachate Collection and Removal System (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 in Permit Attachment A, Section 2.2.1.c, Leachate Collection and Removal System (LCRS); Attachment L, Section 3.1.3, Subgrade Excavation, Liner System, LCRS, [Leachate Detection and Removal System] LDRS, and Vadose Zone Monitoring System Sump Design, and Section 3.2, Landfill Design Analyses; Attachment L1, Drawings Nos. 12 and 15 through 20; Attachment L2; Attachment M; and as required by 40 CFR § 264.301(c)(2).

The sump, sump piping, slope riser pipes, crest riser pad, and vertical riser shall be constructed as specified in Permit Attachment L, Section 3.1.4 and Section 3.2. The sump and pump shall have the capacity identified in Permit Attachment L, Section 3.1.4, Table L-2, Landfill Sump Arrangement Summary.

### **3.3.1.d Leachate Detection and Removal System**

The Permittee shall install and maintain an 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 in Permit Attachments A, Section 2.2.1.d, Leak Detection and Removal System (LDRS); Attachment L, Sections 3.1.4 and 3.2; L1, Drawings Nos. 12 and 15 through 20; L2; Attachment M; and as required by 40 CFR § 264.301(c)(3). The sump and pump shall have the capacity identified at Permit Attachment L, Section 3.1.3, Table L-2, Landfill Sump Arrangement Summary.

### **3.3.1.e Vadose Zone Monitoring System 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 Attachment A, Section 2.2.1.e, Vadose Zone Monitoring System (VZMS); Attachment L, Sections 3.1.4 and 3.2; Attachment L1, Drawings Nos. 16 through 18; and Attachment M. The sump and pump shall have the capacity identified at Permit Attachment L, Section 3.1.4, Table L-2, Landfill Sump Arrangement Summary.

### **3.3.1.f Access Ramps**

The Permittee shall construct two 30-foot wide, 10 percent grade, access ramps on the east and west sides of the Landfill to the floor surface as specified in Permit Attachment L, Section 2.1.3, Facility Traffic Plan, Section 3.1.2, Landfill Layout and Phasing, Section 3.2, Landfill Design Analyses, and Section 3.2.6, Access Ramp Design; and Permit Attachment L1, Drawings Nos. 10 and 14.

The Permittee shall also construct an access ramp on the south slope, in accordance with Permit Attachment L, Section 3.1.5, Waste Filling Sequence; and as shown in 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 during Phase 1A (e.g., when lining of the south end of the Landfill Phase 1A begins).

The Permittee shall notify the NMED in writing no less than 60 days prior to initiating construction of the south access ramp.

### **3.3.1.g Run-On/Run-Off Controls**

#### **3.3.1.g.1 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 in Permit Attachment A, Section 2.2.1.f, Run-on/Run-off Control; Attachment L, Section 3.1.7, Landfill Clean Storm Water Control Features, and Section 3.2.10, Surface Water Drainage Analyses; Permit Attachment L1, Drawings Nos. 13, 14, and 25; and as required by 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 NMED with 60 days prior written notice if the Stormwater Collection Basin is removed in preparation for the disposal of waste in the southern part of the Landfill during Phase IA of Facility operations.

#### **3.3.1.g.2 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 in Permit Attachment A, Section 2.2.1.f; Attachment L, Section 3.2.10, Surface Water Drainage Analyses; and as shown at Permit Attachment L1, Drawing No. 10, to collect possible contaminated run-off from the Landfill. The Contaminated Water Collection Basin shall be located on top of the Landfill liner systems.

The Permittee shall provide the NMED with 60 days prior written notice if the Contaminated Water Collection Basin is removed in preparation for the disposal of waste in the southern part of the Landfill during Phase 1A of Facility operations.

### **3.3.1.g.3 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 in Permit Attachment L2.

### **3.3.1.g.4 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 Phase 1A Landfill (see Permit Attachment L1, Drawing No. 4), as specified in Permit Attachment L, Section 3.1.7, Landfill Clean Stormwater Control Features, and as required by 40 CFR § 264.301(h). The perimeter ditches shall be constructed as specified in Permit Attachment L1, Drawing No. 25 (2 of 2).

### **3.3.1.g.5 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 Attachment A, Section 2.2.1.f, Run-On/Runoff Control; Permit Attachment L, Section 3.1.7, Landfill Clean Stormwater Control Features; and Permit Attachment L1, Drawings 10 and 14. The ditches shall be constructed as shown in 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 in Permit Attachment L1, Drawing 10.

### **3.3.1.h Vadose Zone Monitoring Wells**

The Permittee shall construct 15 vadose zone monitoring wells to monitor fluids and organic vapors released from the Landfill in accordance with Permit Conditions 4.3.1.a and 4.3.1.b; and as specified in Permit Attachment I, Section 2.2.2, Vadose Zone Monitoring Well Construction. The Permittee shall construct two neutron probe access tubes to monitor moisture content in the vadose zone in accordance with Permit Condition 4.3.1.d.

## **3.3.2 Construction Quality Assurance Program**

In accordance with 40 CFR § 264.19, the Permittee shall implement the Construction Quality Assurance (CQA) Plan contained in Permit Attachment M under the direction of a Construction Quality Assurance officer who is a professional engineer registered in New Mexico to ensure that all construction required under Permit Condition 3.3 meets or exceeds all design criteria and specifications of this Permit.

### **3.4 General Landfill Operation Requirements**

#### **3.4.1 Operation and Maintenance of the Landfill**

The Permittee shall operate and maintain the Landfill as specified in Permit Attachment A, Section 2.2.3, Operation; Permit Attachment L, Sections 2.2.3, Operations and Maintenance; Permit Attachment N, Sections 3.4, Landfill Operation, and 4.1, Landfill; and as required by 40 CFR § 264, Subpart N and this Permit.

#### **3.4.2 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 in Permit Attachment A, Sections 2.1.3, Waste Disposal, and 2.2.3.g, 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 3.10.

#### **3.4.3 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 in Permit Attachment A, Section 2.2.1.g, Wind Dispersal Control Procedures; Attachment N, Section 3.4.3, Waste Placement; and as required by 40 CFR § 264.301(j).

#### **3.4.4 Management of Run-On/Runoff**

##### **3.4.4.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 or otherwise managed expeditiously after a storm event to maintain the design capacity of the systems, as specified in Permit Attachment A, Section 2.2.1.f, Run-On/Runoff Control, and as required by 40 CFR § 264.301(i).

##### **3.4.4.b Standing Water**

The Permittee shall ensure that standing water that collects on the Landfill floor removed after a storm event, as specified in Permit Attachment A, Section 2.2.1.f, Run-On/Runoff Control; and as required by 40 CFR § 264.301(i).

#### **3.4.5 Leachate**

If leachate collected from the Landfill leak detection systems, which includes the LCRS, the LDRS, and the VZMS, meets LDR treatment standards, then the Permittee shall manage leachate by recirculating the liquid and applying it to the landfill soil cover in the lined landfill cell for

enhanced evaporation as specified in Permit Attachment A, Section 2.2.1.f, Run-On/Runoff Control. Leachate recirculation from either a moveable sprinkler system or from vacuum trucks will only occur in lined landfill areas. Spraying shall only be in the direction of the lined landfill areas. There shall be no spraying from the ramp or in an active work area. Additionally, if the sustained wind speed is over 15 miles per hour (mph), no leachate sprayback shall occur until wind speed has dropped below 15 mph. Daily soil cover shall be placed on areas where leachate has been sprayed. Management of leachate by recirculation has been evaluated through calculations that are 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.

### **3.5 Waste Analysis**

#### **3.5.1 Waste Characterization**

The Permittee shall ensure that all waste placed in the Landfill meets the waste analysis requirements specified in Permit Attachment F, Waste Analysis Plan, Section 1.5.5.b, Waste Analysis Requirements for the Landfill; and Permit Conditions 3.9 through 3.11.

#### **3.5.2 Initial five shipments and Annual Analysis**

The Permittee shall analyze the initial five shipments of each waste stream from each generator and compare these results to the generator-supplied data to ensure that no significant discrepancies exist between the waste received and the generator-supplied information as specified in Permit Attachment F, Section 1.4.3.c, Analysis of Initial Five Shipments. At least annually thereafter, the Permittee shall randomly sample and analyze a minimum of ten percent (10%) of incoming waste streams that are to be placed in the landfill to verify compliance with the LDR treatment standards, as specified in Permit Attachment F, Section 1.5.5.b.

#### **3.5.3 Leachate**

##### **3.5.3.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 Condition 3.6.2.d and Permit Attachment F, Section 1.5.6, Waste Analysis Requirements for Waste Generated On-Site, for all the multisource leachate (EPA Hazardous Waste Number F039) constituents listed in the Table contained in 40 CFR § 268.40.

##### **3.5.3.b VZMS Well Sampling and Analysis**

The Permittee shall sample and analyze any fluid and organic vapors collected from the VZMS monitoring wells in accordance with Permit Conditions 3.7.2, 4.4.2.a, and 4.4.2.b. Sampling and analysis shall be performed over the time period specified in Permit Condition 4.2.4.

### **3.6 Leaks, Spills, and Leachate Management**

#### **3.6.1 Spills and Releases**

The Permittee shall ensure that all spills and releases to the surface environment are contained and remediated in a timely manner.

#### **3.6.2 Leachate Removal**

##### **3.6.2.a Removal of Leachate from the LCRS and LDRS**

The Permittee shall remove liquids, present in sufficient volumes to allow pumping, 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 in Permit Attachment N, Section 3.4.4, Operation of Leachate Collection and Detection Systems, and as required by 40 CFR § 264.301(c)(4).

##### **3.6.2.b Removal of Leachate from the VZMS Sump**

The Permittee shall remove quantities of leachate, present in sufficient volumes to allow pumping, from the VZMS sump as specified in Permit Attachment I, Section 4, Monitoring Procedures.

##### **3.6.2.c Leachate Storage**

Leachate removed from the Landfill LCRS, LDRS, and VZMS sump shall be managed by enhanced evaporation through leachate recirculation within the landfill, as specified in Permit Attachment F, Section 1.5.6, Waste Analysis Requirements for Waste Generated On-site.

##### **3.6.2.d Leachate Sampling**

The Permittee shall conduct sampling and analysis of leachates removed from the LCRS, LDRS, and the VZMS sump at the base of the Landfill, to obtain representative samples for the purpose of establishing the indicator parameters required in Permit Condition 4.4.2. 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.

#### **3.6.3 Action Leakage Rate**

The Action Leakage Rate (ALR) for the Landfill, as approved by the NMED in accordance with 40 CFR § 264.302(a), is 900 gallons per acre per day (gpad) as measured in the LDRS sump, as specified in Permit Attachment A, Section 2.2.3.h, Action Leakage Rate and Permit Attachment J, Section 4.2, Determination of Action Leakage Rate: Landfill.

To determine if the ALR has been exceeded, the Permittee shall determine the average daily flow rate from the weekly flow rate during the active life and closure period of the Landfill, and monthly during the post-closure care period, as specified in Permit Attachment J, Section 4.3, Determination if the Action Leakage Rate is Exceeded and as required by 40 CFR § 264.302(b).

#### **3.6.4 Flow Rates Less than or Equal to the ALR**

The Permittee shall respond to leakage less than or equal to the ALR as specified in Permit Attachment A, Section 2.2.3.i, Response Action Plan.

#### **3.6.5 Flow Rates Greater than the ALR**

The Permittee shall respond to leakage greater than the ALR as specified in Permit Attachment J, Section 6, Response Actions and as required by 40 CFR §§ 264.304(b) and (c). The Permittee shall also immediately inspect each monitoring point in the VZMS for fluids and organic vapors in accordance with Permit Condition 4.5.1.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 4.5.1.c.

### **3.7 Inspection and Monitoring Procedures**

#### **3.7.1 Inspection Requirements**

##### **3.7.1.a General Inspection Requirements**

The Permittee shall inspect the Landfill, including the liner, leachate collection systems, and ancillary equipment, as specified in Permit Attachment D, Section 1.2, Landfill Inspection Procedures, Permit Attachment D1, Inspection Schedules and Checklists, and as required by 40 CFR § 264.303.

##### **3.7.1.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 40 CFR § 264.303(a).

##### **3.7.1.c Inspections after Construction**

The Permittee shall inspect the liners and cover systems of the Landfill immediately after installation or construction, as required by 40 CFR §§ 264.303(a)(1) and (2), as follows:

- i. the Permittee shall inspect all synthetic liners and covers to ensure tight seams and joints and the absence of tears, punctures, or blisters; and
- ii. the Permittee shall inspect soil-based and admixed liners and covers 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.

### **3.7.1.d Inspections during Operation**

The Permittee shall inspect the Landfill weekly and after storms, as specified in Permit Attachment D1, and as required by 40 CFR §§ 264.303(b) and (c).

### **3.7.2 Monitoring Requirements**

The Permittee shall monitor the Landfill LCRS, LDRS, and VZMS sumps daily for the presence of liquids; the VZMS sump daily for the presence of organic vapors; the Landfill vadose zone monitoring wells monthly for the presence of liquids and organic vapors; and the Landfill neutron probe access tubes monthly for the presence of soil moisture during the active life of the Landfill in accordance with Permit Condition 4.5.1. During each monitoring event, the Permittee shall inspect all relevant elements of the monitoring system to detect evidence of deterioration or malfunction of the system. The Permittee shall monitor and record the Landfill sumps during the post-closure care period according to the schedule specified in Permit Attachment J, Section 5, Leak Detection and Removal System Monitoring, and as required by 40 CFR § 264.303(c)(2). The Permittee shall monitor the VZMS sumps and the vadose zone monitoring wells semi-annually, as specified in Permit Attachment I, Section 4.1, Table I-2, Monitoring Frequency.

If liquids or organic vapors are present, the Permittee shall implement Permit Condition 4.5.2 and sample and analyze the liquids and organic vapors as specified in Permit Attachment F, Section 1.5.6, Waste Analysis Requirements for Waste Generated On-Site, and Attachment I, Sections 4.3, Monitoring Method, and 4.4, Sample Collection. The Permittee shall remove and properly dispose of all liquids collected, as specified in Permit Attachment I, Section 4.2, Response Actions.

## **3.8 Recordkeeping and Reporting**

### **3.8.1 Recordkeeping Requirements**

The Permittee shall follow the recordkeeping requirements for the Landfill specified in Permit Attachment N, Section 3.4.1, Records. Records kept shall include, but are not limited to:

#### **3.8.1.a Grid “Cell” Location**

The Permittee shall maintain the following items in the Operating Record, in accordance with Permit Condition 2.13.1.j, and as required by 40 CFR§ 264.73(b)(2) and 40 CFR § 264.309:

- i. a map with the exact location and dimensions, including depth, of each grid “cell” in the three-dimensional grid system required under Permit Condition 3.4.2 with respect to permanently surveyed benchmarks; and

- ii. the contents in each grid “cell” and the approximate location of each hazardous waste type within each grid “cell”.

### **3.8.1.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 3.7.1 for a minimum of three years, in accordance with Permit Condition 2.8.3 and as required by 40 CFR § 264.15(d) and 40 CFR § 264.73(b)(5).

### **3.8.1.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 3.7.2, including a weekly 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 2.13.1.h.1 and as required by 40 CFR § 264.303(c)(1). These records shall be retained until the NMED has approved the completion of post-closure care for the Landfill.

## **3.8.2 Reporting Requirements**

### **3.8.2.a Waste Identification and Location within the Landfill**

The Permittee shall submit current information on the grid "cell" map, required under Permit Condition 3.8.1.a, to the NMED on a quarterly basis. The Permittee shall submit the identification of waste placed in each cell in terms of the grid coordinates. This information shall be included in the Quarterly Report required under Permit Condition 2.13.2.b.

### **3.8.2.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 in Permit Conditions 3.9 and 3.10 and as required by 40 CFR § 264.17(c) and 40 CFR § 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.

### **3.8.2.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 6, Response Actions, and as required by 40 CFR § 264.304(b):

- i. notify the NMED in writing of the exceedance within seven calendar days of the determination;

- ii. submit a preliminary written assessment to the NMED within 14 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;
- iii. determine to the extent practicable the location, size, and cause of any leaks;
- iv. 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;
- v. determine any short-term or longer-term actions to be taken to mitigate or stop any leaks; and
- vi. submit to the NMED the results of the analysis required under Permit Condition 3.6.5, the results of actions taken, and actions planned within 30 days of the determination. Monthly thereafter, the Permittee shall, as long as the flow rate in the LDRS exceeds the ALR, submit to the NMED a report summarizing the results of any remedial actions taken and actions planned.

### **3.8.3 Landfill CQA Certification**

Prior to the initiation of operations at the Facility, the Permittee shall submit a certification to the NMED 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 1.12.4.a and 1.14 and as required by 40 CFR § 264.19(d). The certification shall also attest that the NMED's inspection, as found in Permit Condition 1.12.4.b, has been either completed or waived. The Permittee shall furnish documentation supporting this certification to the NMED upon request.

### **3.9 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 40 CFR § 264.17(b) and 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 in 40 CFR § 261.21 or 40 CFR § 261.23, as required by 40 CFR § 264.312. The Permittee shall also comply with the procedures for managing ignitable or reactive waste contained in Permit Attachment A, Section 2.2.3.f, Specific Requirements for Ignitable/Reactive Wastes.

### **3.10 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 compliance with 40 CFR § 264.17(b) and, in accordance with the procedures specified in Permit Attachment A, Section 2.2.3.g, Procedures for Protecting Wastes, and as required by 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 in Permit Attachment A, Section 2.2.3.g.

### **3.11 Disposal Requirements for Specific Waste Types**

#### **3.11.1 Free Liquids**

##### **3.11.1.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 in Permit Attachment F, Section 1.5.5.b, Waste Analysis Requirements for the Landfill, and as required by 40 CFR § 264.314(a).

##### **3.11.1.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 40 CFR § 264.314(c):

- i. all free-standing liquid has been removed or otherwise eliminated prior to waste receipt at the Facility;
- ii. has been mixed with sorbent or solidified so that free-standing liquid is no longer observed;
- iii. the container is very small (i.e. less than 40 milliliter) such as an ampule;
- iv. the container is designed to hold free liquids for use other than storage (e.g., a battery or capacitor); or
- v. the container is a lab pack as defined at 40 CFR § 264.316, and is disposed in accordance with Permit Condition 3.11.2.

#### **3.11.2 Lab Packs**

The Permittee shall ensure that small containers of hazardous waste in overpacked drums (lab packs) are disposed in the Landfill as specified in Permit Attachment A, Section 2.2.3.g, Procedures for Protecting Wastes and as required by 40 CFR § 264.316.

#### **3.11.3 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 in 40 CFR § 268.45, as specified in Permit Attachment F, Section 1.5.5.b, Waste Analysis Requirements for the Landfill.

### 3.11.4 Contaminated Soil

The Permittee shall place contaminated soil in the Landfill only in accordance with the requirements of 40 CFR § 268.49.

### 3.12 Specific Provisions for Empty Containers

The Permittee shall not dispose of any containers unless they are very small (i.e. less than 40 milliliter) such as an ampule in the Landfill. The containers shall be at least 90 percent full when placed in the Landfill or they shall be crushed, shredded or similarly reduced in volume prior to permanent burial in the Landfill, as required by 40 CFR § 264.315.

### 3.13 Closure

The Permittee shall conduct closure activities for the Landfill as specified in Permit Attachment O, Section 1.1.1, Landfill, in accordance with Permit Part 5, and as required by 40 CFR § 264.310. The Permittee shall follow the time frame for closure specified in Permit Attachment O1, Compliance Schedules for Closure.

### 3.14 Post-Closure Care

The Permittee shall conduct post-closure care activities for the Landfill as specified in Permit Attachment P, Section 1, Post-Closure Activities and in accordance with Permit Part 5, and as required by 40 CFR § 264, 117 through 40 CFR § 264.120 and 40 CFR § 264.310(b).

**Table 3-1  
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

## **PART 4: VADOSE ZONE MONITORING**

### **4.1 Highlights**

#### **4.1.1 Introduction**

This Part contains conditions to ensure the earliest possible detection of contaminant leakage from the Landfill. 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 and organic vapors 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 is referred to as a “regulated unit” in this Part. The VZMS consists of a sump located directly below the regulated unit, eight monitoring wells located immediately adjacent to the regulated unit, seven monitoring wells on the periphery of the facility, and two neutron probe access tubes located adjacent to the regulated unit. The VZMS monitors the accumulation and migration of fluids and organic vapors below the ground surface and above the uppermost aquifer. Together with the Leak Detection and Removal System (LDRS) and Leachate Collection and Removal System (LCRS) sumps, the VZMS distinguishes between leachates and organic vapors originating within the regulated unit and non-leachate fluids that may originate outside the unit.

#### **4.1.2 Regulatory Background**

The New Mexico Hazardous Waste 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 groundwater 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 NMED approved a waiver of the requirements for groundwater monitoring at the facility in accordance with 40 CFR § 264.90(b)(4) as a part of a Final Order dated March 18, 2002. In lieu of groundwater monitoring, the Permittee must conduct vadose zone monitoring. Based on the subsurface conditions beneath the regulated unit, vadose zone monitoring is more appropriate, and more protective of health and the environment, than groundwater monitoring at the Facility. Vadose zone monitoring will more effectively provide detection monitoring, given the depth to groundwater and the distance that hazardous constituents would have to travel to contaminate groundwater than a groundwater monitoring system. Therefore, the groundwater waiver remains in effect. The waiver is subject to review upon discovery of any release from the Landfill. Other Monitoring Requirements

Monitoring requirements for the regulated unit contained in this Part are in addition to the LDRS monitoring requirements specified in Permit Condition 3.7.2.

#### **4.1.3 Regulated Unit**

Regulated units are defined at 40 CFR § 264.90(a)(2) as those land-based units that receive hazardous wastes after July 26, 1982. The Facility has one regulated unit, which is the Landfill. The Landfill is described in Permit Section 3.1, 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 5).

Potential releases from the Landfill are anticipated to be in the form of liquids or organic vapors escaping through a breach in the liner system. Though free liquids are prohibited in the Landfill, except as allowed by Permit Section 3.11.1.b, liquids will enter the Landfill in the form of precipitation, which will leach hazardous constituents and accumulate in the Landfill sumps. Engineered controls to address the accumulated liquids and to protect from 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 of Landfill leachate or organic vapors against which VZMS sample analyses are compared to determine whether a release to the vadose zone has occurred.

### **4.2 General Requirements**

#### **4.2.1 Duty to Monitor**

The Permittee shall conduct vadose zone monitoring in accordance with the requirements of this Permit Part and as specified in Permit Attachment I, Vadose Zone Monitoring System (VZMS) Work Plan and, if the NMED determines is necessary, groundwater monitoring as required by 40 CFR §§ 264.91, 264.97, and 264.98.

#### **4.2.2 Duty to Initiate Corrective Action**

If at any time a release is detected from a regulated unit through the release assessment required at Permit Condition 4.6, the Permittee shall notify the Secretary within 24 hours and shall initiate corrective action in accordance with Permit Part 6.

#### **4.2.3 Duty to Remove Non-Leachates**

If the VZMS contains non-leachate liquids as described in Permit Condition 4.4.1, the Permittee shall identify and remove, where possible, both the source and the non-leachate liquids. If removal is implemented, the Permittee shall report the progress of that removal to the NMED on a monthly basis.

#### **4.2.4 Duration of Monitoring**

The Permittee shall conduct vadose zone monitoring in lieu of groundwater monitoring through the active life of the Landfill, including the closure period, and through the post-closure care period of the Landfill, in accordance with this Permit Part as required by 40 CFR § 264.90(c) and 40 CFR §§ 264.90(c)(2) and (3). The NMED also may require groundwater monitoring in addition to vadose zone monitoring. If the NMED requires groundwater monitoring, it will state the reasons for such requirement in writing and describe the steps necessary to implement the groundwater monitoring program.

### **4.3 VZMS Location and Construction**

#### **4.3.1 VZMS Construction and Locations**

The VZMS shall consist of one vadose zone sump, fifteen vadose zone monitoring wells, and two neutron probe access tubes installed at locations and depths as required in Permit Conditions 4.3.1.a, 4.3.1.b, 4.3.1.c, and 4.3.1.d; and as specified in Permit Attachment I, Section 2, Vadose Zone Monitoring System Installation. The vadose zone monitoring wells shall be capable of yielding liquid and organic vapor samples from the vadose zone below the Landfill where liquids and organic vapors are likely to accumulate in the future. The Permittee shall construct and maintain these monitoring points to yield sufficient liquid and organic vapor samples that are representative of the various fluid sources, as required by 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 in Table 1-1, Compliance Schedule, of this Permit. A map of the VZMS can be found in Permit Attachment I, Figure 2.

##### **4.3.1.a Deep Vadose Zone Monitoring Wells**

The Permittee shall install and maintain a total of nine (9) deep vadose zone monitoring wells that fulfill the requirements of 40 CFR § 264.97(a).

The deep vadose zone wells shall be capable of collecting representative samples of any liquid or organic vapors 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.

The nine (9) deep vadose zone monitoring wells shall be installed at the following locations:

- i. four (4) deep monitoring wells (VZMW-1D, 2D, 3D, 4D ) shall be located in a line along the eastern boundary of the Phase 1A landfill, spaced at approximately 350-foot intervals. The purpose of these 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.

- ii. one monitoring well (VZMW-5D) shall be located at the midpoint between the northeast corner of the Phase 1A landfill and the northeast corner of the facility. The purpose of this well is to identify the lateral extent of Upper Dockum saturation, and to monitor any possible contaminants that may potentially migrate toward the saturated zone.
- iii. one monitoring well (VZMW-6D) shall be located at the northeast corner of the facility. The purpose this well is to identify the lateral extent of Upper Dockum saturation, and to monitor any possible contaminants that may potentially migrate toward the saturated zone.
- iv. one monitoring well (VZMW-7D) shall be installed at the southeast corner of the stormwater detention basin, which will be the deepest well. This well shall be 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 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.
- v. one off-site monitoring well (VZMW-8D) shall be installed approximately 550 feet west of the facility, near the southwest facility corner, within 15 feet of the location of boring PB-14. The purpose of this well is to measure potential changes in fluid chemistry and water level at a location where shallow groundwater is currently known to exist.
- vi. one off-site monitoring well (VZMW-9D) shall be installed approximately 3,300 feet northeast of the facility, within 15 feet of the location of boring WW-1. The purpose of this deep vadose zone monitoring well is to measure potential changes in fluid chemistry and groundwater levels for a location where shallow groundwater is currently known to be present.

The specific location of the deep vadose zone monitoring wells is specified in Permit Attachment I, Section 2.2, Vadose Zone Monitoring Wells. These wells shall be installed at the locations specified as Nos. VZMW-1D, 2D, 3D, 4D, 5D, 6D, 7D, 8D, and 9D in Permit Attachment I, Figure 2, Location of Sumps and Monitoring Wells and Neutron Probe Access Tubes.

These wells shall be constructed as specified in Permit Attachment I, Section 2.2.2, Vadose Zone Monitoring Well Construction; and as required by 40 CFR § 264.97(c).

#### **4.3.1.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 representative samples of fluids and organic vapors that may

accumulate at or above the stratigraphic boundary between the alluvial material and the Upper Dockum stratigraphic units, and below the ground surface that fulfill the requirements of 40 CFR § 264.97(a)(2). Four shallow vadose zone monitoring wells shall be constructed and operated in the alluvial sediments west of the waste management unit 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 liquids or organic vapors toward the western boundary of the facility.

One shallow vadose zone monitoring well shall be constructed and operated within 15 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 15 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 or organic vapors in the alluvial materials.

#### **4.3.1.c Vadose Zone Monitoring Sump**

The Permittee shall install a vadose zone monitoring sump below the Landfill that is capable of collecting a representative sample of any fluids and organic vapors that may accumulate below the Landfill, in accordance with Permit Condition 3.3.1.e.

The Vadose Zone Sump 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

#### **4.3.1.d Neutron Probe Access Tubes**

The Permittee shall install and maintain a total of two deep neutron probe access tubes capable of detecting a liquid release from the regulated unit migrating in the subsurface as unsaturated flow. One neutron probe access tube shall be located at the center of the north boundary of the Phase 1A Landfill. Another access tube shall be located at the center of the west boundary of the Phase 1A Landfill. The neutron probe access tubes shall be constructed to enable collection of representative moisture content information of any fluid that may accumulate or migrate 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. The neutron probe access tubes shall be installed in a manner that minimizes disturbance to the surrounding soil and minimizes moisture migration along the tube/soil interface. Installation of neutron probe access tubes designed to detect unsaturated flow partially fulfills the Final Order from the NMED dated March 18, 2002.

At least 60 days prior to the planned installation of the neutron probe access tubes, the Permittee shall submit a work plan for the installation of the neutron probe access tubes to NMED for approval as specified in Permit Attachment I , Section 2.2.2.d, VZMS Construction Information.

#### **4.3.2 Additional Vadose Zone Monitoring Points**

If, after Permit issuance, the NMED's or the Permittee's knowledge of subsurface conditions indicate that the VZMS Permit Conditions are insufficient to detect a release from the regulated unit, the NMED may require the Permittee to install additional vadose zone monitoring points in accordance with Permit Condition 4.3.1. 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 40 CFR § 270.42.

#### **4.3.3 Location of Replacement Wells**

Should existing monitoring wells fail or otherwise cease to perform their intended function, replacement wells shall be located and installed as required by 40 CFR §§ 264.95(a) and 264.97(a)(2) and (3). Replacement vadose zone monitoring wells shall be located within 15 feet of an original well.

#### **4.3.4 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 surveyed benchmark. This survey information shall be entered into and maintained in the Operating Record in accordance with Permit Condition 4.8.1.

#### **4.3.5 Supervision of Construction**

An experienced professional geologist or engineer shall supervise and document all VZMS construction.

#### **4.3.6 Continuous Core**

Well bores VZMW-1D, VZMW-4D, and VZMW-7D, as identified in Permit Attachment I, Section 2.2.2.d, VZMS Construction Information, shall be continuously cored to provide hydrogeological information specified in 40 CFR § 270.14(c)(2). The borehole VZMW-7D 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 NMED may require additional attempts to obtain the required core from proximal locations. All geologic cores 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 4.8.1.

#### **4.3.7 Compatibility of Well Construction Materials**

The Permittee shall ensure that vadose zone liquids are not adversely affected by well construction materials to enable collection of representative groundwater samples, in accordance with 40 CFR §§ 264.97(a)(2) and (c). A compatibility demonstration shall be provided within six months of well construction, provided that sufficient vadose zone fluids are available to perform the assessment.

#### **4.3.8 Drilling Equipment Air Supply**

Borings shall be drilled using air rotary drilling methods as specified in Permit Attachment I, Section 2.2.2, Vadose Zone Monitoring Well Construction, 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, to enable collection of representative groundwater samples in accordance with 40 CFR §§ 264.97(a)(2) and (c).

#### **4.3.9 Well Completion Logs**

In addition to those items listed in Permit Attachment I, Section 2.2.2.d, Well Construction Information, well completion logs for each VZMS well shall include the following information:

- i. date(s) of drilling, completion, and any well development that may be necessary;
- ii. boring and well casing(s) diameters;
- iii. drilling and lithologic logs; and
- iv. detailed well construction drawing presenting depth of well construction material emplacement and well dimensions.

Well Completion Logs shall be entered into and maintained in the Operating Record in accordance with Permit Condition 4.8.1. The Well Completion Logs shall be submitted to the NMED in the first Quarterly Report after completion of well construction, in accordance with Permit Condition 4.8.2.

#### **4.3.10 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 order to enable collection of representative groundwater samples, in accordance with 40 CFR §§ 264.97(a)(2) and (c). Wash/decontamination water shall be collected in 55-gallon drums, labeled, and stored on-site for later disposal in accordance with applicable regulations.

#### **4.3.11 Decontamination of Drilling Equipment**

Drilling equipment shall be decontaminated as specified in Permit Attachment I, Section 2.2.3, Decontamination, in order to enable collection of representative groundwater samples in accordance with 40 CFR §§ 264.97(a)(2) and (c).

### **4.4 Indicator Parameters**

The Permittee shall create and maintain a list of chemical constituents and other parameters for use in the VZMS monitoring as specified below and as required by 40 CFR § 264.98(a). Monitored constituents are hereafter referred to as indicator parameters. Permit Attachment R, a placeholder for indicator parameters, shall be completed in accordance with Permit Attachment I, Section 3, Baseline Liquid Characterization. VZMS sample analysis shall be compared against indicator parameters to assess potential releases to the vadose zone, in accordance with Permit Attachment I, Table I-2, Monitoring Frequency.

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 and are generally considered not contaminated. The non-leachate chemical constituents shall be combined with the chemicals measured in leachates to establish a complete list of indicator parameters for vadose zone fluids.

Potential sources of vadose zone organic vapors include two major categories: leachates originating from within the regulated unit and containing volatile or semivolatile organic compounds; and organic compounds migrating from the regulated unit in vapor phase through defects in the liner.

#### **4.4.1 Non-Leachate Liquids**

The Permittee shall establish and maintain a list of indicator parameters and correlated “baseline” chemical concentrations for the following non-leachate liquids in accordance with the procedures specified in Permit Attachment I, Section 3, Baseline Liquid Characterization, and as required by 40 CFR § 264.98(a):

- i. precipitation;

- ii. consolidation water from the prepared regulated unit subgrade or geosynthetic clay liner;
- iii. Facility water supply; and
- iv. 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 in Permit Attachment I, Table I-1, Baseline Chemical Analyses, including sulfides and sulfates, nitrates, radionuclides, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, PCBs, dioxins and furans, perchlorate, and total petroleum hydrocarbons (TPHs). 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 Synthetic Precipitation Leaching Procedure to determine non-leachate water quality (see Permit Attachment I, Appendix A, Synthetic Precipitation Leaching Procedure). The result of this procedure and the non-leachate water quality analysis, as described in Attachment I, Section 3.0, Baseline Liquid Characterization, shall be used to determine the non-leachate indicator parameter list at Permit Attachment R4 and the baseline chemical concentrations at Attachment R2.

A tolerance interval statistical procedure, as described in Permit Attachment Q, Statistics for Release Determination, shall be used to determine statistically significant changes from non-leachate baseline concentrations, as required 40 CFR § 264.98(f).

#### **4.4.1.a Time Frame for Establishing Non-leachate Fluid Indicator Parameter List and Baseline Concentrations**

Both parameters on the indicator parameter list and correlated 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; Baseline Liquid Characterization.

Fluids in the Stormwater Detention Pond shall be measured annually for the constituents listed at 40 CFR § 264, Appendix IX and reported to the NMED. A list of these constituents shall be maintained in both the Operating Record and at Permit Attachment R4.

#### **4.4.1.b Reporting – Baseline Values for Non-Leachate Liquids**

The indicator parameter list and the baseline chemical concentration values for non-leachate liquid tolerance intervals, and the computations necessary to determine these parameters, shall be submitted by the Permittee in a separate report to the NMED for approval in accordance with Permit Condition 4.8.2.a.

#### **4.4.1.c Additional Non-Leachate Liquids**

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 4.4.1.

#### **4.4.2 Leachates**

The Permittee shall establish indicator parameters for leachates generated at the Landfill as specified below, and as required by 40 CFR § 264.98(a). The indicator parameters shall be maintained in both the Operating Record and in Permit Attachment R. The leachate indicator parameters determined through monthly and biennial sampling shall be combined into a single leachate indicator parameter list maintained at Permit Attachment R and Operating Record, 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.

The list of constituents received in the cumulative waste streams placed in the landfill and analyses of leachate liquids originating within the regulated unit shall be used to establish a list of organic compounds that exist within the regulated unit in a vapor phase and can potentially migrate in a vapor phase. This list shall be maintained in the same manner as the list of indicator parameters for leachates and shall be utilized in monitoring for organic vapors in the vadose zone, as specified in Permit Attachment I, Section 4.1, Monitoring Frequency, Section 4.2, Response Actions, and Section 4.3, Monitoring Method.

##### **4.4.2.a Monthly Sampling**

The Permittee shall analyze the Landfill leachate (i.e., samples from the LCRS and LDRS) monthly, as specified in Permit Attachment F, Section 1.5.6, Waste Analysis Requirements for Waste Generated On-Site. The results of these analyses shall be reported to the NMED in the Quarterly Report, in accordance with Permit Conditions 2.13.2.b and 4.8.2.

##### **4.4.2.b Biennial Sampling**

The Permittee shall analyze the Landfill leachate biennially for the hazardous constituents referenced at 40 CFR § 264, Appendix IX, as specified in Permit Attachment F, Section 1.5.6, Waste Analysis Requirements for Waste Generated On-Site, and as required by 40 CFR § 264.98(a). The results of the test shall be reported to the NMED in the Biennial Report and the samples shall be collected no sooner than 90 days prior to the Biennial Report due date. Constituents previously undetected in the 40 CFR § 264 Appendix IX analysis shall be identified and reported. Monitoring Program

## **4.5 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 in Permit Condition 4.2.4, and as required by 40 CFR § 264.98. The Permittee shall inspect and sample the VZMS sump and vadose zone monitoring wells VZMW-1D, -2D, -3D, -4D, -10S, -11S, -12S, -13S at the Landfill 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 4.3.1. This information shall be recorded and reported in accordance with Permit Condition 4.8. Investigation-derived waste (IDW) generated during monitoring shall be managed as specified in Permit Attachment F, Section 1.5.6.a, Overview of Wastes Generated On-Site.

### **4.5.1 Requirement to Inspect**

#### **4.5.1.a Inspection Schedule for Vadose Zone Liquids and Organic Vapors**

The Permittee shall inspect each VZMS sump daily and vadose zone monitoring wells monthly during the active life of the facility for the presence of vadose zone liquids and organic vapors. Inspection of Landfill VZMS sumps and Landfill wells shall, at a minimum, be conducted semi-annually during the post-closure period, as required by 40 CFR § 264.98(d).

#### **4.5.1.b Inspection Schedule for Neutron Probe Access Tubes**

The Permittee shall inspect each neutron probe access tube monthly during the active life of the Facility. The Permittee shall investigate the vadose zone monitoring wells listed in Permit Section 4.5, 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-referenced inspection locations. Subsequent inspections will produce logs for comparison to the baseline measurements. If a neutron log shows a 25% change over established baseline American Petroleum Institute (API) readings over a two-foot interval anywhere in the column, the Permittee shall immediately inspect the nearest appropriate monitoring points for the presence of vadose zone liquids. If vadose zone liquids are detected during any inspection, the Permittee shall implement Permit Condition 4.5.2.

#### **4.5.1.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 regulated unit, as required by 40 CFR §§ 264.98(d) and 264.304. The inspection frequency shall remain weekly as long as the ALR continues to be exceeded.

#### **4.5.2 Requirement to Sample**

If, upon the inspection required in Permit Condition 4.5.1, liquids are detected in a VZMS monitoring well or sump, or if organic vapors are detected in a VZMS well or sump at the concentration above the trigger level specified in Permit Attachment I, Section 4.3, Monitoring Method, the Permittee shall collect a sample of vadose zone liquid or organic vapors monthly at each monitoring point containing liquids or organic vapors, as detailed in Attachment I, Section 4.1, Monitoring Frequency, Section 4.2, Response Actions, and Section 4.3, Monitoring Method, and as required by 40 CFR § 264.98(c). A sample shall be collected immediately when liquids or organic vapors are first detected at each monitoring point.

#### **4.5.3 Fluid Elevation Measurement**

The Permittee shall determine fluid elevation at each well and VZMS sump, referenced to mean sea level, each time liquid is detected in accordance with Permit Section 8.3.1.

#### **4.5.4 Fluid Purging**

The Permittee shall evacuate liquid in the monitoring points in accordance with Permit Section 8.3.3 or as otherwise approved by the NMED.

#### **4.5.5 Decontamination**

The Permittee shall ensure that reusable sampling equipment is decontaminated in accordance with Permit Section 8.3.8, Decontamination Procedures.

#### **4.5.6 Equipment Calibration**

The Permittee shall ensure that field measuring instruments are calibrated in accordance with Permit Section 8.3.9, Field Equipment Calibration Procedures.

#### **4.5.7 Sample Containerization**

The Permittee shall place fluid samples collected for chemical analyses in appropriate containers in accordance with Permit Section 8.3.6, Sample Handling.

#### **4.5.8 Quality Assurance Samples**

The Permittee shall assure sample quality in accordance with Permit Sections 8.2.6, Soil Sample Types, and 8.3.5, Groundwater Sample Types.

#### **4.5.9 Sample Preservation**

The Permittee shall manage and preserve samples in accordance with Permit Section 8.3.6, Sample Handling.

#### **4.5.10 Sampling Record**

The Permittee shall ensure that sampling activities conducted in accordance with Permit Section 8.4, Documentation of Field Activities, are recorded in the Operating Record, in accordance with Permit Condition 4.8.1, and as required by 40 CFR § 264.98(c). The sampling record shall include the Quarterly Well Inspection Logs (containing information required under Permit Condition 4.5.1) and Monitoring Field Logs (containing information required under Permit Conditions 4.5.2 through 4.5.9).

#### **4.6 Release Assessment**

The Permittees shall monitor for organic vapors to determine if a release has occurred from the regulated unit. If the results of the organic vapor monitoring indicate a release has occurred, then the Permittees must notify NMED within fifteen days to determine if further investigation is required. The Permittee shall conduct a release assessment on all fluid and organic vapor samples collected in accordance with Permit Condition 4.5.2 and as required by 40 CFR § 264.98(f), to determine whether fluids may have originated from within the regulated unit. If the data analysis specified at Permit Condition 4.6.1.a indicates that a release has occurred, the Permittee shall notify the NMED within 24 hours of detection, as specified in Permit Attachment C (Contingency Plan), Section 1.4.2, Required Reports and Notification, and initiate the corrective action requirements of Permit Part 6, including the verification sampling requirements of Permit Condition 6.4.2. The liquid constituent or organic vapor concentrations indicative of a release shall be referred to as “action levels.” The release assessment shall be performed using the following techniques and procedures:

##### **4.6.1 VZMS Sample Analysis**

The Permittee shall analyze VZMS samples in accordance with all conditions of this Permit Part for all indicator parameters specified in Permit Attachment R4 and as required by 40 CFR § 264.98(f). The Permittee shall add additional analytes to the indicator parameters list as additional waste streams that contain constituents not previously received at the landfill are placed into the regulated unit.

##### **4.6.1.a Release Determination**

The Permittee shall determine whether a VZMS release has occurred, as required by 40 CFR § 264.98(f), by evaluating monitoring data for three criteria: 1) a significant change in non-leachate indicator parameter chemical concentrations, 2) the detection of any leachate indicator parameters, and 3) the detection of any organic compound that has potential to exist in a vapor phase within the regulated unit. The Permittee shall measure leachate constituents using the detection limits specified in Permit Condition 4.6.4.

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 between consecutive sampling events and over time. A tolerance interval statistical procedure, as described in Permit Attachment Q, Statistics of Release Determination, 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 shall be compared between consecutive sampling events and over time.

The Permittee shall initiate corrective action under Permit Part 6 and as required by 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.

#### **4.6.1.b Analytical Methods**

The Permittee shall utilize the appropriate analytical methods for baseline constituents as specified in Permit Attachment I, Table I-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) or equivalent method approved by the NMED. Analytical methods for organic vapors shall be established in accordance with Permit Attachment I, Section 4.3, Monitoring Method.

#### **4.6.2 Evaluation Frequency**

In accordance with Permit Condition 4.5.2 and 40 CFR § 264.98(d), the release assessment shall be conducted each time fluid or organic vapor samples are collected at each monitoring point required under Permit Condition 4.3.1 and as specified in Permit Attachment I, Section 6.4, Data Analysis.

#### **4.6.3 Evaluation Schedule**

The Permittee shall perform the evaluations specified in Permit Condition 4.6.1, within 30 days after completion of sampling, in accordance with 40 CFR § 264.98(f)(2). The 30-day evaluation period includes the time required to perform laboratory analysis. The Permittee may petition the NMED 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 NMED will approve or disapprove the extension petition in writing within 15 calendar days of receipt of the petition.

#### **4.6.4 Detection Limits**

Analytical detection limits shall meet the requirements of Permit Section 8.5 and shall, in all cases, be less than the most stringent of the following three criteria:

- i. applicable State or Federal drinking water standards;
- ii. the universal treatment standards (UTS) contained at 40 CFR § 268, Subpart D; or
- iii. the lowest detection limits specified at the most current version of EPA publication SW-846.

The Permittee may propose alternate detection or reporting limits to the NMED for approval prior to use. The Permittee must provide justification for any proposed alternate detection or reporting limits that are greater than those required by this Permit Section (4.6.4).

#### **4.6.5 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 in Permit Attachment I, Section 5.2, Laboratory Quality Assurance/Quality Control to fulfill the requirements of 40 CFR § 264.97

#### **4.6.6 Data Validation**

The Permittee shall ensure that all laboratory analytical data is presented in accordance with the most current version of the Third Edition of EPA publication SW-846, documentation packages. Data validation shall be conducted as specified in Permit Section 8.5 Chemical Analyses.

#### **4.6.7 Data Reporting**

The Permittee shall report the VZMS analytical data to the NMED within 15 days after the sample evaluation schedule specified in Permit Condition 4.6.3, Evaluation Schedule. All 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 in Permit Condition 4.6.1.a, Release Determination and as generally required by 40 CFR § 264.98(c).

#### **4.6.8 Alternate Indicator Parameters**

The Permittee may propose to the NMED an alternate list of indicator parameters for use to evaluate for the presence of contamination in vadose zone liquids and vapors through a Permit modification pursuant to 40 CFR § 270.42.

### **4.7 VZMS Maintenance**

The Permittee shall maintain the VZMS as specified in Permit Attachment N, Section 3.4.4, Operation of Leachate Collection and Detection Systems, to satisfy the requirements of 40 CFR §§ 264.97 and 98. A summary of operation and maintenance activities shall be reported to the NMED in the Quarterly Report in accordance with Permit Conditions 2.13.2.b and 4.8.2.

## **4.8 Recordkeeping and Reporting**

### **4.8.1.a Recordkeeping**

The Permittee shall enter, at a minimum, the following VZMS information into the Operating Record in accordance with Permit Condition 2.13.1, and as required by 40 CFR § 264.98(c):

- i. well survey information (Permit Condition 4.3.4);
- ii. geologic core (Permit Condition 4.3.6);
- iii. Well Completion and Lithologic Logs (Permit Condition 4.3.9);
- iv. leachate chemistry (Permit Condition 4.4.2);
- v. organic compounds occurring in a vapor phase within the regulated unit (Permit Condition 4.4.2);
- vi. 40 CFR § 264 Appendix IX analysis (Permit Condition 4.4.2.b);
- vii. sampling activities (Permit Condition 4.5.10);
- viii. fluid elevation measurements (Permit Condition 4.5.3);
- ix. VZMS inspection reports (Permit Condition 4.5.1.a);
- x. VZMS analytical results (Permit Condition 4.6.1);
- xi. sample collection and preservation (Permit Condition 4.5);
- xii. data evaluation (Permit Condition 4.6); and
- xiii. non-leachate removal (Permit Condition 4.2.3).

### **4.8.2 Reporting**

The Permittee shall report the following information to the NMED, as specified at Permit Attachment I, Section 6.5, Data Reporting

#### **4.8.2.a First Quarterly Report**

The following information shall be submitted in the first Quarterly Report:

- i. Well Completion and Lithologic Logs (Permit Condition 4.3.9);
- ii. A list of indicator parameters for non-leachate fluids and associated computations (Permit Condition 4.4.2.b);

- iii. A list of indicator parameter for initial leachates (Permit Condition 4.4.2.a) based on F-039 and the first 40 CFR § 264 Appendix IX analysis;
- iv. A list of organic compounds that exist in a vapor phase within the regulated unit and can potentially migrate in a vapor phase, based on initial leachate analyses; and
- v. VZMS analytical results collected during the first quarter, and associated Well Inspection Logs and Monitoring Field Logs sampling information (Permit Conditions 4.5.1, 4.5.10, and 4.8.1.a).

#### **4.8.2.b Quarterly Reports**

The following information shall be submitted in all Quarterly Reports, including the first Quarterly Report:

- i. leachate chemistry (Permit Condition 4.4.2.a);
- ii. liquid elevation data for each well (Permit Condition 4.5.3);
- iii. vadose zone system inspection reports (Permit Condition 4.5);
- iv. vadose zone system analytical results (Permit Condition 4.6.1);
- v. sample collection and preservation procedures (Permit Conditions 4.5);
- vi. release assessment information in the form of a summary of the data reports (Permit Condition 4.6);
- vii. operation and maintenance report (Permit Condition 4.7);
- viii. non-leachate fluid removal summary (Permit Condition 4.2.3);
- ix. Indicator Parameter List, including non-leachate parameters and leachate parameters, and organic vapor-phase compounds; revisions to the list based on quarterly/biennial leachate sampling results, and evaluations used to derive this list (Permit Condition 4.4);
- x. monthly leachate sampling results for that quarter (Permit Condition 4.4.2.a); and
- xi. summary of 40 CFR § 264 Appendix IX results included in the previous biennial sampling event (Permit Condition 4.4.2.b).

#### **4.8.2.c Biennial Report**

The following information shall be submitted in the Biennial Report required under Permit Condition 2.13.2.a:

- i. 40 CFR § 264 Appendix IX analysis (Permit Condition 4.4.2.b); and

- ii. Indicator Parameter List modification based on 40 CFR § 264 Appendix IX analysis, and evaluations used to derive this list (Permit Condition 4.4).

#### **4.8.2.d Special Reports**

The following information shall be submitted in special reports:

- i. release information (Permit Condition 4.2.2);
- ii. monthly reports as long as there are fluids in the VZMS or organic vapors at the concentration above the trigger level specified in Permit Attachment I, Section 4.3, Monitoring Method; and
- iii. non-leachate parameter list and computations necessary to determine non-leachate parameter list (Permit Condition 4.4.1.b).

#### **4.8.3 VZMS Report Supervision**

A professional geologist or engineer shall supervise all VZMS report preparation.

## **PART 5: CLOSURE AND POST-CLOSURE CARE**

### **5.1 Highlights**

This Permit Part (5) contains the closure and post-closure care conditions for the Facility as required by 40 CFR 264 subpart G. Also included are the financial responsibility requirements for the Permittee for closure and post-closure care as required by 40 CFR 264 subpart H.

The Permittee may close the entire Facility after providing notification to the NMED in accordance with 40 CFR 264.112(d). The Permittee shall update Permit Attachment O, Closure Plan, through a Permit modification prior to closure 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.

Post-closure care requirements at the completion of closure shall include maintenance and monitoring of the Landfill Phase 1A cap, the storm water collection system, the leak and leachate detection and collection systems, and the Vadose Zone Monitoring System (VZMS); site inspections and security; and, if necessary, a groundwater monitoring system. The Permittee must modify the Permit to include post-closure care requirements, including maintenance, monitoring, and reporting.

### **5.2 Closure**

#### **5.2.1 Performance Standards for Closure**

The Permittee shall close the Facility as specified in Permit Attachments O, O1, Compliance Schedules for Closure, and O2, Financial Assurance for Closure, and as required by this Permit Part and 40 CFR §§ 264.110 through 264.116. The Permittee shall keep Permit Attachments O, O1, and O2 at the Facility, or at another location approved by the NMED, until the completion of Facility closure has been approved by the NMED.

##### **5.2.1.a General Performance Standard**

At closure of the Facility, the Permittee shall, as required by the performance standard contained in 40 CFR § 264.111:

- i. minimize the need for further maintenance;
- ii. 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; and

- iii. complies with the closure requirements of this part, including, but not limited to, the requirements of 40 CFR § 264.310.

## **5.2.2 Closure Plan Modification**

### **5.2.2.a Amendment**

The Permittee shall amend the Closure Plan through a Permit modification, as required by 40 CFR § 264.112(c)(2), whenever:

- i. changes in operating plans or Facility design affect the Closure Plan;
- ii. there is a change in the expected year of closure;
- iii. unexpected events during partial or final closure require a modification of the approved Closure Plan;

The Permittee shall amend the Closure Plan through a Permit modification whenever there are changes in statutory or regulatory requirements; or changes in available technology.

The modified Closure Plan shall identify the steps necessary to perform closure of the Facility at any point during its active life, in accordance with the requirements of 40 CFR § 264.112(b).

The modified Closure Plan shall be approved by the NMED, in writing, prior to implementation. If the NMED does not approve the modified Closure Plan submitted by the Permittee, the NMED 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 NMED, the modified Closure Plan, including revised schedules of implementation and revised cost estimates, shall be incorporated into this Permit and made an enforceable part of this Permit.

### **5.2.2.b Landfill Closure Plan Modification Prior to Closure**

The Permittee shall amend the Closure Plan for the Landfill through a Permit modification, and shall submit the amended Plan to the NMED for approval 60 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 the applicable portions of Permit Conditions 5.2, and 5.4, and detailed plans and specifications for the Landfill cover and revegetation of the Landfill area. In its submittal on the re-vegetation of the Landfill area, the 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.

### **5.2.2.c Receipt of Non-Hazardous Waste**

The Permittee may request a modification to receive nonhazardous waste for disposal in the Landfill after the final receipt of hazardous waste, in accordance with 40 CFR § 264.113(d).

#### **5.2.2.d Modification Required by the NMED**

The NMED may require Closure Plan modification under the conditions described in Permit Condition 5.2.2.a, in accordance with 40 CFR § 264.112(c)(4).

#### **5.2.3 Closure Schedule**

##### **5.2.3.a Notification of Closure**

The Permittee shall notify the NMED of the start of Closure Plan implementation at least 60 days prior to the date on which the Permittee expects to commence closure of the Facility as specified in Permit Attachment O, Section 1.1, Closure Activities, and as required by 40 CFR § 264.112(d)(1).

##### **5.2.3.b Time Schedule for Closure**

Within 90 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 NMED in accordance with Permit Condition 5.2.2.c, the Permittee shall meet the conditions for closure contained in 40 CFR § 264.113. The NMED 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 required by 40 CFR §§ 264.113(a)(1) and (2).

#### **5.2.4 Closure Activities**

##### **5.2.4.a Proper Disposal of Equipment, Structures, and Soils**

During closure, the Permittee shall properly dispose of or decontaminate all contaminated equipment, structures, and soils as specified in Permit Attachment O, Section 1.1, Closure Activities, and as required by 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 40 CFR Part 262.

The soil performance standard for closure shall be based upon background analyte soil concentrations and the levels specified in Permit Section 7.4.

##### **5.2.4.b Updated Sampling Plan**

Ninety days prior to implementation of the Closure Plan, the Permittee shall submit to the NMED for approval as part of the Closure Plan, an updated Sampling and Analysis Plan, as specified in Permit Attachment O, Section 1.1.1, Landfill.

### **5.2.5 Closure Certification**

Within 60 days following completion of closure, the Permittee shall submit to the NMED, by registered mail, hand delivery, or special delivery service, a certification that the Facility has been closed in accordance with the specifications contained in Permit Attachment O, this Permit Part, and 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 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 5.2.7.c, must be furnished to the NMED concurrent with the certification. The closure certification and the Final Closure Report must be delivered to the NMED, and the NMED must verify the closure certification prior to releasing the Permittee from the financial assurance requirements for closure. [40 CFR § 264.143(i)].

### **5.2.6 Survey Plat**

No later than the date of submission of the closure certification, 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 NMED, as required by 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 40 CFR § 264, Subpart G.

### **5.2.7 Recordkeeping and Reporting Requirements**

#### **5.2.7.a Sampling Records**

The Permittee shall ensure that the records for sampling and analysis activities of all media required in accordance with Permit Condition 5.2.4.b are maintained by the Facility. This documentation must include records for sampling of soil, surface water, soil gas, and groundwater (including vadose zone). Vadose zone monitoring records shall be maintained as specified in Permit Attachment I, Section 6.1, Field Documentation. The sampling record shall include the monthly Well Inspection Logs and Monitoring Field Logs.

#### **5.2.7.b Quarterly Reports**

During closure, the Permittee shall submit Quarterly Status Reports on closure activities for the Facility until closure certification for the Facility is submitted to the NMED in accordance with Permit Condition 5.2.5. These reports are in addition to the applicable Quarterly Reports requirements at Permit Condition 2.13.2.b. The reports must summarize:

- i. closure activities conducted during the previous quarter;
- ii. activities planned for the next quarter; and
- iii. any variance from the approved Closure Plan and the reason for the variance.

### **5.2.7.c Final Closure Report**

Within 60 days following completion of closure of the permitted unit at the Facility, the Permittee shall submit a Final Closure Report to the NMED, with submittal of the closure certification required under Permit Condition 5.2.5, as required by 40 CFR § 264.115. The Report must contain, at a minimum:

- i. a summary of all activities conducted under closure;
- ii. a summary of variances from the approved Closure Plan;
- iii. a detailed description of all methods and procedures employed to complete closure;
- iv. laboratory sample analysis sheets for all analysis conducted during closure, including raw data;
- v. laboratory analysis summary tables;
- vi. site plans displaying the locations where all media samples were obtained during closure activities;
- vii. sampling and analysis quality assurance/quality control (QA/QC) documentation; and
- viii. types, amounts, and disposal locations of all hazardous wastes placed in the Landfill.

## **5.2.8 Closure Requirements for the Landfill**

### **5.2.8.a Landfill Closure Activities**

The Permittee shall conduct closure activities as specified at Permit Attachment O, Section 1.1.1, Landfill, and other pertinent sections, the modified Closure Plan required at Permit Condition 5.2.8.b and as required by this Permit Part and 40 CFR §§ 264.111 through 264.116 and 40 CFR § 264.310.

### **5.2.8.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 NMED, in accordance with Permit Condition 5.2.2.b. The Permit modification shall provide details on a final Landfill cover and revegetation that meet all the requirements of 40 CFR § 264.310(a).

### **5.2.8.c Landfill Cover**

The Permittee shall cover the Landfill at closure with a final cover as specified in Permit Attachment L, Engineering Report, Section 3.1.6, Final Cover, and Attachment O, Section 1.1.1, Landfill, and as required by 40 CFR § 264.310(a).

### **5.2.8.d Landfill VZMS Monitoring**

The Permittee shall continue the vadose zone monitoring required in Permit Condition 3.7.2 during the closure period at the same frequency and using the same procedures as during the active life of the Facility, as specified in Permit Attachment I, Section 4, Monitoring Procedures. The Permittee shall sample at each monitoring point containing fluid or organic vapor, and shall otherwise comply with the requirements of Permit Condition 4.5.2. If waste analysis shows that a release has occurred, the Permittee shall comply with the release assessment requirements contained at Permit Condition 4.6. Recordkeeping shall be performed in accordance with Permit Condition 2.13.1.h.1.

## **5.3 Post-Closure Care**

### **5.3.1 General Post-Closure Care Requirements**

#### **5.3.1.a Landfill**

The Permittee shall ensure that post-closure care activities at the Landfill are conducted as specified in Permit Attachment P, Post-Closure Care, Section 1, Post-Closure Activities, and as required by this Permit Part and 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 NMED, until the completion of post-closure care has been approved by the NMED.

### **5.3.2 Post-Closure Care Plan Modification**

#### **5.3.2.a Amendment When Necessary**

The Permittee shall submit an updated or amended Post-Closure Care Plan to the NMED for approval, as required by 40 CFR § 264.118(d), whenever:

- i. changes in operating plans or Facility design affect the Post-Closure Care Plan;
- ii. there is a change in the expected year of final closure; or
- iii. events that occur during the active life of the Facility, including partial and final closures, affect the approved Post-Closure Care Plan;

The Permittee shall submit an updated or amended Post-Closure Care Plan whenever there are changes in applicable statutory or regulatory requirements or changes in available technology.

The Permittee shall submit a written request for a Permit modification at least 60 days prior to the proposed change in Facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the Post-Closure Care Plan, as required by 40 CFR § 264.118(d)(3).

The updated Post-Closure Care Plan must be approved by the NMED, in writing, prior to implementation.[40 CFR § 264.118(d)(3)]. If the NMED does not approve the updated Post-Closure Care Plan, the NMED 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 NMED, 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.

### **5.3.2.b Modification Requested by the NMED**

The NMED may request Post-Closure Care Plan modification under the conditions described at Permit Condition 5.3.2.a, in accordance with 40 CFR § 264.118(d)(4).

### **5.3.3 Post-Closure Care Time Schedules**

The Permittee shall implement post-closure care requirements for 30 years after completion of closure of the Landfill as required by 40 CFR § 264.117(a)(1).

At any time, the NMED may, in accordance with 40 CFR § 264.117(a)(2):

- i. shorten the post-closure period if the NMED finds that human health and the environment are protected sufficiently (e.g., leachate or vadose zone 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
- ii. extend the post-closure care period if the NMED determines that this is necessary to protect human health and the environment (e.g., leachate or vadose zone monitoring results indicate a potential for migration of hazardous wastes at levels which may pose a threat to human health or the environment).

### **5.3.4 Post-Closure Care Requirements for the Landfill**

The Permittee shall comply with the post-closure care requirements for the Landfill specified in Permit Attachment P, Section 1.2, Landfill Final Cover, and 40 CFR § 264.310(b). The Permittee shall maintain and monitor the leachate and vadose zone monitoring systems (and groundwater monitoring system, if one is required by the NMED), the Landfill cover, and the storm water collection system, and shall comply with all other applicable requirements in 40 CFR § 264, Subpart F, 40 CFR § 264.117(a)(1) and 40 CFR § 264.310(b) during the post-closure care period.

#### **5.3.4.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 40 CFR § 264.310(b)(1).

#### **5.3.4.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 NMED, in accordance with 40 CFR §§ 264.310(b)(2) and (3).

#### **5.3.4.c Landfill VZMS Monitoring**

The Permittee shall maintain and monitor the Landfill VZMS sump and wells semi-annually, or other frequency approved by the NMED, throughout the post-closure period, as specified at Permit Attachment I, Section 4.1, Monitoring Frequency, and comply with all other applicable requirements of 40 CFR § 264, Subpart F and 40 CFR § 264.310(b)(4).

#### **5.3.4.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 40 CFR § 264.310(b)(5).

#### **5.3.4.e Surveyed Benchmarks**

The Permittee shall protect and maintain surveyed benchmarks used in complying with the surveying and recordkeeping requirements of 40 CFR § 264.309, as required by 40 CFR § 264.310(b)(6).

### **5.3.5 Security**

#### **5.3.5.a Security Requirements**

The Permittee shall comply with all security requirements during the post-closure care period specified in Permit Attachment P, Section 1.1, Security Systems, and as required by 40 CFR § 264.117(b).

#### **5.3.5.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 40 CFR § 264.117(c). Under certain circumstances, NMED may allow the use of property in accordance with 40 CFR §§ 264.117 (c) (1) and (2).

### **5.3.6 Inspections**

The Permittee shall inspect the Landfill cover, run-on/runoff controls, LDRS, LCRS, and VZMS sumps, and monitoring wells during the post-closure care period in accordance with the inspection schedules contained in Permit Attachment D, Inspection Procedures; D1, Inspection Schedules and Checklists, Permit Attachment O, Section 1.1.1, Landfill, and Permit Attachment P, Sections 1.1, Security Systems, 1.4.3, Leak Detection System, and 1.5.2, Inspection and Maintenance, and as required by 40 CFR § 264.117(a)(1).

### **5.3.7 Reporting**

The Permittee shall submit annual reports to the NMED throughout the post-closure care period that summarize inspection and maintenance activities and monitoring results, as required by 40 CFR § 270.31(b).

### **5.3.8 Certification of Post-Closure Care Completion**

No later than 60 days after completion of the established post-closure care period for the Facility, the Permittee shall submit to the NMED, 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 NMED upon request, as required by 40 CFR § 264.120, until the NMED releases the Permittee from the financial assurance requirements for post-closure care contained in Permit Condition 5.4.2.[40 CFR § 264.145(i)].

### **5.3.9 Verification of Post-Closure Care Completion**

The NMED will, within 90 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.

### **5.3.10 Post-Closure Notices**

#### **5.3.10.a Hazardous Waste Records**

No later than 60 days after certification of closure of 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 NMED a record of the type, location, and quantity of hazardous wastes disposed within each cell of the disposal unit of the facility, as required by 40 CFR § 264.119(a).

### **5.3.10.b Notation on Property Deed**

#### **5.3.10.b.1 Record of Notation**

Within 60 days of certification of closure of the hazardous waste disposal unit, the Permittee must record, as required by 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:

- i. the land has been used to manage hazardous wastes;
- ii. its use is restricted, as required by 40 CFR § 264 Subpart G regulations; and
- iii. 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 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 NMED.

#### **5.3.10.b.2 Certification of Deed Notification**

Within 60 days of certification of closure of the hazardous waste disposal unit, the Permittee must submit a certification, signed by the Permittee, that **it** has recorded the notation specified in Permit Condition 5.3.10.b.1, including a copy of the document in which the notation has been placed, to the NMED, as required by 40 CFR § 264.119(b)(2).

### **5.3.11 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 40 CFR Parts 124 and 270.

The Permittee or the subsequent owner or operator, as required by 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 40 CFR § 264.117(c):

- i. is necessary to the proposed use of the property and will not increase the potential hazard to human health and the environment; or
- ii. is necessary to reduce a threat to human health or the environment.

## **5.4 Financial Responsibility**

### **5.4.1 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 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 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 40 CFR §§ 264.142 and 264.144. Changes in financial assurance mechanisms must be approved by the NMED pursuant to 40 CFR § 264.143 and 40 CFR § 264.145. The closure and post-closure cost estimates, prepared in accordance with 40 CFR § 264.142 and 144, are specified in Permit Attachment O2, Financial Assurance for Closure, and Permit Attachment P1, Financial Assurance for Post-Closure Care, respectively.

#### **5.4.1.a Most Recent Cost Estimates**

The cost estimates for closure and post-closure care, prepared in accordance with 40 CFR §§ 264.142 and 264.144, respectively, are specified in 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 5.4.1.b and 5.4.1.c, respectively, the Permittee shall submit these adjusted or revised cost estimates to the NMED by the anniversary date of the establishment of the financial instrument(s) used to comply with Permit Condition 5.4.2.

The latest closure cost estimates will be inserted as replacement pages in Permit Attachment O2. The latest post-closure care cost estimates will be inserted as replacement pages in Permit Attachment P1.

#### **5.4.1.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 5.4.2, as required by 40 CFR § 264.142(b) and § 264.144(b). If a financial test or corporate guarantee is used by the Permittee, then the closure cost estimates must be updated for inflation within 30 days after the close of firm's fiscal year and before submission of updated information to the NMED as specified in 40 CFR § 264.143(f)(3) or 40 CFR § 264.145(f)(5), whichever is applicable. The adjustment may be made by recalculating the post-closure cost estimate in current dollars or by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published by the U.S. Department of Commerce in its Survey of Current Business as specified in 40 CFR §§ 264.142(b)(1) and (2) or 40 CFR §§ 264.144(b)(1) and (2), whichever is applicable. The inflation factor is the result of dividing the latest published annual Deflator by the Deflator for the previous year.

#### **5.4.1.c Cost Estimate Revisions**

No later than 30 days after the NMED 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 40 CFR §§ 264.142(c) and 264.144(c), respectively.

#### **5.4.1.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 40 CFR §§ 264.142(d) and 264.144(d).

### **5.4.2 Financial Assurance for Closure and Post-Closure Care**

#### **5.4.2.a Continuous Compliance with Financial Assurance Requirements**

The Permittee shall demonstrate continuous compliance with 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 this Permit Section (5.4.1), as required by 40 CFR §§ 264.143 and 264.145. This demonstration shall be submitted to the NMED for approval so that it may be implemented at least 60 days prior to the initial receipt of waste at the Facility as specified in Permit Attachment O2, Section 2, Financial Assurance for Closure; Permit Attachment P1, Section 2, Financial Assurance for Post-Closure Care; in accordance with Permit Condition 1.13; and as required by 40 CFR §§ 264.143(f)(3), 264.143(f)(5), 264.145(f)(3), and 264.145(f)(5).

## **PART 6: CORRECTIVE ACTION FOR HAZARDOUS WASTE MANAGEMENT UNITS**

### **6.1 Highlights**

#### **6.1.1 Introduction**

This Part contains permit conditions that ensure an appropriate response in the event of a release of hazardous wastes or constituents at the Facility. Nothing herein shall be construed to prevent or limit the NMED 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, groundwater monitoring requirements, and recordkeeping and reporting requirements for regulated unit. 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 HWMU is the Vadose Zone Monitoring System (VZMS). Permit conditions associated with the VZMS are described in Permit Part 4.

The corrective action permit conditions of this Permit Part address significant contaminant releases from a HWMU that generally originate in the 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.

#### **6.1.2 Hazardous Waste Management Units**

Regulated units are those land-based units that received hazardous wastes after July 26, 1982. The Landfill is the hazardous waste management unit at the Facility and is identified at Table H-1 of Permit Attachment H-1.

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 5. Potential releases from the Landfill are anticipated to be in the form of leachates or organic vapors 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). These systems are addressed in Permit Parts 3 and 4.

### **6.1.3 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 HWMU of this Permit Part is a subset of SWMUs, and as such is subject to the corrective action requirements contained at 40 CFR § 264.101. Regulated units must also comply with the requirements of 40 CFR §§ 264.91 through 264.100 for the purpose of detecting, characterizing, and responding to releases from any solid waste management unit. Groundwater monitoring is conditionally waived at the Facility for reasons specified in Permit Attachment H, Groundwater Monitoring Waiver Request. The corrective action requirements for the HWMU stipulated in this Permit Part are also conditions of the Groundwater Monitoring Waiver approval.

### **6.2 Applicability**

Permit Conditions in this Part apply to the HWMU (the Landfill) and also apply to any other solid waste management unit or area of concern that may result from operations conducted at the Facility.

### **6.3 Action Levels**

Vadose zone fluid and organic vapors 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 or organic vapors action level, the Permittee shall initiate the corrective actions contained in this Permit Part. Significance shall be determined, unless otherwise specified, using the procedures in 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 and organic vapors 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 and organic vapors action levels are described in Permit Part 4, Vadose Zone Monitoring, Permit Condition 4.6, Release Assessment. Action levels will be incorporated into this Permit as they are developed in Permit Attachment R, Action Levels. Baseline chemical concentrations (i.e., action levels) for non-leachates are established in accordance with Permit Section 4.4.1 and are included in Permit Attachment R2, Vadose Zone Baseline Concentrations for Non-Leachates. For organic vapors, action level is defined as a detection of any organic compound that is established to exist in a vapor phase within the regulated unit.

## **6.4 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 6.3, the Permittee shall comply with the requirements of Permit Conditions 6.4.1 through 6.4.8.

### **6.4.1 Notification of Release**

The Permittee shall notify the NMED verbally of the discovery of a release within 24 hours and shall provide the NMED a written report within five days of discovery of a release. The report shall be submitted in accordance with Permit Parts 1.10.9.c and 1.10.9.d.

### **6.4.2 Verification Sampling**

For any substances found in an original analysis obtained in accordance with Permit Condition 4.5, the Permittee shall resample and repeat the analysis using the same methodology as the original analysis. If evidence of an obvious release exists, the Permittee shall immediately initiate the response actions required in Permit Condition 6.4.3, and shall proceed with verification sampling. The Permittee shall furthermore comply with the following requirements:

- i. a written Verification Sampling Report shall be submitted to the NMED as soon as possible, but no later than 15 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;
- ii. if the results of the second analysis confirm the original analysis, the verified constituents, as well as all other constituents listed at 40 CFR § 264, Appendix IX detected in accordance with Permit Condition 6.4.5, shall form the basis for further corrective action in accordance with the requirements contained in this Permit Part;
- iii. 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 NMED an opportunity to be present during the third sampling event through advance notice as soon as the second analysis results are received but no less than 20 days prior to the third sampling event, so that the NMED may obtain split samples;
- iv. if the results of the third analysis do not confirm the existence of contamination as demonstrated by the original analysis, the NMED 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 4.5.2; and
- v. if the results of the third analysis confirm the existence of a release as demonstrated by the original analysis, the verified constituents, as well as all other constituents listed at 40 CFR § 264, Appendix IX detected in accordance with Permit Condition

6.4.5, shall form the basis for further corrective action in accordance with this Permit Part.

### **6.4.3 Response Actions**

When the Permittee identifies evidence of a release, the Permittee shall, 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:

- i. determine whether the contamination can be attributed to some operational disturbance such as an equipment or power failure;
- ii. verify that the VZMS is working as designed;
- iii. verify that the associated leak detection system(s) is working as designed;
- iv. evaluate the need to increase the pumping rate on the LDRS and LCRS pumps, as appropriate;
- v. repair any damage to exposed portions of the liner;
- vi. investigate alternative sources of liquids, leachates, or contamination; and
- vii. review the analysis of the contamination, compare it to the Landfill Operating Record for the previous five years, and attempt to match fingerprint or other indicator parameters, generator analyses, and waste placement records, to determine the source of the leaks.

#### **6.4.3.a Immediate Response Action Report**

The Permittee shall submit a written assessment of the immediate response actions to the NMED within 15 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.

#### **6.4.3.b Response Action Effectiveness Report**

The Permittee shall submit a follow-up Response Action Effectiveness Report to the NMED within 30 days of the Permittee's determination of the release. The Report shall describe how effective the response actions have been in preventing the migration of hazardous wastes or constituents out of the associated regulated unit. This report shall also describe the verification sampling required in Permit Condition 6.4.2.

### **6.4.4 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 NMED. 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 to allow for liner inspection, repair, or controls.

A written summary of the assessment shall be submitted to the NMED within 45 days following the initiation of the immediate response actions.

#### **6.4.5 40 CFR, Part 264, Appendix IX Sampling**

Upon verification of a release from a regulated unit in accordance with Permit Condition 6.4.2, but no later than 30 days after the verification, the Permittee shall analyze the fluids in all VZMS wells for concentrations of the constituents identified in 40 CFR § 264, Appendix IX.

#### **6.4.6 Monthly Progress Reports**

The Permittee shall, upon verification of a release, initiate the submittal of monthly Corrective Action Progress Reports to the NMED.

#### **6.4.7 Submittal of HWMU Investigation Work Plan**

The Permittee shall, within 45 days of the verification of a release from a regulated unit as specified at Permit Condition 6.4.2, submit to the NMED an Investigation Work Plan proposing additional investigation that conforms with the requirements of Permit Condition 10.2.

#### **6.4.8 Submittal of Groundwater Monitoring Work Plan**

The Permittee shall, within 90 days of the verification of a release as specified at Permit Condition 6.4.2, submit to the NMED an application for a Permit modification to establish a groundwater monitoring program meeting the requirements of 40 CFR § 264.97 and the detection monitoring requirements of 40 CFR § 264.98, and shall establish the groundwater action levels as specified at Permit Condition 7.3.3.

### **6.5 Corrective Measures Evaluation**

Based on the results of the reports submitting the results required by Permit Conditions 6.4.3.b, 6.4.4, 6.4.5, and 6.4.7, the NMED will determine the need for a Corrective Measures Evaluation. The NMED will inform the Permittee of its decision in writing.

### **6.6 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 NMED, all monitoring records and other pertinent data, and information used to prepare the appropriate documents required by this Part.

## **6.7 Reporting**

The Permittee shall submit reports to the NMED for approval, in accordance with the schedule contained in Table 6-1, Compliance Schedule for HWMUs.

## **6.8 Interim Measures**

If the NMED determines that a release or potential release of hazardous wastes or constituents poses a threat to human health and the environment, the NMED may require interim measures that shall conform to the requirements of Permit Condition 7.10. The NMED shall determine the specific interim measure(s) or require the Permittee to propose an interim measure(s). The NMED shall notify the Permittee in writing of the requirement to perform interim measures. The Permittee may propose interim measures at any time.

**Table 6-1**  
**Compliance Schedule for HWMU**

<b>DOCUMENT OR INFORMATION</b>	<b>DUE DATE</b>
Release - Oral report (Permit Condition 6.4.1)	24 hours following Permittee's determination of a release above action levels
Release - Written report (Permit Condition 6.4.1)	Five days following Permittee's determination of a release above action levels
Verification Sampling Report (Permit Condition 6.4.2)	15 days following the Permittee's receipt of original analysis results for sample above action levels
Immediate Response Action Report (Permit Condition 6.4.3.a)	15 days following verification of a release
Response Action Effectiveness Report (Permit Condition 6.4.3.b)	30 days following Permittee's determination of a release
Independent Assessment (Permit Condition 6.4.4)	45 days following initiation of immediate response actions
Regulated Unit Investigation Work Plan (Permit Condition 6.4.7)	45 days following Permittee's verification of a release
Permit modification request to initiate Groundwater Monitoring Program (Permit Condition 6.4.8)	90 days following verification of a release

## **PART 7: CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS**

### **7.1 Highlights**

This Permit Part provides requirements for the investigation of environmental contamination at all solid waste management units (SWMUs) and areas of concern (AOCs) at the Triassic Park Waste Disposal Facility (Facility) that may be discovered or reported after the effective date of this Permit. Permit conditions include release identification, notification and investigation requirements, interim measures, remedy selection and implementation, groundwater monitoring, and recordkeeping and reporting requirements

The corrective action permit conditions of this Permit Part address significant contaminant releases that cannot be appropriately managed through Permit Attachment C, Contingency Plan.

#### **7.1.1 Regulatory Background**

Sections 3004(u) and 3013 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 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 at a treatment, storage, or disposal facility, regardless of the time at which the release occurred.

Section 3004(v) of RCRA, Section 74-4-4.A.5.i of the HWA, and 40 CFR § 264.101(c), require corrective action beyond the Facility property boundary, where necessary to protect human health and the environment unless the Permittee demonstrates to the satisfaction of the NMED that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions.

### **7.2 Applicability**

This Permit Part applies to the following:

#### **7.2.1 Existing SWMUs and AOCs**

The Permittee shall implement corrective actions at SWMUs and AOCs when the NMED determines the need for investigations at the SWMU or AOC as specified in Permit Condition 7.9, or as otherwise specified by this Permit. SWMUs and AOCs at the Facility are identified at Table H-2 of Permit Attachment H, Solid Waste Management Units and Areas of Concern Requiring Corrective Action. Table H-1 identifies the HWMU (permitted unit) currently planned for construction at the Facility under Phase IA. The regulated unit (i.e., the Landfill) is a HWMU and is thus subject to the conditions of this Permit Part in addition to the regulated unit specific conditions of Permit Part 6. No SWMUs or AOCs are identified in Table H-2 that require corrective action at the time of Permit issuance.

### **7.2.2 Newly Discovered SWMUs and AOCs**

The Permittee shall implement corrective actions at newly discovered SWMUs and AOCs when the NMED determines the need for investigations at the SWMU or AOC as specified in Permit Condition 7.9, or as otherwise specified by this Permit. The Permittee shall notify the NMED in writing in accordance with Permit Condition 7.7 of any additional SWMUs or AOCs discovered during the course of vadose zone or groundwater 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.

### **7.2.3 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 NMED that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions, as required by 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 as required by 40 CFR § 264.101(c).

## **7.3 Action Levels**

Action levels shall be used by the Permittee to determine when corrective action requirements of this Permit will be initiated. Upon exceedance of an action level, the Permittee shall initiate corrective actions contained in this Permit Part. Significance shall be determined, unless otherwise specified, using the procedures in 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.

Action levels are established in this Permit for vadose zone fluids, subsurface vapors (soil gas), and soils. Action levels shall be incorporated into this Permit as they are developed at Permit Attachment R, Action Levels for Corrective Action.

### **7.3.1 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 in Permit Part 4, Vadose Zone Monitoring, Permit Condition 4.6, 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 R2, Vadose Zone Baseline Values for Non-Leachates.

### **7.3.2 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.

#### **7.3.2.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 in soil to the NMED for approval. The background soil concentrations shall be established as specified in Permit Attachment O, Closure Plan, Section 3, Closure Performance Standard. Once approved, the Permittee shall notify the NMED at least 20 days prior to the start of field activities related to implementation of the Background Soil Concentrations Work Plan.

#### **7.3.2.b Approval for Background Soil Concentrations**

The Permittee shall submit a report summarizing the activities conducted to comply with Permit Section 7.3.2.a that provides the calculated background soil concentrations to the NMED for approval no less than 30 days prior to acceptance of waste at the Facility, in accordance with Permit Condition 1.14. The approved background soil concentrations will be incorporated into this Permit in Permit Attachment R, Action Levels for Corrective Action, Attachment R1, Background Concentrations for Soil.

### **7.3.3 Groundwater Action Levels**

Groundwater action levels shall be used by the Permittee to both initiate and terminate corrective action associated with groundwater. Any detection of an anthropogenic hazardous constituent in groundwater, or any significant increase over approved background inorganic groundwater constituent concentrations, shall be considered indicative of a release and a groundwater action level.

The regulatory requirement to monitor groundwater is currently waived by the NMED's March 2002 Order. If either a release from a regulated unit is verified as specified in Permit Condition 6.4.2, or a release from a SWMU results in the presence of hazardous constituents, including organic vapors, in the vadose zone monitoring system, the NMED will revoke the Groundwater

Monitoring Waiver, unless the Permittee demonstrates to the satisfaction of the NMED, through fate and transport modeling, that the migration of vadose zone hazardous constituents to groundwater is not expected to result in concentrations of any of these hazardous constituents at the water table at levels greater than one-half of groundwater cleanup levels specified at Permit Condition 7.4.1. Upon revocation of the Groundwater Monitoring Waiver, the Permittee shall submit a Permit modification request to the NMED for approval to initiate compliance with 40 CFR § 264, Subpart F, and shall establish background groundwater concentrations (i.e., action levels).

#### **7.3.4 Soil Vapor Gas Action Levels**

The presence of organic chemicals in soil gas shall be used by the Permittees to initiate and terminate corrective action. If a release of contaminants results in the presence of organic vapors in the vadose zone monitoring system, the NMED may require corrective action, revoke the Groundwater Monitoring Waiver, or both.

#### **7.3.5 Detection Limits**

Analytical detection limits shall meet the requirements of Permit Section 8.5 and shall in all cases be below the more stringent of the following two criteria: 1) universal treatment standards (UTS) contained at 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, or the most recent edition. The Permittee may propose alternative detection limits, if the Permittee demonstrates that the required detection limits are unattainable. The Permittee must submit alternative detection limits for NMED review and approval prior to use.

### **7.4 Cleanup Levels**

NMED's cleanup levels for protection of human health are based on excess lifetime cancer risk levels and hazard index levels that are consistent with the EPA's National Oil and Hazardous Substance Pollution Contingency Plan, 40 CFR § 300.430(e)(2)(i)(A)(2). The EPA recommends a range of  $10^{-4}$  to  $10^{-6}$  lifetime excess cancer risk as acceptable. In general, the NMED has selected a target risk level of  $10^{-5}$  for establishing cleanup levels for regulated substances. The NMED has generally selected a target hazard quotient (HQ) of one for individual non-carcinogenic regulated compounds. For contamination involving two or more non-carcinogenic regulated substances, the NMED has generally selected a target hazard index (HI) of one. Unless otherwise specifically provided in this Permit, the Permittee shall follow the cleanup and screening levels described in this Permit Part in implementing the corrective action requirements of this Permit. The Permittee shall comply with the adopted and established cleanup and reporting requirements described in this Permit Part. In addition, cleanup levels for the protection of the environment shall address ecological risk consistent with the NMED's guidance for assessing ecological risk as specified in Permit Condition 7.12.

#### **7.4.1 Groundwater Cleanup Levels**

The cleanup levels for all contaminants in groundwater shall be the New Mexico Water Quality Control Commission (WQCC) groundwater quality standards, 20.6.2.3103 NMAC, the cleanup levels for toxic pollutants calculated in accordance with 20.6.2.7.WW NMAC, and the drinking water maximum contaminant levels (MCLs) adopted by EPA under the federal Safe Drinking Water Act (42 U.S.C. §§ 300f to 300j-26) or the New Mexico Environmental Improvement Board (EIB), 20.7.10 NMAC. If both a WQCC groundwater quality standard and an MCL have been established for an individual substance, then the lower of the levels shall be the cleanup level for that substance.

The most recent version of NMED's Tap Water Screening Levels listed in Table A-1 of the *July 2015 NMED Risk Assessment Guidance for Site Investigation and Remediation* (SSG, as it may be updated) shall be used to establish the cleanup level if either a WQCC standard or an MCL has not been established for a specific substance. In the absence of an NMED tap water screening level then the EPA *Regional Screening Levels for Chemical Contaminants at Superfund Sites* (RSLs, as updated) for tap water shall be used. If no WQCC groundwater standard or MCL has been established for a contaminant for which toxicological information is published, the Permittee shall use a target excess cancer risk level of  $10^{-5}$  for carcinogenic substances and a HI of 1.0 for non-carcinogenic substances as the basis for proposing a cleanup level for the contaminant. If the background concentration of an inorganic constituent, as established in accordance with Permit Part 7.3.3, exceeds the standard then the cleanup level is the background concentration for that specific substance. Any cleanup level based on a risk assessment must be submitted to the NMED for review and approval.

#### **7.4.2 Soil and Sediment**

The cleanup levels for soil and sediments shall be the cleanup levels for soil set forth in this Permit Part. Should the Permittee be unable to achieve the Soil Cleanup Levels established under Permit Condition 7.4.2.a, the Permittee shall conduct risk assessments in accordance with Permit Condition 7.12. Any cleanup level based on a risk assessment must be submitted to the NMED for its review and approval.

##### **7.4.2.a Soil Cleanup Levels**

The NMED has specified soil-screening levels that are based on a target total excess cancer risk of  $10^{-5}$  for carcinogenic substances and, for non-carcinogenic substances, a target HI of 1.0 for residential, industrial land use, and the construction worker scenarios. If the potential for migration to groundwater is applicable for a site, the NMED may determine that a dilution attenuation factor (DAF), as calculated using NMED-approved methods ( See NMED's 2015 *NMED Risk Assessment Guidance for Site Investigation and Remediation* (SSG), (as updated)), for contaminated soils is appropriate to achieve clean closure. This approach may apply at sites where the migration of contaminants through the soil column to groundwater has occurred or

when the NMED determines that the potential exists for migration of contaminants through the soil column to groundwater. Soil cleanup levels shall be the target soil screening levels listed in the SSG or the most recent version if it has been updated. If a NMED soil screening level has not been established for a substance for which toxicological information is published, the soil cleanup level shall be established using the most recent version of the EPA RSL for residential and industrial soil for compounds designated as “n” (non-carcinogen effects) or ten times the EPA RSL for compounds designated “c” (carcinogen effects). The cumulative risk shall not exceed a total excess cancer risk of  $10^{-5}$  for carcinogenic substances and, for non-carcinogenic substances, a target HI of 1.0 at sites where multiple contaminants are present.

If the current and reasonably foreseeable future land use is one for which the NMED has not established soil screening levels, the Permittee may propose cleanup levels to the NMED based on a risk assessment and a target excess cancer risk level of  $10^{-5}$  for carcinogenic substances or an HI of 1.0, based on current and reasonably foreseeable future land use (e.g., recreational, construction worker).

Petroleum hydrocarbons may be detected in environmental media as the result of contaminant releases where individual hazardous constituents are not present at significant concentrations. In these cases, the Permittee shall use the most recent version of the SSG for cleanup of petroleum hydrocarbons in soil.

#### **7.4.2.b Surface Water Cleanup Levels**

The Permittee shall comply with the surface water quality standards outlined in the Clean Water Act (33 U.S.C. §§ 1251 to 1387), the New Mexico WQCC Regulations (20.6.2 NMAC), and the State of New Mexico Standards for Interstate and Intrastate Surface Waters (20.6.4 NMAC).

#### **7.4.2.c Vapor Intrusion Cleanup Levels**

The Department has specified vapor intrusion screening levels for volatile organic compounds that are based on a target total excess cancer risk of  $10^{-5}$  and for noncarcinogenic Contaminants, a target HI of one (1.0) for residential and industrial land use scenarios. The target residential and industrial vapor intrusion screening levels for selected substances are listed in the Department’s *Risk Assessment Guidance for Site Investigations and Remediation* (SSG, December 2014, as it may be updated). The vapor intrusion shall be evaluated for sites that meet the criteria specified in the SSG. If a Contaminant is not listed in the SSG, the Respondents shall calculate the vapor intrusion screening level following the methodology specified in the Department’s SSG.

### **7.5 Ecological Risk Evaluation**

The Permittee shall derive cleanup levels for each hazardous waste and for hazardous constituents for each ecological zone at the Facility using the methodology in NMED’s 2015 SSG (as updated). If the ecological risk evaluation indicates that a lower cleanup level for a hazardous waste or hazardous constituent in groundwater, soil, or surface water is necessary to protect environmental receptors, NMED may establish cleanup levels based on ecological risk

for hazardous waste or hazardous constituents in groundwater, soil, or surface water that are lower than levels that are solely protective of human health.

## **7.6 Variance from Cleanup Levels**

If attainment of the established cleanup level is demonstrated to be technically infeasible, the Permittee may perform a risk-based evaluation to establish alternative cleanup levels for specific media at individual corrective action units. The risk-based evaluation should be conducted in accordance with the most recent version of NMED's *Risk Assessment Guidance for Site Investigation and Remediation*. For groundwater, if the Permittee proposes to demonstrate the technical infeasibility of achievement of a specific groundwater cleanup level that is a WQCC standard, the applicable requirements of the WQCC Regulations, 6.2.4103.E and 4103.F NMAC, shall be followed.

For all other instances in which the Permittee seeks a variance from a cleanup level, the Permittee shall submit a demonstration to the NMED that achievement of the cleanup level is impracticable. In making such demonstration, the Permittee may consider such things as technical or physical impracticability of the project, the effectiveness of proposed solutions, the cost of the project, hazards to workers or to the public, and any other basis that may support a finding of impracticability at a particular SWMU or AOC. The Permittee may also refer to all applicable guidance concerning impracticability, including, for example, the criteria set forth in EPA's *Interim Final Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration* (September 1993) and the most recent version of EPA's Handbook of Groundwater Protection and Cleanup Policies for RCRA Corrective Action. In addition to demonstrating the basis for their impracticability request, the Permittee's written submission shall propose the action to be taken by the Permittee if the NMED approves the impracticability demonstration. Such action shall include, but is not limited to, completion of a site-specific risk assessment and identification of alternate cleanup levels.

The NMED will review the Permittee's written submission concerning impracticability and determine whether achievement of the cleanup level is impracticable. The NMED may consider such things as technical or physical feasibility of the project, the effectiveness of proposed solutions, the cost of the project, hazards to workers or to the public, and any other basis that may support or refute a finding of impracticability at a particular SWMU or AOC. If the NMED approves or disapproves the Permittee's impracticability demonstration, it will notify the Permittee in writing, and such notice will describe the specific actions to be taken by the Permittee.

## **7.7 Newly Identified SWMUs and AOCs**

### **7.7.1 Notification of Newly Discovered SWMUs or AOCs**

Within fifteen (15) days after the discovery of any newly identified potential SWMU or AOC, the Permittee shall notify the NMED in writing of such discovery. The notification shall include, at a

minimum, the location of the SWMU or AOC and all available information pertaining to the nature of any release of contaminants from the SWMU or AOC, including the contaminants released the magnitude of the release, and the media affected by the release.

Within ninety (90) days after submitting such notification, the Permittee shall submit to the NMED for review and written approval a SWMU Assessment Report or a Release Assessment Report for each newly identified potential SWMU or AOC. Such Report shall include the following information, to the extent available:

1. Location of each unit on a topographic map of appropriate scale;
2. Type and function of each unit;
3. General dimensions, capacities, and structural description of each unit (including all available plans/drawings);
4. Dates of operation for each unit;
5. Identification of all wastes that have been managed at or in each unit, to the extent available. Include any available data on hazardous constituents in the wastes; and
6. All available information pertaining to any release of contaminants from each unit, including groundwater data, soil analyses, air sampling or monitoring data, and surface water data.

Based on the results of the SWMU or Release Assessment Report, the NMED will determine the need for further investigations at the SWMU or AOC identified in the Report, including the need for an investigation work plan under Permit Section 7.11.

### **7.7.2 Notification of Release**

The Permittee shall notify the NMED orally of the discovery of a SWMU or AOC and its associated release within 24 hours, and shall notify the NMED in writing within 15 days of discovery of any contamination identified at a newly discovered SWMU or suspected AOC.

### **7.7.3 SWMU Assessment Report**

The Permittee shall prepare and submit to the NMED, within 90 days of the notification required in Permit Condition 7.7.2, a SWMU Assessment Report (SAR) for each SWMU or suspected AOC identified under Permit Condition 7.7. At a minimum, the SAR shall provide the following information:

- i. location of unit(s) on a topographic map of appropriate scale, as required by 40 CFR § 270.14(b)(19);
- ii. designation of type and function of unit(s);

- iii. general dimensions, capacities, and structural description of unit(s). Any available plans/drawings shall be included;
- iv. dates that the unit(s) was operated;
- v. 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
- vi. all available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (e.g., soil analyses, vadose zone fluids, and vadose zone organic vapors data).

Based on the results of the SWMU or Release Assessment Report, the Department will determine the need for further investigations at the SWMUs or AOCs identified in the SWMU or Release Assessment Report, including the need for submittal of an investigation work plan in accordance with Permit Section 7.9.1.

## **7.8 Interim Measures**

### **7.8.1 Interim Measures Required by the NMED**

Upon written notification by NMED, the Permittee shall prepare and submit an Interim Measures (IM) Work Plan at any release site, SWMU or AOC where NMED determines that interim measures are necessary to minimize or prevent the migration of hazardous waste or hazardous constituents and limit actual or potential human and environmental exposure to hazardous waste or hazardous constituents while long term corrective action remedies are evaluated and implemented. The Permittee shall submit its IM Work Plan to NMED within 30 calendar days of NMED's notification, unless another time period is specified by the NMED. Such interim measures may be conducted concurrently with any other required corrective action.

### **7.8.2 Permittee-Initiated Interim Measures**

The Permittee may initiate interim measures at a SWMU or AOC by notifying NMED, in writing, at least 60 calendar days prior to beginning the Interim Measures. NMED will approve the Permittee-initiated IM, conditionally approve the IM, or require submittal of an IM work plan for NMED review and approval prior to implementation of the Interim Measure. Upon approval, NMED will establish a schedule for the submittal of a report(s) summarizing the actions and results of the interim measure implementation and the progress in achieving cleanup.

### **7.8.3 Emergency Interim Measures**

The Permittee may determine, during implementation of site investigation activities, that emergency interim measures are necessary to address an immediate threat of harm to human health or the environment. The Permittee shall notify the NMED within one business day of discovery of the facts giving rise to the threat, and shall propose emergency interim measures to

address the threat. If the NMED approves the emergency interim measures in writing, the Permittee may implement the proposed emergency interim measures without submitting an interim measures work plan. If circumstances arise resulting in an immediate threat to human health or the environment such that initiation of emergency interim measures are necessary prior to obtaining written approval from the NMED, the Permittee shall notify the NMED within one business day of taking the emergency interim measure. The notification shall contain a description of the emergency situation, the types and quantities of contaminants involved, the emergency interim measures taken, and contact information for the emergency coordinator who handled the situation. The notification shall also include a written statement justifying the need to take the emergency action without prior written approval from the NMED. This requirement shall not be construed to conflict with 40 CFR § 264.1(g)(8) or 40 CFR § 270.61.

#### **7.8.4 Interim Measures 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.

#### **7.8.5 Interim Measures Work Plan Approval**

The IM Work Plan imposed under Permit Condition 7.8.1 or initiated by the Permittee under Permit Condition 7.8.2 must be approved by the NMED in writing prior to implementation. The NMED will specify the start date of the IM Work Plan schedule in the letter approving the IM Work Plan. The NMED will approve, approve with conditions, or disapprove the IM Work Plan in accordance with Permit Condition 7.16.6.

#### **7.8.6 Interim Measures Implementation**

##### **7.8.6.a Implementation of Approved Interim Measures Work Plan**

The Permittee shall implement and complete interim measures within 180 days of the start of implementation of the interim measure. The Permittee may submit a written request to the NMED to extend the period for implementation of the interim measure. The request must provide justification for the extension and a proposed schedule for completion of the interim measure. The NMED will notify the Permittee, in writing, of the approval or disapproval of the request within 30 days of receipt of the IM implementation extension request.

##### **7.8.6.b Notification of Changes to Interim Measures**

The Permittee shall give notice to the NMED as soon as possible of any planned changes, reductions, or additions to the approved IM Work Plan imposed under Permit Condition 7.8.1 or initiated by the Permittee under Permit Condition 7.8.2.

## **7.8.7 Interim Measures Reporting**

### **7.8.7.a Progress Reports**

If the time required for completion of IM is greater than one (1) year, the Permittee shall provide the NMED with Progress Reports at intervals specified in the approved IM Work Plan. The progress reports shall generally comply with the requirements of Permit Section 7.8.7.b (Interim Measures Report).

### **7.8.7.b Final Interim Measures Report**

The Permittee shall prepare and submit an IM Report to the NMED within 90 days following completion of IM conducted in general accordance with Permit Section 7.13.5.a. The IM Report shall contain, at a minimum, the following information:

- i. a description of IM implemented;
- ii. a summary of results;
- iii. a summary of all problems encountered during IM investigations;
- iv. a summary of accomplishments and/or effectiveness of IM; and
- v. copies of all relevant laboratory/monitoring data, maps, logs, and other related information.

## **7.9 Corrective Action Investigations**

### **7.9.1 Investigation Work Plan**

If the NMED determines that an Investigation Work Plan is necessary, the Permittee shall prepare and submit to the NMED, within 90 days of notification by the NMED, an Investigation Work Plan in accordance with Permit Part 10.2.

Investigation Work Plans 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. The Permittee shall provide sufficient justification and associated documentation that a release is not probable or has already been characterized if a unit or a media/pathway associated with a unit (ground water, surface water, soil, subsurface gas, or air) is not included in an Investigation Work Plan. Such deletions of a unit, medium, or pathway from the work plan(s) are subject to the approval of NMED. The Permittee shall provide sufficient written justification for any omissions or deviations from the minimum requirements specified in Permit Section 10 (*Reporting Requirements*). Such omissions or deviations are subject to the approval of NMED. In addition, Investigation Work Plans shall include all investigations necessary to ensure compliance with 40 CFR 264.101). The Permittee shall submit Investigation Work Plans by the dates specified by the

NMED. All monitoring, sampling, and analysis shall be conducted in accordance with the investigation methods and procedures set forth in Permit Part 8.

### **7.9.2 Investigation Report**

The Permittee shall prepare and submit to NMED Investigation Reports for the investigations conducted in accordance with Investigation Work Plans submitted under Permit Section 7.9.1. The Permittee shall submit the Investigation Reports to NMED for review and approval in accordance with the schedules included in its approved Investigation Work Plans. The Investigation Reports shall include an analyses and summaries of all required investigations. The summary shall describe the type and extent of contamination at each site investigated, including sources and migration pathways identify all hazardous waste or constituents present in all media, and describe actual or potential receptors. The Investigation Report shall also describe the extent of contamination (qualitative and quantitative) in relation to background levels of the area. If the Investigation Report concludes that further work is necessary, the report shall include a schedule for submission of a work plan for the next phase of investigation.

#### **7.9.2.a Cleanup Levels**

The Investigation Reports shall identify the applicable cleanup levels in accordance with Permit Section 7.4 (Cleanup Levels) for each hazardous waste or hazardous constituent found during a site investigation. The Permittee shall propose in the Investigation Report or in a subsequent Risk Assessment or Corrective Measures Evaluation appropriate cleanup levels for those hazardous wastes or hazardous constituents without established cleanup levels based upon human and ecological risk.

#### **7.9.2.b Requirement to Proceed**

Based upon NMED's review of the Investigation Report, NMED will notify the Permittee of the need for further investigative action, if necessary, and inform the Permittee, if not already notified, of the need for a Corrective Measures Study. NMED will notify the Permittee if corrective action is complete. If NMED determines that further investigation is necessary, NMED will require the Permittee to submit a work plan for approval that includes a proposed schedule for additional investigation(s).

### **7.10 Risk Assessment**

The Permittee shall attain the cleanup goals outlined in Permit Section 7.4 (Cleanup Levels) including, as necessary, performance of risk analysis to establish alternate cleanup goals, at each site for which the NMED determines that corrective measures are necessary, in the format included in the Permit Section 10 (Reporting Requirements), The Permittee shall submit to the NMED for approval a Risk Assessment Report in accordance with this Permit Section (7.10) for sites where risk analyses are conducted.

## **7.11 Corrective Measures Evaluation**

The NMED will require corrective measures at a site if the NMED determines, based on the Investigation Report and other information available to the NMED, that there has been a release of contaminants into the environment at the site and that corrective action is necessary to protect human health and the environment. Upon making such a determination, the NMED will notify the Permittee in writing and specify a due date for the submittal of the necessary reports and evaluations in the written notification.

### **7.11.1 Corrective Measures Evaluation Report**

Following written notification from the NMED that a Corrective Measures Evaluation (CME) is required, the Permittee shall prepare and submit to the NMED for approval a CME Report in accordance with the schedule included in the written notification. The corrective measures evaluation shall evaluate potential remedial alternatives and shall recommend a preferred remedy that will be protective of human health and the environment and that will attain the appropriate cleanup goals. The CME Report shall be prepared in accordance with the format outlined in Permit Part 10.6. The CME Report shall at a minimum, include the following:

- i. a description of the location, status, and current use of the site;
- ii. a description of the history of site operations and the history of releases of contaminants;
- iii. a description of site surface conditions;
- iv. a description of site subsurface conditions;
- v. a description of on- and off-site contamination in all affected media;
- vi. an identification and description of all sources of contaminants;
- vii. an identification and description of contaminant migration pathways;
- viii. an identification and description of potential receptors;
- ix. a description of cleanup standards or other applicable regulatory criteria;
- x. an identification and description of a range of remedy alternatives;
- xi. remedial alternative or bench scale testing results;
- xii. a detailed evaluation and rating of each of the remedy alternatives, applying the criteria set for the in Permit Section 10.6;
- xiii. an identification of a proposed preferred remedy or remedies;
- xiv. design criteria of the selected remedy or remedies; and

- xv. a proposed schedule for implementation of the preferred remedy.

### **7.11.2 Cleanup Standards**

The Permittee shall select corrective measures that are capable of achieving the cleanup standards and goals outlined in Permit Part 7.4 including, as applicable, approved alternate cleanup goals established by a risk assessment.

### **7.11.3 Remedy Evaluation Criteria**

#### **7.11.3.a Threshold Criteria**

The Permittee shall evaluate each of the remedy alternatives for the following threshold criteria. To be selected, the remedy alternative must:

- i. be protective of human health and the environment;
- ii. attain media cleanup standards;
- iii. control the source or sources of releases so as to reduce or eliminate, to the extent practicable, further releases of contaminants that may pose a threat to human health and the environment; and
- iv. comply with applicable standards for management of wastes.

#### **7.11.3.b Remedial Alternative Evaluation Criteria**

The Permittee shall evaluate each of the remedy alternatives for the factors described in this Permit Part. These factors shall be balanced in proposing a preferred alternative.

#### **7.11.3.c Long-term Reliability and Effectiveness**

The remedy shall be evaluated for long-term reliability and effectiveness. This factor includes consideration of the magnitude of risks that will remain after implementation of the remedy; the extent of long-term monitoring, or other management or maintenance that will be required after implementation of the remedy; the uncertainties associated with leaving contaminants in place; and the potential for failure of the remedy. The Permittee shall give preference to a remedy that reduces risks with little long-term management, and that has proven effective under similar conditions.

#### **7.11.3.d Reduction of Toxicity, Mobility, or Volume**

The remedy shall be evaluated for its reduction in the toxicity, mobility, and volume of contaminants. The Permittee shall give preference to a remedy that uses treatment to more completely and permanently reduce the toxicity, mobility, and volume of contaminants.

#### **7.11.3.e Short-Term Effectiveness**

The remedy shall be evaluated for its short-term effectiveness. This factor includes consideration of the short-term reduction in existing risks that the remedy would achieve; the time needed to achieve that reduction; and the short-term risks that might be posed to the community, workers, and the environment during implementation of the remedy. The Permittee shall give preference to a remedy that quickly reduces short-term risks, without creating significant additional risks.

#### **7.11.3.f Implementability**

The remedy shall be evaluated for its implementability or the difficulty of implementing the remedy. This factor includes consideration of installation and construction difficulties; operation and maintenance difficulties; difficulties with cleanup technology; permitting and approvals; and the availability of necessary equipment, services, expertise, and storage and disposal capacity. The Permittee shall give preference to a remedy that can be implemented quickly and easily, and poses fewer and lesser difficulties.

#### **7.11.3.g Cost**

The remedy shall be evaluated for its cost. This factor includes a consideration of both capital costs, and operation and maintenance costs. Capital costs shall include, without limitation, construction and installation costs; equipment costs; land development costs; and indirect costs including engineering costs, legal fees, permitting fees, startup and shakedown costs, and contingency allowances. Operation and maintenance costs shall include, without limitation, operating labor and materials costs; maintenance labor and materials costs; replacement costs; utilities; monitoring and reporting costs; administrative costs; indirect costs; and contingency allowances. All costs shall be calculated based on their net present value. A remedy that is less costly, but does not sacrifice protection of health and the environment, shall be preferred.

#### **7.11.4 Corrective Measures Evaluation Report Approval**

The NMED will review the Corrective Measures Evaluation (CME) Report and notify the Permittee in writing of approval, approval with modifications, or disapproval of the report in accordance with Permit Part 7.18.6. The NMED's approval of the CME Report shall not be construed to mean that the NMED agrees with the recommended preferred remedy. Based on preliminary results and the CME Final Report, the NMED may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

#### **7.11.5 Relationship to Corrective Measures Requirements**

The Corrective Measures Evaluation shall serve as a Corrective Measures Study for the purposes of RCRA compliance. See 55 Fed. Reg. 30875-77 (July 27, 1990) (proposed 40 CFR 264.520-264.524). Remedy Approval and Permit Modification

### **7.11.6 Remedy Selection**

Upon approval of the Corrective Measures Evaluation Report, NMED will select a remedy or remedies for the site. NMED may choose a different remedy from that recommended by the Permittee. NMED will issue a Statement of Basis for selection of the remedy, and will issue a draft of the decision for public comment in accordance with the public participation requirements applicable to remedy selection under sections 20.4.1.900 NMAC (incorporating 40 CFR 270.41) and 20.4.1.901 NMAC. NMED will issue a response to public comments at the time of NMED's final decision.

### **7.11.7 Financial Assurance for Corrective Action**

The Permittee shall submit to the NMED evidence of financial responsibility for completing the corrective actions identified in the approved CME Final Report, as required by 40 CFR § 264.101(b) and (c). Proof of Financial Assurance to implement the selected remedy shall be submitted to the NMED within 120 days, or other time approved by the NMED, of completion of the Permit modification incorporating the approved remedy.

### **7.11.8 Permit Modification for Remedy Identification**

As required by 40 CFR § 270.41, a Permit modification will be initiated by the NMED after recommendation of a remedy under Permit Condition 7.12.1. This modification will serve to incorporate a final remedy into this Permit and to establish the financial cost of the remedy.

## **7.12 Corrective Measure Implementation**

The Permittee shall implement the final remedy selected by the NMED.

### **7.12.1 Corrective Measures Implementation Plan**

Within 90 days after the NMED's selection of a final remedy, or as otherwise specified by the schedule contained in the approved Corrective Measure Evaluation Report or as specified by a schedule required by the NMED in the written approval notification, the Permittee shall submit to the NMED for approval a Corrective Measures Implementation Plan outlining the design, construction, operation, maintenance, and performance monitoring for the selected remedy, and a schedule for its implementation. The Corrective Measures Implementation Plan shall, at a minimum, include the following elements:

- i. a description of the selected final remedy;
- ii. a description of the cleanup goals and remediation system objectives;
- iii. an identification and description of the qualifications of all persons, consultants, and contractors that will be implementing the remedy;

- iv. detailed engineering design drawings and systems specifications for all elements of the remedy;
- v. a construction work plan;
- vi. an operation and maintenance plan;
- vii. the results of any remedy pilot tests;
- viii. a plan for monitoring the performance of the remedy, including sampling and laboratory analysis of all affected media;
- ix. a waste management plan;
- x. a proposed schedule for submission to the NMED of periodic progress reports; and
- xi. a proposed schedule for implementation of the remedy.

#### **7.12.2 Approval of Corrective Measures Implementation Plan**

The NMED will review the Corrective Measures Implementation Plan and notify the Permittee in writing of approval, approval with modifications, or disapproval of the plan in accordance with Permit Part 7.16.6.

#### **7.12.3 Health and Safety Plan**

The Permittee shall conduct all activities in accordance with a site-specific or facility-wide Health and Safety Plan during all construction, operation, maintenance, and monitoring activities conducted during corrective measures implementation.

#### **7.12.4 Progress Reports**

The Permittees shall submit to the NMED progress reports in accordance with the schedule approved in the Corrective Measures Implementation Plan. The progress reports shall, at a minimum, include the following information:

- i. a description of the remedy work completed during the reporting period;
- ii. a summary of problems, potential problems, or delays encountered during the reporting period;
- iii. a description of actions taken to eliminate or mitigate the problems, potential problems, or delays;
- iv. a discussion of the remedy work projected for the next reporting period, including all sampling events;

- v. copies of the results of all monitoring, including sampling and analysis, and other data generated during the reporting period; and
- vi. copies of all waste disposal records generated during the reporting period.

### **7.12.5 Remedy Completion**

#### **7.12.5.a Remedy Completion Report**

Within 90 days, or other time approved by the NMED, after completion of remedy, the Permittee shall submit to the NMED a Remedy Completion Report. The report shall, at a minimum, include the following items:

- i. a summary of the work completed;
- ii. a statement, signed by a New Mexico registered professional engineer, that the remedy has been completed in accordance with the NMED approved work plan for the remedy;
- iii. as-built drawings and specifications signed and stamped by a registered professional engineer;
- iv. copies of the results of all monitoring, including sampling and analysis, and other data generated during the remedy implementation, if not already submitted in a progress report;
- v. copies of all waste disposal records, if not already submitted in a progress report; and
- vi. a certification, signed by a responsible official of the Permittee, stating: “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to 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 fine and imprisonment for knowing violations.”

### **7.12.6 Accelerated Clean-up Process**

If the Permittee identifies a corrective action or measure that, if implemented voluntarily, will reduce risks to human health and the environment to levels acceptable to the NMED, will reduce cost and/or will achieve cleanup of a contaminated location, ahead of schedule, the Permittee may implement the corrective measure as provided in this Permit Section, in lieu of the process established in Permit Condition 7.9. The accelerated cleanup process shall be used at sites to implement presumptive remedies (*see* 61 Fed. Reg. 19432, 19439-40)(May 1, 1996)) at small-

scale and relatively simple sites where groundwater contamination is not a component of the accelerated cleanup, where the remedy is considered to be the final remedy for the site, and where the field work will be accomplished within 180 days of the commencement of field activities. The proposed accelerated cleanup will be documented in an Accelerated Corrective Measure Work Plan, which shall include:

- i. a description of the proposed remedial action, including details of the unit or activity that is subject to the requirements of this Permit;
- ii. an explanation of how the proposed cleanup action is consistent with the overall corrective action objectives and requirements of this Permit;
- iii. the methods and procedures for characterization and remediation sample collection and analyses; and
- iv. a schedule for implementation and reporting on the proposed cleanup action.

The Permittee shall notify the NMED of the planned accelerated corrective measure a minimum of 60 days prior to the commencement of any accelerated field activity. The notification shall include the submittal of the Plan if not already submitted to the NMED.

#### **7.12.7 Accelerated Corrective Measures Work Plan**

The Permittee shall obtain approval of an Accelerated Corrective Measures Work Plan prior to implementation. The Permittee shall prepare the Work Plan in general accordance with the requirements of Permit Part 10 (Reporting Requirements). The Work Plan shall be submitted to the NMED for review in accordance with the procedures in Permit Part 7.16.6. If the NMED disapproves the Accelerated Corrective Measures Work Plan, the NMED will notify the Permittee in writing of the Plan's deficiencies and specify a due date for submission of a revised Accelerated Corrective Measures Work Plan. The Permittee shall include an implementation schedule in the revised Accelerated Corrective Measures Work Plan.

#### **7.12.8 Accelerated Corrective Measures Implementation**

The Permittee shall implement the accelerated corrective measures in accordance with the approved Accelerated Corrective Measures Work Plan. Within 90 days of completion of the accelerated corrective measures, the Permittees shall submit to the NMED for approval a Remedy Completion Report in a format approved by the NMED in general accordance with Permit Part 10 (Reporting Requirements). If upon review, the NMED identifies any deficiencies in the Remedy Completion Report, the NMED will notify the Permittee in writing.

### **7.13 Groundwater Monitoring**

If a release from a SWMU results in the presence of hazardous constituents in the vadose zone monitoring system, the Groundwater Monitoring Waiver will be revoked by the NMED, unless

the Permittee demonstrates to the satisfaction of the NMED that the migration of vadose zone hazardous constituents to groundwater is not expected to occur. Within 90 days of revocation of the Groundwater Monitoring Waiver, the Permittee shall submit a Groundwater Monitoring Work Plan to the NMED for approval to initiate compliance with 40 CFR § 264.97, General groundwater monitoring requirements, and 40 CFR § 264.98, Detection monitoring program. The Permittee shall establish background groundwater concentrations in accordance with Permit Condition 7.3.3.

#### **7.14 Recordkeeping**

For each unit undergoing corrective action under this Part, the Permittee shall retain, until completion of the post-closure care, all records of monitoring information and other pertinent data and information used to prepare the applicable documents required by this Part.

#### **7.15 Procedures**

##### **7.15.1 Modification of the Corrective Action Compliance Schedule**

If at any time the NMED determines that modification of Table 7-1, Corrective Action Compliance Schedule for Solid Waste Management Units and Areas of Concern, is necessary, the NMED may initiate a modification to Table 7-1. The Permittee may also request a Permit modification to change Table 7-1.

Modifications to change Table 7-1 will be in accordance with the applicable provisions of 40 CFR § 270.41 or § 270.42.

##### **7.15.2 Modification for Necessary Change**

If the Permittee or the NMED determines that the requirements of this Permit Part no longer satisfies the requirements of 40 CFR § 264, Subpart F, the Permittee shall, within 90 days of determination, submit an application for a Permit modification to make any appropriate changes to this Permit Part as required by 40 CFR § 270.42.

##### **7.15.3 Work Plan and Report Requirements**

The Permittee shall submit work plans and reports to the NMED according to the schedule contained at Table 7-1. The work plans and reports listed in Table 7-1 shall be signed and certified as required by 40 CFR § 270.11.

##### **7.15.3.a Approval of the NMED for Work Plans and Schedules**

All work plans and schedules shall be subject to approval by the NMED 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 NMED. Upon approval, the Permittee shall implement all work plans and schedules as written.

### **7.15.3.b Schedule for Submittals**

All work plans and reports shall be submitted in accordance with the schedule contained at Table 7-1. Extensions of the due date for submittals may be granted by the NMED 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.

### **7.15.4 Work Plan Amendment**

If the Permittee at any time determines that the work plans required under this Part no longer satisfy the requirements of 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 NMED within 90 days of such determination. After submittal of an amended work plan, the Permittee shall adhere to any work plan schedule previously approved until NMED approves the amended work plan.

### **7.15.5 Submittals to the NMED**

The Permittee shall provide two copies of all reports and work plans to the NMED in accordance with Permit Condition 1.12.

### **7.15.6 Approval of Work Plans and Other Documents**

All documents requiring NMED approval (including monitoring plans, work plans, including Investigation Work Plans, Interim Measures Work Plans, Accelerated Corrective Measures Work Plans, and Corrective Measures Implementation Plans; Corrective Measures Evaluation Reports) and all associated schedules that the Permittee prepares under the terms of this Permit must be approved by the NMED prior to their implementation. Upon receiving a work plan or other document for approval, the NMED will review the document and either approve the document, approve it with modifications, disapprove or reject the document in accordance with 20.4.2.201.B(4). The NMED may require resubmittal of the document and specify a due date for such submittal. Each work plan shall meet or address the requirements of this Permit in one or more of the following ways:

- i. The work plan shall provide for performance of the work in full compliance with the requirements of this Permit.
- ii. The work plan shall state that work meeting the requirements of this Permit has been completed. The background section of the work plan shall summarize the data or other information used to satisfy the investigation requirements of this Permit. The summaries shall cite supporting documents with corresponding page numbers.
- iii. The work plan shall propose to the NMED alternate requirements that differ from those in this Permit. Any such proposal shall be in writing, shall specifically identify each proposed alternate requirement and how it differs from the requirement in the Permit, and

shall be accompanied by a detailed written justification. Alternate requirements may be satisfied by previous work that is documented in the work plan as described in Paragraph 2 above. If the NMED approves in writing a work plan with alternate requirements, the alternate requirements of the work plan, rather than the requirements of the Permit, shall be applicable and enforceable.

Upon NMED approval, all monitoring plans, work plans, and Corrective Measures Evaluation Reports, and associated schedules are incorporated herein by reference, including any approved extensions and required modifications, and become an enforceable part of this Permit. Work plans and reports subject to this Permit Section (7) shall not be considered modifications of this Permit. Any noncompliance with approved plans and schedules shall be noncompliance with this Permit.

#### **7.15.7 Provisions Governing Extensions of Time**

The Permittee may seek an extension of time in which to perform a requirement of this Permit, for good cause, by sending a written request for extension of time and proposed revised schedule to the NMED. The request shall state the length of the requested extension and describe the basis for the request. NMED will respond in writing to any request for extension following receipt of the request. If the NMED denies the request for extension, it will state the reasons for the denial.

## **PART 8: INVESTIGATION AND SAMPLING METHODS AND PROCEDURES**

### **8.1 Highlights**

The Permittee must submit to the NMED, for review and written approval, site-specific work plans for sites where a release(s) of contaminants has occurred prior to the commencement of field activities where environmental investigation, corrective action, sampling or monitoring is required. The site-specific work plans shall include all methods to be used to conduct all activities at each site or unit and shall be prepared in accordance with the format described in Permit Section 10. The Permittee shall provide notification to the NMED of corrective action field activities a minimum of 20 days prior to commencing the activity.

The methods used to conduct investigation, remediation, and monitoring activities shall be sufficient to fulfill the requirements of this Permit and provide accurate data for the evaluation of site conditions, the nature and extent of contamination and contaminant migration, and for remedy selection and implementation, where necessary. The methods presented in this Permit Section (8) are minimum requirements for environmental investigation and sampling, and are not intended to include all methods that may be necessary to fulfill the requirements of this Permit. The methods for conducting investigations, corrective actions, and monitoring at the Facility must be determined based on the conditions and contaminants that exist at each site.

The Permittee may propose alternate methods for data collection from those included in this Section (8) for NMED approval. Such alternate methods must be approved by the NMED prior to implementation and supersede the corresponding requirements described in this Part (8).

#### **8.1.1 Standard Operating Procedures**

The Permittee shall provide brief descriptions of investigation, sampling or analytical methods and procedures in documents submitted to the NMED that include sufficient detail to evaluate the quality of the acquired data. The Respondents may not rely solely on references to Standard Operating Procedures (SOPs).

### **8.2 Investigation, Sampling, and Analyses Methods**

This Section (8.2) of the Permit provides minimum requirements for field investigations, sample collection, handling and screening procedures, field and laboratory sample analysis, and quality assurance/quality control (QA/QC) procedures for samples of the medium being investigated or tested at the Facility. The requirements addressed in this Section (8.2) include: 1) minimum requirements for drilling and sample collection in exploratory borings and other excavations; 2) minimum requirements for sampling of the target media; 3) minimum requirements for monitoring of groundwater and vadose zone conditions; and 4) minimum required screening, analytical, and QA procedures that shall be implemented during field sampling activities and laboratory analyses.

The quality assurance procedures referenced in the previous paragraph include: 1) the Facility investigation data quality objectives; 2) the requirements for QA/QC to be followed during field investigations and by the analytical laboratories; and 3) the methodology for the review and evaluation of the field and laboratory QA/QC results and documentation.

### **8.2.1 Field Exploration Activities**

The NMED may require exploratory borings to fulfill the requirements of this Permit. Any boring locations, if required, will be determined or approved by the NMED. The depths and locations of all exploratory and monitoring well borings shall be specified in the unit-specific work plans submitted to the NMED for approval prior to the start of the respective field activities.

### **8.2.2 Subsurface Features/Utility Geophysical Surveys**

The Permittee shall conduct surveys, where appropriate, to locate underground utilities, pipelines structures, drums, debris, and other buried features in the shallow subsurface prior to the start of field exploration activities. The methods used to conduct the surveys, such as magnetometer, ground penetrating radar, resistivity, or other methods, shall be selected based on the unique characteristics of the site and the possible or suspected underground structures. The results of the surveys shall be included in the investigation reports submitted to the NMED. The Permittee is responsible for locating and clearing all aboveground and underground utilities or other hazards at any site prior to conducting field work.

### **8.2.3 Drilling and Soil Sampling**

#### **8.2.3.a Drilling**

Exploratory and monitoring well borings shall be drilled using the most effective, proven, and practicable method for recovery of undisturbed samples and potential contaminants. The drilling methods selected for advancement of each boring must be approved by the NMED prior to the start of field activities. Based on the drilling conditions, the borings shall be advanced using one of the following methods:

- i. Hollow-stem auger;
- ii. Air rotary;
- iii. Direct Push Technology (DPT); or
- iv. Other methods approved by NMED.

Hollow-stem auger or DPT drilling methods are preferred, depending on the local subsurface conditions and the anticipated investigation requirement. These drilling methods are also preferred if vapor-phase or VOC contamination is known or suspected to be present.

All drilling equipment shall be in good working condition and capable of performing the assigned task. Drilling rigs and equipment shall be operated by properly trained, experienced, and responsible crews. The Permittee is responsible for ensuring that contaminants from another site or facility are not introduced into the site under investigation due to malfunctioning equipment or poor site maintenance. The drilling equipment shall be properly decontaminated before drilling each boring.

Exploratory borings shall be advanced to unit- and location-specific depths specified or approved by the NMED. The Permittee shall propose drilling depths in the site-specific work plans submitted for each subject area. Unless otherwise specified in this Permit, the borings shall be advanced to the following minimum depths:

- i. five feet below the deepest detected contamination;
- ii. five feet below the base of structures such as piping or building sumps, footings or other building structures;
- iii. five feet below the shallow water table; and
- iv. depths specified by the NMED based on specific data needs.

The Permittee shall notify the NMED as early as practicable if conditions arise or are encountered that do not allow the advancement of borings to the depths specified by the NMED or sampling at locations specified in approved work plans so that alternative actions may be discussed.

Precautions shall be taken to prevent the migration of contaminants between geologic, hydrologic, or other identifiable zones during drilling and well installation activities. Contaminant zones shall be isolated from other zones encountered in the borings.

The drilling and sampling shall be accomplished under the direction of a qualified engineer or geologist who shall maintain a detailed log of the materials and conditions encountered in each boring. Both sample information and visual observations of the cuttings and core samples shall be recorded on the boring log. Known site features and/or site survey grid markers shall be used as references to locate each boring prior to surveying the location as described in Permit Part 8.2.7. The boring locations shall be measured to the nearest foot, and locations shall be recorded on a scaled site map upon completion of each boring.

Trenching and other exploratory excavation methods shall follow the applicable general procedures outlined in this Permit. The particular methods proposed by the Permittee for subsurface explorations and sampling shall be included in the unit-specific investigation work plan submitted to the NMED. The NMED will include any changes or additional requirements for conducting exploratory excavation and sampling activities at the subject unit in its response to the Permittee after review of the investigation work plan.

#### **8.2.3.b Soil Sampling**

Relatively undisturbed discrete soil samples shall be obtained during the advancement of each boring for the purpose of logging, field screening, and analytical testing. Generally, the samples shall be collected at the following intervals and depths:

- i. continuously, at 2.5 or 5-foot intervals, at 5 or 10-foot intervals or as approved by the NMED;

- ii. at the depth immediately below the base of the unit structures and at the fill-native soil interface;
- iii. at the maximum depth of each boring;
- iv. At the depth of encounters, during drilling, with perched saturated zones;
- v. at the water table;
- vi. from soil types relatively more likely to sorb or retain contaminants than the surrounding lithologies;
- vii. at intervals suspected of being source or contaminated zones; and
- viii. at other intervals approved or required by the NMED.

The sampling interval for the borings may be modified, or samples may be obtained from a specific depth, based on field observations. A decontaminated split-barrel sampler lined with brass sleeves, a coring device, or other method approved by the NMED shall be used to obtain samples during the drilling of each boring.

A split barrel sampler lined with brass sleeves or a coring device is the preferred sampling method for borehole soil, rock, and sediment sampling. The following procedures should be followed if a split barrel sampler is used. Upon recovery of the sample, one or more brass sleeves shall be removed from the split barrel sampler and the open ends of the sleeves covered with Teflon tape or foil and sealed with plastic caps fastened to the sleeves with tape for shipment to the analytical laboratory. If brass sleeves are not used, a portion of the sample shall be placed in pre-cleaned, laboratory-prepared sample containers for laboratory chemical analysis. The use of an Encore® Sampler or other similar devices are preferred by the NMED if sample collection in brass sleeves is not used during collection of soil samples for VOC analysis. The remaining portions of the sample shall be used for logging and field screening, as described in Permit Parts 8.2.4 and 8.2.5, respectively.

Discrete samples shall be collected for field screening and laboratory analyses. Homogenization of discrete samples collected for analyses other than for VOC and SVOC analyses shall be performed by the analytical laboratory, if homogenization is necessary. The Permittee may submit site-specific, alternative methods for homogenization of samples in the field to the NMED for approval.

Samples to be submitted for laboratory analyses shall be selected based on: 1) the results of the field screening or mobile laboratory analyses; 2) the position of the sample relative to groundwater, suspected releases, or site structures; 3) the sample location relative to former or altered site features or structures; 4) the stratigraphy encountered in the boring; and 5) the specific objectives and requirements of this Permit. The proposed number of samples and analytical parameters shall be included as part of the unit-specific work plan submitted to the NMED for approval prior to the

start of field investigation activities at each unit. The work plans shall allow for flexibility in modifying the project-specific tasks based on information obtained during the course of the investigation. Modifications to site-specific work plan tasks must be approved by the NMED prior to implementation.

### **8.2.3.c Surface Sampling**

Surface samples shall be collected using decontaminated, hand-held stainless steel coring device, shelly tube, thin-wall sampler or other method approved by the NMED, where surface or sediment sampling is conducted without the use of the drilling methods described in Permit Part 8.2.3.b above. The samples shall be transferred to pre-cleaned laboratory prepared containers for submittal to the laboratory. Samples obtained for volatiles analysis shall be collected using Encore® samplers, shelly tubes, thin-wall sampler or other method approved by the NMED. Except in the case of the use of Encore® samplers, the ends of the samplers shall be lined with Teflon tape or aluminum foil and sealed with plastic caps fastened to the sleeves with tape for shipment to the analytical laboratory.

The physical characteristics of the material (such as mineralogy, ASTM [American Society of Testing and Materials] soil classification, AGI [American Geological Institute] rock classification, moisture content, texture, color, presence of stains or odors, and/or field screening results), depth where each sample was obtained, method of sample collection, and other observations shall be recorded in the field log.

### **8.2.3.d Drill Cuttings (Investigation Derived Waste)**

Drill cuttings, excess sample material and decontamination fluids, and all other investigation derived waste (IDW) shall be contained and characterized using methods based on the boring location, boring depth, drilling method, and type of contaminants suspected or encountered. An IDW management plan shall be included with the unit-specific investigation work plan submitted to the NMED for approval prior to the start of field investigations. The method of containment for drill cuttings must be approved by the NMED prior to the start of drilling activities. Borings not completed as groundwater or vadose zone monitoring wells shall be properly abandoned in accordance with the methods listed in Permit Part 9.3. Borings completed as groundwater monitoring wells shall be constructed in accordance with the requirements described in Permit Part 9.2.

## **8.2.4 Logging of Soil, Rock and Sediment Samples**

Samples obtained from all exploratory borings and excavations shall be visually inspected and the soil or rock type classified in general accordance with ASTM (American Society for Testing and Materials) D2487 (Unified Soil Classification System) and D2488 and/or AGI (American Geological Institute) Methods for soil and rock classification. Detailed logs of each boring shall be completed in the field by a qualified engineer or geologist. Additional information, such as the presence of water-bearing zones and any unusual or noticeable conditions encountered during

drilling, shall be recorded on the logs. Field boring, test pit logs and field well construction diagrams shall be converted to the format acceptable for use in final reports submitted to the NMED.

### **8.2.5 Soil Sample Field Screening**

Samples obtained from the borings shall be screened in the field for evidence of the presence of contaminants. Field screening results shall be recorded on the exploratory boring and excavation logs. Field screening results are used as a general guideline to determine the nature and extent of possible contamination. In addition, screening results shall be used to aid in the selection of soil samples for laboratory analysis. Field screening alone will not detect the possible presence or full nature and extent of all contaminants that may be encountered at the site.

The primary screening methods to be used shall include one or more of the following: (1) visual examination, (2) headspace vapor screening for volatile organic compounds, and (3) metals screening using X-ray fluorescence. Additional screening for site- or release-specific characteristics such as pH or for specific compounds using field test kits shall be conducted where appropriate.

Visual screening includes examination of soil samples for evidence of staining caused by petroleum-related compounds or other substances that may cause staining of natural soils such as elemental sulfur or cyanide compounds.

Headspace vapor screening targets volatile organic compounds and involves placing a soil sample in a plastic sample bag or a foil sealed container allowing space for ambient air. The container shall be sealed and then shaken gently to expose the soil to the air trapped in the container. The sealed container shall be allowed to rest for a minimum of 5 minutes while vapors equilibrate. Vapors present within the sample bag's headspace will then be measured by inserting the probe of the instrument in a small opening in the bag or through the foil. The maximum value and the ambient air temperature shall be recorded on the field boring or test pit log for each sample. The monitoring instruments shall be calibrated each day to the manufacturer's standard for instrument operation. A photo-ionization detector (PID) equipped with a 10.6 or higher electron volt (eV) lamp, flame ionization detector, combustible gas indicator or other instrument approved by the NMED shall be used for VOC field screening. The limitations, precision and calibration of the instrument to be used for VOC field screening shall be included in the site-specific investigation work plan prepared for each unit.

X-ray fluorescence (XRF) may be used to screen soil samples for the presence of metals. XRF screening requires proper sample preparation and proper instrument calibration. Sample preparation and instrument calibration procedures shall be documented in the field logs. The methods and procedures for sample preparation and calibration shall be approved by the NMED prior to the start of field activities. Field XRF screening results for selected metals may be used in lieu of laboratory analyses upon approval by the NMED; however, the results shall, at a minimum,

be confirmed by laboratory analyses at a frequency of 20 percent (1 sample per every five analyzed by XRF analysis).

Field screening results are site- and boring-specific and the results vary with instrument type, the media screened, weather conditions, moisture content, soil type, and type of contaminant, therefore, all conditions capable of influencing the results of field screening shall be recorded on the field logs. The conditions potentially influencing field screening results shall be submitted to the NMED as part of the site-specific investigation, remediation and/or monitoring reports.

At a minimum, samples with the greatest apparent degree of contamination, based on field observations and field screening, shall be submitted for laboratory analysis. The location of the sample relative to groundwater, stratigraphic units and/or contacts and the proximity to significant site or subsurface features or structures also shall be used as a guideline for sample selection. In addition, samples with no or low apparent contamination, based on field screening, shall be submitted for laboratory analysis if the intention is to confirm that the base (or other depth interval) of a boring or other sample location is not contaminated.

#### **8.2.6 Soil Sample Types**

The Permittee shall collect soil samples at the frequencies stated in the approved site-specific investigation work plans for each unit. The samples collected shall be representative of the media and site conditions being investigated or monitored. QA/QC samples shall be collected to monitor the validity of the soil sample collection procedures. Field duplicates shall be collected at a rate of 10 percent. Equipment blanks shall be collected from all sampling apparatus at a frequency of 10 percent for chemical analysis. Equipment blanks shall be collected at a frequency of one per day if disposable sampling equipment is used. Field blanks shall be collected at a frequency of one per day for each media (with the exception of air samples) at each unit. Reagent blanks shall be used if chemical analytical procedures requiring reagents are employed in the field as part of the investigation or monitoring program. The blanks and duplicates shall be submitted for laboratory analyses associated with the project-specific contaminants, data quality concerns and media being sampled. The resulting data shall provide information on the variability associated with sample collection, handling and laboratory analysis operations.

#### **8.2.7 Sample Point and Structure Location Surveying**

The horizontal coordinates and elevation of each surface sampling location; the surface coordinates and elevation of each boring or test pit, the top of each monitoring well casing, and the ground surface at each monitoring well location; and the locations of all other pertinent structures shall be determined by a registered New Mexico professional land surveyor in accordance with the State Plane Coordinate System (NMSA 1978, § 47-1-49 through 56 (Repl. Pamp. 1993)). Alternate survey methods may be proposed by the Permittee in site specific work plans. Any proposed survey method must be approved by the NMED prior to implementation. The surveys shall be conducted in accordance with Sections 500.1 through 500.12 of the Regulations and Rules of the

Board of Registration for Professional Engineers and Surveyors Minimum Standards for Surveying in New Mexico. Horizontal positions shall be measured to the nearest 0.1-ft, and vertical elevations shall be measured to the nearest 0.01-ft. The Permittee shall prepare site map(s), certified by a registered New Mexico professional land surveyor, presenting all surveyed locations and elevations including relevant site features and structures for submittal with all associated reports to the NMED.

### **8.2.8 Subsurface Vapor-phase Monitoring and Sampling**

Samples of subsurface vapors shall be collected from vapor monitoring points from discrete zones, selected based on investigation and field screening results, and as total well subsurface vapor samples as required by the NMED.

The Permittee shall, at a minimum, collect field measurements of the following:

- i. organic vapors (using a photo-ionization detector with an 10.6 or higher eV (electron volt) lamp, a flame ionization detector, a combustible gas indicator or other method approved by the NMED) and, if applicable;
- ii. percent oxygen;
- iii. percent carbon dioxide;
- iv. static subsurface pressure; and
- v. other parameters (such as carbon monoxide and hydrogen sulfide) as required by the NMED.

The Permittee also shall collect vapor samples for laboratory analysis of the following as required:

- vi. percent moisture;
- vii. VOCs; and
- viii. other analytes required by the NMED.

Vapor samples analyzed by the laboratory for percent moisture and VOCs shall be collected using SUMMA canisters or other sample collection method approved by the NMED. The samples shall be analyzed for VOC concentrations by EPA Method TO-15, as updated, or equivalent VOC analytical method.

Field vapor measurements, the date and time of each measurement, and the instrument used, shall be recorded on a vapor monitoring data sheet. The instruments used for field measurements shall be calibrated daily in accordance with the manufacturer's specifications and as described in Permit Part 8.3.9. The methods used to obtain vapor-phase field measurements and samples must be

approved by the NMED in writing prior to the start of air monitoring at each Facility site where vapor-phase monitoring is conducted.

Total well vapor sampling and vapor monitoring shall be conducted by sealing the top of the well with a cap containing a sample port. Polyethylene, teflon or other nonreactive tubing shall be used to connect the sample port and a low-velocity pump not associated with a field instrument. The well shall be purged of a minimum of five well volumes prior to collection of samples or field measurements. If a sample is not being obtained for laboratory analysis, the well may be purged using the field instrument pump. SUMMA canisters, Tedlar bags or field instruments shall draw effluent from the pump discharge either directly or through polyethylene, Teflon or other nonreactive tubing. All connections between the wellhead and the instruments and sample containers must be airtight.

### **8.3 Groundwater and Monitoring**

#### **8.3.1 Groundwater Levels**

Groundwater level measurements shall be obtained at intervals required by the NMED. Groundwater levels also shall be obtained prior to purging in preparation for a sampling event. Measurement data and the date and time of each measurement shall be recorded on a site monitoring data sheet. The depth to groundwater levels shall be measured to the nearest 0.01 ft. The depth to groundwater shall be recorded relative to the surveyed well casing rim or other surveyed datum. The method of water level measurements shall be approved by the NMED. Groundwater levels shall be measured in all wells within 48 hours of the start of obtaining water level measurements.

#### **8.3.2 Groundwater Sampling**

Groundwater samples shall initially be obtained from newly constructed monitoring wells no later than five days after the completion of well development. Groundwater monitoring and sampling shall be conducted on a semi-annual basis or other interval approved by the NMED after the initial sampling event. All monitoring wells scheduled for sampling during a groundwater sampling event shall be sampled within 15 days of the start of the monitoring and sampling event. The Permittee shall sample all saturated zones screened to allow entry of groundwater into each monitoring well during each sampling event. All requests for variances from the groundwater sampling schedule shall be submitted to the NMED, in writing, at least 30 days prior to the start of scheduled monitoring and sampling events. Groundwater samples shall be collected from all exploratory borings not intended to be completed as monitoring wells prior to abandonment of the borings, where practicable, unless otherwise specified in a NMED -approved work plan.

Water samples shall be analyzed for one or more of the following general chemistry parameters as required by the NMED:

nitrate/nitrite	sulfate	chloride	dissolved CO <sub>2</sub>
alkalinity	carbonate/bicarbonate	fluoride	manganese
calcium	biological activity testing	ferric/ferrous iron	ammonia
potassium	magnesium	phosphate	sodium
methane	pH	total organic carbon (TOC)	total kjeldahl nitrogen (TKN)
dissolved oxygen (DO)	oxidation reduction potential (ORP)	total suspended solids (TSS)	electrical conductivity (EC)
temperature	total dissolved solids (TDS)	stable isotopes	

Any additional analytes required by the NMED

### 8.3.3 Well Purging

All zones in each monitoring well shall be purged by removing groundwater prior to sampling in order to ensure that formation water is being sampled. Purge volumes shall be determined by monitoring, at a minimum, groundwater pH, specific conductance, dissolved oxygen concentrations, oxidation- reduction potential, and temperature during purging of volumes and at measurement intervals approved by the NMED. Field water quality parameters shall be compared to historical data to ensure that the measurements are indicative of formation water. The groundwater quality parameters shall be measured using instruments approved by the NMED. The volume of groundwater purged, the instruments used, and the readings obtained at each interval shall be recorded on the field-monitoring log. Water samples may be obtained from the well after the measured parameters of the purge water have stabilized to within ten percent for three consecutive measurements. Field water quality parameters shall be compared to historical data to ensure that the measurements are indicative of formation water. Well purging may also be conducted in accordance with the NMED's Position Paper *Use of Low-Flow and other Non-Traditional Sampling Techniques for RCRA Compliant Groundwater Monitoring* (October 30, 2001, as updated). The Permittee may submit to the NMED for approval a written request for a variance from the described methods of well purging for individual wells no later than 90 days prior to scheduled sampling activities.

### **8.3.4 Groundwater Sample Collection**

Groundwater samples shall be obtained from each well after a sufficient amount of water has been removed from the well casing to ensure that the sample is representative of formation water. Groundwater samples shall be obtained using methods approved by the NMED within 24 hours of the completion of well purging. Sample collection methods shall be documented in the field monitoring reports. The samples shall be transferred to the appropriate, clean, laboratory-prepared containers provided by the analytical laboratory. Sample handling and chain-of-custody procedures are described in Permit Part 8.3.6. Decontamination procedures shall be established for reusable water sampling equipment as described in Permit Part 8.3.8.

All purged groundwater and decontamination water shall be characterized prior to disposal. The methods for disposal of purge/decontamination water must be approved by the NMED prior to disposal. Disposable materials shall be handled as described in Permit Part 8.3.10.

Groundwater samples intended for metals analysis shall be submitted to the laboratory as total metals samples. If required by the NMED, the Permittee shall obtain groundwater samples for dissolved metals analysis to be filtered using disposable in-line filters with a 0.10 micron, 0.45 micron or other mesh size approved by the NMED.

### **8.3.5 Groundwater Sample Types**

Groundwater samples shall be collected from each monitoring well, and remediation system samples shall be collected as required by the NMED. Field duplicates, field blanks, equipment rinsate blanks, reagent blanks, if necessary, and trip blanks shall be obtained for quality assurance during groundwater and other water sampling activities. The samples shall be handled as described in Permit Part 8.3.6.

Field duplicate water samples shall be obtained at a frequency of ten percent. At a minimum, one duplicate sample per sampling event shall always be obtained.

Field blanks shall be obtained at a minimum frequency of one per day per site or unit. Field blanks shall be generated by filling sample containers in the field with deionized water and submitting the samples, along with the groundwater or surface water samples, to the analytical laboratory for the appropriate analyses.

Equipment rinsate blanks shall be obtained for chemical analysis at the rate of ten percent or a minimum of one rinsate blank per sampling day. Equipment rinsate blanks shall be collected at a rate of one per sampling day if disposable sampling apparatus is used. Rinsate samples shall be generated by rinsing deionized water through unused or decontaminated sampling equipment. The rinsate sample then shall be placed in the appropriate sample container and submitted with the groundwater or surface water samples to the analytical laboratory for the appropriate analyses.

Reagent blanks shall be obtained at a frequency of 20 percent or a minimum of one per day per unit if chemical analyses requiring the use of chemical reagents are conducted in the field during water sampling activities.

Trip blanks shall accompany laboratory sample bottles and shipping and storage containers intended for VOC analyses. Trip blanks shall consist of a sample of analyte-free deionized water prepared by the laboratory and placed in an appropriate sample container. The trip blank shall be prepared by the analytical laboratory prior to the sampling event and shall be kept with the shipping containers and placed with other water samples obtained from the site each day. Trip blanks shall be analyzed at a frequency of one for each shipping container of samples.

### **8.3.6 Sample Handling**

At a minimum, the following procedures shall be used at all times when collecting samples during investigation, corrective action, and monitoring activities:

- i. Neoprene, nitrile, or other protective gloves shall be worn when collecting samples. New disposable gloves shall be used to collect each sample;
- ii. all samples collected from each medium for chemical analysis shall be transferred into clean sample containers supplied by the project analytical laboratory with the exception of soil, rock, and sediment samples obtained in brass sleeves or in Encore® or equivalent samplers. Upon recovery of the sample collected using split barrel samplers with brass sleeves, the brass sleeves shall be removed from the split barrel sampler and the open ends of the sleeves shall be lined with Teflon tape or foil and sealed with plastic caps. The caps shall be fastened to the sleeve with tape for storage and shipment to the analytical laboratory. The sample depth and the top of the sample shall be clearly marked. Sample container volumes and preservation methods shall be in accordance with the most recent standard EPA SW 846 and established industry practices for use by accredited analytical laboratories. Sufficient sample volume shall be obtained for the laboratory to complete the method-specific QC analyses on a laboratory-batch basis; and
- iii. sample labels and documentation shall be completed for each sample following procedures approved by the NMED. Immediately after the samples are collected, they shall be stored in a cooler with ice or other appropriate storage method until they are delivered to the analytical laboratory. Standard chain-of-custody procedures, as described in Permit Part 8.4.1, shall be followed for all samples collected. All samples shall be submitted to the laboratory soon enough to allow the laboratory to conduct the analyses within the method holding times. At a minimum, all samples shall be submitted to the laboratory within 48 hours after their collection.

Shipment procedures shall include the following:

- i. individual sample containers shall be packed to prevent breakage and transported in a sealed cooler with ice or other suitable coolant or other EPA or industry-wide accepted method. The drain hole at the bottom of the cooler shall be sealed and secured in case of sample container leakage. Temperature blanks shall be included with each shipping container;
- ii. each cooler or other container shall be delivered directly to the analytical laboratory;
- iii. glass bottles shall be separated in the shipping container by cushioning material to prevent breakage;
- iv. plastic containers shall be protected from possible puncture during shipping using cushioning material;
- v. the chain-of-custody form and sample request form shall be shipped inside the sealed storage container to be delivered to the laboratory;
- vi. chain-of-custody seals shall be used to seal the sample-shipping container in conformance with EPA protocol; and
- vii. signed and dated chain-of-custody seals shall be applied to each cooler prior to transport of samples from the site.

### **8.3.7 In-situ Testing**

In-situ permeability tests, remediation system pilot tests, stream flow tests, and other tests conducted to evaluate site and subsurface conditions shall be designed to accommodate specific site conditions and to achieve the test objectives. The testing methods must be approved by the NMED prior to implementation. The tests shall be conducted in order to appropriately represent site conditions and in accordance with USGS, ASTM or other methods generally accepted by the industry. Detailed logs of all relevant site conditions and measurements shall be maintained during the testing events. If, required by NMED, a summary of the general test results, including unexpected or unusual test results and equipment failures or testing limitations shall be reported to the NMED within 30 days of completion of the test. The summary shall be presented in a format acceptable to the NMED and in general accordance with the report formats outlined in Permit Part 10. A formal report summarizing the results of each test shall be submitted to the NMED within 120 days of completion of each test.

### **8.3.8 Decontamination Procedures**

The objective of the decontamination procedures is to minimize the potential for cross-contamination. A designated decontamination area shall be established for decontamination of drilling equipment, reusable sampling equipment and well materials. The drilling rig shall be decontaminated prior to entering the site or unit. Drilling equipment or other exploration

equipment that may come in contact with the borehole shall be decontaminated by steam cleaning, hot-water pressure washing, or other methods approved by the NMED prior to drilling each new boring.

Sampling or measurement equipment, including but not limited to, stainless steel sampling tools, split-barrel or core samplers, well developing or purging equipment, groundwater quality measurement instruments, and water level measurement instruments, shall be decontaminated in accordance with the following procedures or other methods approved by the NMED before each sampling attempt or measurement:

- i. brush equipment with a wire or other suitable brush, if necessary or practicable, to remove large particulate matter;
- ii. rinse with potable tap water;
- iii. wash with nonphosphate detergent or other detergent approved by the NMED (*e.g.*, Fantastik™, Liqui-Nox®) followed by a tap water rinse;
- iv. rinse with 0.1 M nitric acid (to remove trace metals, if necessary) followed by a tap water rinse;
- v. rinse with methanol (to remove organic compounds, if necessary) followed by a tap water rinse,
- vi. rinse with potable tap water; and
- vii. double rinse with deionized water.

All decontamination solutions shall be collected and stored temporarily as described in Permit Part 8.3.10. Decontamination procedures and the cleaning agents used shall be documented in the daily field log.

### **8.3.9 Field Equipment Calibration Procedures**

Field equipment requiring calibration shall be calibrated to known standards, in accordance with the manufacturers' recommended schedules and procedures. At a minimum, calibration checks shall be conducted daily, or at other intervals approved by the NMED, and the instruments shall be recalibrated, if necessary. Calibration measurements shall be recorded in the daily field logs. If field equipment becomes inoperable, its use shall be discontinued until the necessary repairs are made. In the interim, a properly calibrated replacement instrument shall be used.

### **8.3.10 Collection and Management of Investigation Derived Waste**

Investigation derived waste (IDW) includes general refuse, drill cuttings, excess sample material, water (decontamination, development and purge), and disposable equipment generated during the course of investigation, corrective action, or monitoring activities. All IDW shall be properly

characterized and disposed of in accordance with all federal, State, and local rules and regulations for storage, labeling, handling, transport, and disposal of waste. The Permittee shall submit an IDW management and disposal plan as part of all work plans submitted to the NMED for approval prior to disposal of any IDW produced during investigation, corrective action, or monitoring activities.

All water generated during sampling and decontamination activities shall either be temporarily stored at satellite accumulation areas or transfer stations in labeled 55-gallon drums or other containers approved by the NMED until proper characterization and disposal can be arranged. The IDW may be characterized for disposal based on the known or suspected contaminants potentially present in the waste. The methods for waste characterization and disposal of IDW shall be approved by the NMED prior to disposal.

#### **8.4 Documentation of Field Activities**

Daily field activities, including observations and field procedures, shall be recorded on appropriate forms. The original field forms shall be maintained at the Facility. Copies of the completed forms shall be maintained in a bound and sequentially numbered field file for reference during field activities. Indelible ink shall be used to record all field activities. Photographic documentation of field activities shall be performed, as appropriate. The daily record of field activities shall include the following:

- i. site or unit designation;
- ii. date;
- iii. time of arrival and departure;
- iv. field investigation team members including subcontractors and visitors,
- v. weather conditions;
- vi. daily activities and times conducted;
- vii. observations;
- viii. record of samples collected with sample designations and locations specified,
- ix. photographic log;
- x. field monitoring data, including health and safety monitoring;
- xi. equipment used and calibration records, if appropriate;
- xii. list of additional data sheets and maps completed,
- xiii. an inventory of the waste generated and the method of storage or disposal; and
- xiv. signature of personnel completing the field record.

#### **8.4.1 Sample Custody**

All samples collected for analysis shall be recorded in the field report or data sheets. Chain-of-custody forms shall be completed at the end of each sampling day, prior to the transfer of samples off site, and shall accompany the samples during shipment to the laboratory. A signed and dated custody seal shall be affixed to the lid of the shipping container. Upon receipt of the samples at the laboratory, the custody seals will be broken, the chain-of-custody form shall be signed as received by the laboratory, and the conditions of the samples shall be recorded on the form. The original chain-of-custody form shall remain with the laboratory and copies shall be returned to the relinquishing party. The Permittee shall maintain copies of all chain-of-custody forms generated as part of sampling activities. Copies of the chain-of-custody records shall be included with all draft and final laboratory reports submitted to the NMED.

#### **8.5 Chemical Analyses**

The Permittee shall submit all samples for laboratory analysis to accredited contract laboratories. The laboratories shall use the most recent standard EPA and industry-accepted analytical methods for target analytes as the testing methods for each medium sampled. Chemical analyses shall be performed in accordance with the most recent EPA standard analytical methodologies and extraction methods.

The Permittee shall submit a list of analytes and analytical methods to the NMED for approval as part of each site-specific investigation, corrective measures, or monitoring work plan. The detection and reporting limits for each method shall be less than applicable background, screening, and regulatory cleanup levels. The preferred method reporting (practical quantitation) limits are a maximum of 20 percent of the cleanup, screening, or background levels. Analyses conducted with detection limits that are greater than applicable background, screening, and regulatory cleanup levels shall be considered data quality exceptions and the reasons for the elevated detection limits shall be reported to the NMED.

##### **8.5.1 Laboratory QA/QC Requirements**

The following requirements for laboratory QA/QC procedures shall be considered the minimum QA/QC standards for the laboratories employed by the Permittee that provide analytical services for environmental investigation, corrective action, and monitoring activities conducted at the Facility. The Permittee shall provide the names of the contract analytical laboratories and copies of the laboratory quality assurance manuals to the NMED within 180 days of awarding a contract for analytical services to any contract laboratory.

##### **8.5.2 Quality Assurance Procedures**

Contract analytical laboratories shall maintain internal quality assurance programs in accordance with EPA and industry accepted practices and procedures. At a minimum, the laboratories shall use a combination of standards, blanks, surrogates, duplicates, matrix spike/matrix spike duplicates

(MS/MSD), blank spike/blank spike duplicates (BS/BSD), and laboratory control samples to demonstrate analytical QA/QC. The laboratories shall establish control limits for individual chemicals or groups of chemicals based on the long-term performance of the test methods. In addition, the laboratories shall establish internal QA/QC that meets EPA's laboratory certification requirements. The specific procedures to be completed are identified in the following sections.

### **8.5.3 Equipment Calibration Procedures and Frequency**

The laboratory's equipment calibration procedures, calibration frequency, and calibration standards shall be in accordance with the EPA test methodology requirements and documented in the laboratory's quality assurance and SOP manuals. All instruments and equipment used by the laboratory shall be operated, calibrated, and maintained according to manufacturers' guidelines and recommendations. Operation, calibration, and maintenance shall be performed by personnel who have been properly trained in these procedures. A routine schedule and record of instrument calibration and maintenance shall be kept on file at the laboratory.

### **8.5.4 Laboratory QA/QC Samples**

Analytical procedures shall be evaluated by analyzing reagent or method blanks, surrogates, MS/MSDs, BS/BSDs, and laboratory duplicates, as appropriate for each method. The laboratory QA/QC samples and frequency of analysis to be completed shall be documented in the cited EPA or DOE test methodologies. At a minimum, the laboratory shall analyze laboratory blanks, MS/MSDs, BS/BSDs, and laboratory duplicates at a frequency of one in twenty for all batch runs requiring EPA test methods and at a frequency of one in ten for non-EPA test methods. Laboratory batch QA/QC samples shall be specific to the project.

### **8.5.5 Laboratory Deliverables**

The analytical data package submitted to the NMED shall be prepared in accordance with EPA-established Level II analytical support protocol. The laboratory analytical data package shall be prepared in accordance with EPA-established Level III or IV analytical support protocol, which must be kept on file by the contract laboratory and submitted to the Permittee upon request. Any or all of the following items also shall be made available to the NMED upon request:

1. Transmittal letter, including information about the receipt of samples, the testing methodology performed, any deviations from the required procedures, any problems encountered in the analysis of the samples, any data quality exceptions, and any corrective actions taken by the laboratory relative to the quality of the data contained in the report.
2. Sample analytical results, including sampling date; date of sample extraction or preparation; date of sample analysis; dilution factors and test method identification; soil, rock, or sediment sample results in consistent units (mg/kg) or micrograms per kilogram in dry-weight basis; water sample results in consistent units (milligrams per liter or micrograms per liter ( $\mu\text{g/L}$ )); vapor sample results in consistent units (ppmv or  $\mu\text{g/m}^3$ ); and

- detection limits for undetected analytes. Results shall be reported for all field samples, including field duplicates and blanks, submitted for analysis.
3. Method blank results, including detection limits for undetected analytes.
  4. Surrogate recovery results and corresponding control limits for samples and method blanks (organic analyses only).
  5. MS/MSD and/or BS/BSD spike concentrations, percent recoveries, relative percent differences (RPDs), and corresponding control limits.
  6. Laboratory duplicate results for inorganic analyses, including relative percent differences and corresponding control limits.
  7. Sample chain-of-custody documentation.
  8. Holding times and conditions.
  9. Conformance with required analytical protocol(s).
  10. Instrument calibration.
  11. Blanks.
  12. Detection/quantitation limits.
  13. Recoveries of surrogates.
  14. Variability for duplicate analyses.
  15. Completeness.
  16. Data report formats.
  17. The following data deliverables for organic compounds shall be required from the laboratory:
    - A cover letter referencing the procedure used and discussing any analytical problems, deviations, and modifications, including signature from authority representative certifying to the quality and authenticity of data as reported;
    - Report of sample collection, extraction, and analysis dates, including sample holding conditions;
    - Tabulated results for samples in units as specified, including data qualification in conformance with EPA protocol, and definition of data descriptor codes;
    - Reconstructed ion chromatograms for gas chromatograph/mass spectrometry (GC/MS) analyses for each sample and standard calibration;
    - Selected ion chromatograms and mass spectra of detected target analytes (GC/MS) for each sample and calibration with associated library/reference spectra;

- Gas chromatograph/electron capture device (GC/ECD) and/or gas chromatograph/flame ionization detector (GC/FID) chromatograms for each sample and standard calibration;
  - Raw data quantification reports for each sample and calibrations, including areas and retention times for analytes, surrogates, and internal standards;
  - A calibration data summary reporting calibration range used and a measure of linearity [include decafluorotriphenylphosphine (DFTPP) and p-bromofluorobenzene (BFB) spectra and compliance with tuning criteria for GC/MS];
  - Final extract volumes (and dilutions required), sample size, wet-to-dry weight ratios, and instrument practical detection/quantitation limit for each analyte;
  - Analyte concentrations with reporting units identified, including data qualification in conformance with the CLP Statement of Work (SOW) (include definition of data descriptor codes);
  - Quantification of analytes in all blank analyses, as well as identification of method blank associated with each sample;
  - Recovery assessments and a replicate sample summary, including all surrogate spike recovery data with spike levels/concentrations for each sample and all MS/MSD results (recoveries and spike amounts); and
  - Report of tentatively identified compounds with comparison of mass spectra to library/reference spectra.
18. The following data deliverables for inorganic compounds shall be required from the laboratory:
- A cover letter referencing the procedure used and discussing any analytical problems, deviations, and modifications; including signature from authority representative certifying to the quality and authenticity of data as reported;
  - Report of sample collection, digestion, and analysis dates, with sample holding conditions;
  - Tabulated results for samples in units as specified, including data qualification in conformance with the CLP SOW (including definition of data descriptor codes);
  - Results of all method QA/QC checks, including inductively coupled plasma (ICP) Interference Check Sample and ICP serial dilution results;
  - Tabulation of instrument and method practical detection/quantitation limits;
  - Raw data quantification report for each sample;
  - A calibration data summary reporting calibration range used and a measure of linearity, where appropriate;
  - Final digestate volumes (and dilutions required), sample size, and wet-to-dry weight ratios;

- Quantification of analytes in all blank analyses, as well as identification of method blank associated with each sample; and
- Recovery assessments and a replicate sample summary, including post-digestate spike analysis; all MS data (including spike concentrations) for each sample, if accomplished; all MS results (recoveries and spike amounts); and laboratory control sample analytical results).

The Permittee shall present summary tables of these data in the general formats described in Permit Part 10. The raw analytical data, including calibration curves, instrument calibration data, data calculation work sheets, and other laboratory support data for samples from this project, shall be compiled and kept on file at either the contract laboratory or the Facility for reference. The Permittee shall make the data available to the NMED upon request.

#### **8.5.6 Review of Field and Laboratory QA/QC Data**

The Permittee shall evaluate the sample data, field, and laboratory QA/QC results for acceptability with respect to the data quality objectives (DQOs). Each group of samples shall be compared with the DQOs and evaluated using data validation guidelines contained in EPA guidance documents and the most recent version of SW-846, and industry-accepted QA/QC methods and procedures.

The Permittee shall require the laboratory to notify the Facility project manager of data quality exceptions within one business day in order to allow for sample re-analysis, if possible. The Facility project manager shall contact the NMED within one business day of receipt of laboratory notification of data quality exceptions in order to discuss the implications and determine whether the data will still be considered acceptable or if sample re-analysis or resampling is necessary. The Facility project manager shall summarize the results of the discussion with the NMED project leader regarding the data quality exceptions in a memorandum. The Permittee shall submit the memorandum to the NMED by fax or electronic mail within two business days of the conclusion of the data quality discussion.

#### **8.5.7 Blanks, Field Duplicates, Reporting Limits and Holding Times**

##### **8.5.7.a Blanks**

The analytical results of field blanks and field rinsate blanks shall be reviewed to evaluate the adequacy of the equipment decontamination procedures and the possibility of cross-contamination caused by decontamination of sampling equipment. The analytical results of trip blanks shall be reviewed to evaluate the possibility for contamination resulting from the laboratory-prepared sample containers or the sample transport containers. The analytical results of laboratory blanks shall be reviewed to evaluate the possibility of contamination caused by the analytical procedures. If contaminants are detected in field or laboratory blanks, the sample data shall be qualified, as appropriate.

### **8.5.7.b Field Duplicates**

Field duplicates shall consist of two samples either split from the same sample device or collected sequentially. Field duplicate samples shall be collected at a minimum frequency of ten percent of the total number of samples submitted for analysis. Relative percent differences for field duplicates shall be calculated. A precision of no more than 20 percent for duplicates shall be considered acceptable for soil sampling conducted at the Facility. The analytical DQO for precision shall be used for water duplicates.

### **8.5.7.c Method Reporting Limits**

Method reporting limits for sample analyses for each medium shall be established at the lowest level practicable for the method and analyte concentrations and shall not exceed soil, groundwater, surface water, or vapor emissions background levels, cleanup standards, and screening levels. The preferred method detection limits are a maximum of 20 percent of the background, screening, or cleanup levels. Detection limits that exceed established soil, groundwater, surface water, or air emissions cleanup standards, screening levels, or background levels and are reported as “not detected” shall be considered data quality exceptions and an explanation for the exceedence and its acceptability for use shall be provided.

### **8.5.7.d Holding Times**

The Permittee shall review the sampling, extraction, and analysis dates to confirm that extraction and analyses were completed within the recommended holding times, as specified by EPA protocol. Appropriate data qualifiers shall be noted if holding times were exceeded.

## **8.5.8 Representativeness and Comparability**

### **8.5.8.a Representativeness**

Representativeness is a qualitative parameter related to the degree to which the sample data represent the relevant specific characteristics of the media sampled. The Permittee shall implement procedures to assure representative samples are collected and analyzed, such as repeated measurements of the same parameter at the same location over several distinct sampling events. The Permittee shall note any procedures or variations that may affect the collection or analysis of representative samples and shall qualify the data.

### **8.5.8.b Comparability**

Comparability is a qualitative parameter related to whether similar sample data can be compared. To assure comparability, the Permittee shall report analytical results in appropriate units for comparison with other data (past studies, comparable sites, screening levels, and cleanup standards), and shall implement standard collection and analytical procedures. Any procedure or variation that may affect comparability shall be noted and the data shall be qualified.

### **8.5.9 Laboratory Reporting, Documentation, Data Reduction, and Corrective Action**

Upon receipt of each laboratory data package, data shall be evaluated against the criteria outlined in the previous sections. Any deviation from the established criteria shall be noted and the data will be qualified. A full review and discussion of analytical data QA/QC and all data qualifiers shall be submitted as appendices or attachments to investigation and monitoring reports prepared in accordance with Permit Part 10. Data validation procedures for all samples shall include checking the following, when appropriate:

- i. holding times;
- ii. detection limits;
- iii. field equipment rinsate blanks;
- iv. field blanks;
- v. field duplicates;
- vi. trip blanks;
- vii. reagent blanks;
- viii. laboratory duplicates;
- ix. laboratory blanks;
- x. laboratory matrix spikes;
- xi. laboratory matrix spike duplicates;
- xii. laboratory blank spikes;
- xiii. laboratory blank spike duplicates; and
- xiv. surrogate recoveries.

If significant quality assurance problems are encountered, appropriate corrective action shall be implemented. All corrective action shall be defensible and the corrected data shall be qualified.

## **PART 9: MONITORING WELL CONSTRUCTION REQUIREMENTS**

Vadose zone or groundwater monitoring wells required to be constructed at the Facility must be installed in accordance with this Permit Part. General drilling procedures are presented in Permit Section 9.1 and monitoring well construction requirements are presented in Permit Section 9.2.

### **9.1 Drilling Methods**

Vadose zone and groundwater monitoring wells and piezometers must be designed and constructed in a manner that will yield high quality samples, ensure the well will last the duration of the project, and ensure the well will not serve as a conduit for contaminants to migrate between different stratigraphic units or aquifers. The design and construction of monitoring wells shall comply with the guidelines established in various EPA RCRA guidance, including, but not limited to:

- i. U.S. EPA, RCRA Groundwater Monitoring: Draft Technical Guidance, EPA/530-R-93-001, November, 1992;
- ii. U.S. EPA, RCRA Groundwater Monitoring Technical Enforcement Guidance Document, OSWER-9950.1, September, 1986; and
- iii. Aller, L., Bennett, T.W., Hackett, G., Petty, R.J., Lehr, J.H., Sedoris, H., Nielsen, D.M., and Denne, J.E., Handbook of Suggested Practices for the Design and Installation of Groundwater Monitoring Wells, EPA 600/4-89/034, 1989.

A variety of methods are available for drilling monitoring wells. While the selection of the drilling procedure is usually based on the site-specific geologic conditions, the following issues shall also be considered:

- i. drilling shall be performed in a manner that minimizes impacts to the natural properties of the subsurface materials;
- ii. contamination and cross-contamination of groundwater and aquifer materials during drilling shall be avoided;
- iii. the drilling method shall allow for the collection of representative samples of rock, unconsolidated materials, and soil;
- iv. the drilling method shall allow the Permittee to determine when the appropriate location for the screened interval(s) has been encountered; and
- v. the drilling method shall allow for the proper placement of the filter pack and annular sealants. The borehole diameter shall be at least four inches larger in diameter than the nominal diameter of the well casing and screen to allow adequate space for placement of the filter pack and annular sealants.

The drilling method shall allow for the collection of representative vadose zone and groundwater samples. Drilling fluids (including air) shall be used only when minimal impact to the surrounding formation and groundwater can be ensured.

A brief description of the different drilling methods that may be appropriate for the construction of monitoring wells at the Facility follows. Many of these methods may be used alone, or in combination, to install monitoring wells at the Facility. While the selection of the specific drilling procedure will usually depend on the site-specific geologic conditions, justification for the method selected must be provided to the NMED.

### **9.1.1 Hollow-Stem Auger**

The hollow-stem continuous flight auger consists of a hollow, steel shaft with a continuous, spiraled steel flight welded onto the exterior side of the stem. The stem is connected to an auger bit and, when rotated, transports cuttings to the surface. The hollow stem of the auger allows drill rods, split-spoon core barrels, Shelby tubes, and other samplers to be inserted through the center of the auger so that samples may be retrieved during the drilling operations. The hollow stem also acts to temporarily case the borehole, so that the well screen and casing (riser) may be inserted down through the center of the augers once the desired depth is reached, minimizing the risk of possible collapse of the borehole. A bottom plug or pilot bit can be fastened onto the bottom of the augers to keep out most of the soils and/or water that have a tendency to clog the bottom of the augers during drilling. Drilling without a center plug is acceptable provided that the soil plug, formed in the bottom of the auger, is removed before sampling or installing well casings. The soil plug can be removed by washing out the plug using a side discharge rotary bit, or augering out the plug with a solid-stem auger bit sized to fit inside the hollow-stem auger. In situations where heaving sands are a problem, potable water may be poured into the augers to equalize the pressure so that the inflow of formation materials and water shall be held to a minimum when the bottom plug is removed. The hollow-stem auger method is best suited for drilling shallow overburden wells.

### **9.1.2 Air Rotary/Air Down-The Hole Hammer/ODEX**

The air rotary method consists of a drill pipe or drill stem coupled to a drill bit that rotates and cuts through soils and rock. The cuttings produced from the rotation of the drilling bit are transported to the surface by compressed air, which is forced down the borehole through the drill pipe and returns to the surface through the annular space (between the drill pipe and the borehole wall). The circulation of the compressed air not only removes the cuttings from the borehole but also helps to cool the drill bit. The use of air rotary drilling is best suited for hard-rock formations. In soft unconsolidated formations, casing is driven to keep the formation from caving. When using air rotary, the air compressor shall have an in-line filter system to filter the air coming from the compressor. The filter system shall be inspected regularly to insure that the system is functioning properly. In addition, a cyclone velocity dissipator or similar air containment/dust-suppression system shall be used to funnel the cuttings to one location instead

of allowing the cuttings to discharge uncontrolled from the borehole. Air rotary that employs the dual-tube (reverse circulation) drilling system is acceptable because the cuttings are contained within the drill stem and are discharged through a cyclone velocity dissipator to the ground surface.

The injection of air into the borehole during air rotary drilling has the potential to alter the natural properties of the subsurface. This can occur through air-stripping of the VOCs in both soil and groundwater in the vicinity of the borehole, altering the groundwater geochemical parameters (e.g., pH and redox potential), and potentially increasing biodegradation of organic compounds in the aquifer near the borehole. These factors may prevent the well from yielding vadose zone or groundwater samples that are representative of in-situ conditions.

In hard, abrasive, consolidated rock, a down-the-hole hammer may be more appropriate than the air rotary method. In this method, compressed air is used to actuate and operate a pneumatic hammer as well as lift the cuttings to the surface and cool the hammer bit. One drawback of the down-the-hole hammer is that oil is required in the air stream to lubricate the hammer-actuating device, and this oil could potentially contaminate the soil in the vicinity of the borehole and the aquifer.

The ODEX method is a variation of the air rotary method in which a casing-driving technique is used in combination with air rotary drilling. With the ODEX system, the drill bit extends outward and reams a pilot hole large enough for a casing assembly to slide down behind the drill bit assembly. As a result, casing is advanced simultaneously while drilling the hole.

## **9.2 Well Construction/Completion Methods**

### **9.2.1 Well Construction Materials**

Well construction materials shall be selected based on the goals and objectives of the proposed monitoring program and the geologic conditions at the site. When selecting well construction materials, the primary concern shall be selecting materials that will not contribute foreign constituents or remove contaminants from the vadose zone or groundwater. Other factors to be considered include the tensile strength, compressive strength, and collapse strength of the materials; length of time the monitoring well will be in service; and the material's resistance to chemical and microbiological corrosion. Generally, if the monitoring program requires the analysis of organic constituents, stainless steel or fluoropolymer materials should be used. However, if the monitoring program requires only inorganic constituent analyses, PVC materials may be used. PVC is less desirable for monitoring wells where organic constituents will be analyzed due to its potential for sorption and leaching of contaminants. If stainless steel is used for groundwater monitoring wells where low levels of metals may be present, the steel must be passivated to minimize sorption and leaching of metals.

Well screen and casing materials acceptable for the construction of RCRA monitoring wells include stainless steel (304 or 316), rigid PVC (meeting American National Standards

Institute/National Sanitation Foundation Standard 14), and fluoropolymer materials (polytetrafluoroethylene, fluorinated ethylene propylene, and polyvinylidene). In addition, there are other materials available for the construction of monitoring wells including acrylonitrile butadiene styrene (ABS), fiberglass-reinforced plastic (FRP), black iron, carbon steel, and galvanized steel, but these materials are not recommended for use in long term monitoring wells due to their low resistance to chemical attack and potential contribution of contamination to the groundwater. However, these materials may be used in the construction of monitoring wells where they will not be in contact with the groundwater or vadose zone interval that will be sampled (e.g., carbon steel pipe used as surface casing).

## **9.2.2 Well Construction Techniques**

### **9.2.2.a Single-Cased Wells**

The borehole shall be bored, drilled, or augered as close to vertical as possible, and checked with a plumb bob, level, or appropriate downhole logging tool. Slanted boreholes shall not be acceptable unless specified in the design. The borehole shall be of sufficient diameter so that well construction can proceed without major difficulties. To assure an adequate size, a minimum two-inch annular space is required between the casing and the borehole wall (or the hollow-stem auger wall). The two-inch annular space around the casing will allow the filter pack, bentonite seal, and annular grout to be placed at an acceptable thickness. Also, the two-inch annular space will allow up to a 1.5-inch outer diameter tremie pipe to be used for placing the filter pack, bentonite seal, and grout at the specified intervals.

It may be necessary to overdrill the borehole so that any soils that have not been removed (or that have fallen into the borehole during augering or drill stem retrieval) will fall to the bottom of the borehole below the depth where the filter pack and well screen are to be placed. Normally, three to five feet is sufficient for overdrilling shallow wells. Deep wells may require deeper overdrilling. The borehole can also be overdrilled to allow for an extra space for a well sump to be installed. If the borehole is overdrilled deeper than desired, it can be backfilled to the designated depth with bentonite pellets or the filter pack.

The well casings (riser assembly) should be secured to the well screen by flush-jointed threads or other appropriate connections and placed into the borehole and plumbed by the use of centralizers, a plumb bob, or a level. No petroleum-based lubricating oils or grease shall be used on casing threads. Teflon tape can be used to wrap the threads to insure a tight fit and minimize leakage. No glue of any type shall be used to secure casing joints. Teflon "O" rings can also be used to ensure a tight fit and minimize leakage. "O" rings made of materials other than Teflon are not acceptable if the well will be sampled for organic compound analyses. Before the well screen and casings are placed at the bottom of the borehole, at least six inches of filter material shall be placed at the bottom to serve as a firm footing. The string of well screen and casing should then be placed into the borehole and plumbed. If centralizers are used, they shall be placed below the well screens and above the bentonite annular seals so that the placement of the

filter pack, overlying bentonite seal, and annular grout will not be hindered. Centralizers placed in the wrong locations can cause bridging during material placement. If installing the well screen and casings through hollow-stem augers, the augers shall be slowly extracted as the filter pack, bentonite seal, and grout are tremied or poured into place. The gradual extraction of the augers will allow the materials being placed in the augers to flow out of the bottom of the augers into the borehole. If the augers are not gradually extracted, the materials will accumulate at the bottom of the augers causing potential bridging problems. After the string of well screen and casing is plumb, the filter material shall be placed around the well screen (preferably by the tremie pipe method) up to the designated depth. After the filter pack has been installed, the bentonite seal shall be placed directly on top of the filter pack up to the designated depth or a minimum of two feet above the filter pack, whichever is greater. After the bentonite seal has hydrated for the specified time, the annular grout shall be pumped by the tremie method into the annular space around the casings (riser assembly) up to within two feet of the ground surface or below the frost line, whichever is greater. The grout shall be allowed to cure for a minimum of 24 hours before the surface pad and protective casing are installed. After the surface pad and protective casing are installed, bumper guards (guideposts) shall be installed (if necessary).

#### **9.2.2.b Double-Cased Wells**

Double-cased wells should be constructed when there is reason to believe that interconnection of two aquifers by well construction may cause cross contamination, or when flowing sands make it impossible to install a monitoring well using conventional methods. A pilot borehole should be advanced through the overburden and the contaminated zone into a clay, confining layer, or bedrock. An outer casing (surface or pilot casing) shall be placed into the borehole and sealed with grout. The borehole and outer casing should extend into tight clay a minimum of two feet or into competent bedrock a minimum of one foot. The total depth into the clay or bedrock will vary depending upon the plasticity of the clay and the extent of weathering and fracturing of the bedrock. The size of the outer casing shall be of sufficient inside diameter to contain the inner casing and the two-inch annular space. In addition, the borehole shall be of sufficient size to contain the outer casing and the two-inch minimum outer annular space, if applicable.

The outer casing shall be grouted by the tremie method from the bottom of the borehole to within two feet of the ground surface. The grout shall be pumped into the annular space between the outer casing and the borehole wall. This can be accomplished by either placing the tremie pipe in the annular space and pumping the grout from the bottom of the borehole to the surface, or placing a grout shoe or plug inside the casing at the bottom of the borehole and pumping the grout through the bottom grout plug and up the annular space on the outside of the casing. The grout shall consist of a Type I Portland cement and bentonite or other approved grout to provide a rigid seal. A minimum of 24 hours shall be allowed for the grout plug (seal) to cure before attempting to drill through it. When drilling through the seal, care shall be taken to avoid cracking, shattering, and washing out of the seal. If caving conditions exist so that the outer

casing cannot be sufficiently sealed by grouting, the outer casing shall be driven into place and a grout seal placed in the bottom of the casing.

### **9.2.2.c Bedrock Wells**

The installation of monitoring wells into bedrock can be accomplished in two ways. The first method is to drill or bore a pilot borehole through the soil overburden into the bedrock. An outer casing is installed into the borehole by setting it into the bedrock, and grouting it into place. After the grout has set, the borehole can be advanced through the grout seal into the bedrock. The preferred method of advancing the borehole into the bedrock is rock coring. Rock coring makes a smooth, round hole through the seal and into the bedrock without cracking or shattering the seal. Roller cone bits are used in soft bedrock, but extreme caution should be taken when using a roller cone bit to advance through the grout seal in the bottom of the borehole because excessive water and bit pressure can cause cracking, eroding (washing), and/or shattering of the seal. Low volume air hammers may be used to advance the borehole, but they have a tendency to shatter the seal because of the hammering action. If the structural integrity of the grout seal is in question, a pressure test can be utilized to check for leaks. If the seal leaks, the seal is not acceptable. When the drilling is complete, the finished well will consist of an open borehole from the ground surface to the bottom of the well. The major limitation of open borehole bedrock wells is that the entire bedrock interval serves as the monitoring zone.

The second method is to install the outer surface casing and drill the borehole into bedrock, and then install an inner casing and well screen with the filter pack, bentonite seal, and annular grout. The well is completed with a surface protective casing and concrete pad. This well installation method gives the flexibility of isolating the monitoring zone(s) and minimizing inter-aquifer flow. In addition, it gives structural integrity to the well, especially in unstable areas (e.g., steeply dipping shales) where the bedrock has a tendency to shift or move when disturbed.

### **9.2.3 Well Screen and Filter Pack Design**

Well screens and filter packs shall be designed to accurately sample the vadose zone interval or aquifer zone that the well is intended to target, minimize the passage of formation materials (turbidity) into the well, and ensure sufficient structural integrity to prevent the collapse of the intake structure. The selection of the well screen length depends upon the objective of the well. Piezometers and wells where only a discrete flow path is monitored are generally completed with short screens (two feet or less). While monitoring wells are usually constructed with longer screens (usually five to twenty feet), they shall be kept to the minimum length appropriate for intercepting a contaminant plume. The screen slot size shall be selected to retain from 90 to 100 percent of the filter pack material in artificially filter packed wells, and from 50 to 100 percent of the formation material in naturally packed wells. All well screens shall be factory wire-wrapped or machine slotted.

A filter pack shall be used when: 1) the natural formation is poorly sorted; 2) a long screen interval is required or the screen spans highly stratified geologic materials of widely varying grain sizes; 3) the natural formation is uniform fine sand, silt, or clay; 4) the natural formation is thin-bedded; 5) the natural formation is poorly cemented sandstone; 6) the natural formation is highly fractured or characterized by relatively large solution channels; 7) the natural formation is shale or coal that will act as a constant source of turbidity to groundwater samples; or 8) the diameter of the borehole is significantly greater than the diameter of the screen. The use of natural formation material as a filter pack is only recommended when the natural formation materials are relatively coarse-grained, permeable, and uniform in grain size.

Filter pack materials shall consist of clean, rounded to well-rounded, hard, insoluble particles of siliceous composition (industrial grade quartz sand or glass beads). The required grain-size distribution or particle sizes of the filter pack materials shall be selected based upon a sieve analysis of the aquifer materials or the formation to be monitored, or the characteristics of the aquifer materials using information acquired during previous investigations.

Where sieve analyses are used to select the appropriate filter pack particle size, the results of a sieve analysis of the formation materials are plotted on a grain-size distribution graph, and a grain-size distribution curve is generated. The 70 percent retained grain size value should be multiplied by a factor between four and six (four for fine, uniform formations and six for coarse, non-uniform formations). A second grain-size distribution curve is then drawn on the graph for this new value, ensuring that the uniformity coefficient does not exceed 2.5. The filter pack that shall be used will fall within the area defined by these two curves.

Once the filter pack size is determined, the screen slot size shall be selected to retain at least 90 percent of the filter pack material. The Permittee may propose the use of a pre-determined well screen slot size and filter pack for monitoring wells in the site-specific work plans submitted to the NMED.

The filter pack shall be installed in a manner that prevents bridging and particle-size segregation. Filter packs placed below the water table shall be installed by the tremie pipe method. Filter pack materials shall not be poured into the annular space unless the well is shallow (e.g., less than 30 feet deep) and the filter pack material can be poured continuously into the well without stopping. At least two inches of filter pack material shall be installed between the well screen and the borehole wall, and two feet of material shall extend above the top of the well screen. A minimum of six-inches of filter pack material shall also be placed under the bottom of the well screen to provide a firm footing and an unrestricted flow under the screened area. In deep wells (e.g., greater than 200 feet deep), the filter pack may not compress when initially installed. As a result, filter packs may need to be installed as high as five feet above the screened interval in these situations. The precise volume of filter pack material required shall be calculated and recorded before placement, and the actual volume used shall be determined and recorded during well construction. Any significant discrepancy between the calculated and actual volume shall be explained. Prior to installing the filter pack annular seal, a one to two-foot layer of

chemically inert fine sand shall be placed over the filter pack to prevent the intrusion of annular sealants into the filter pack.

#### **9.2.4 Annular Sealant**

The annular space between the well casing and the borehole must be properly sealed to prevent cross-contamination of samples and the groundwater. The materials used for annular sealants shall be chemically inert with respect to the highest concentration of chemical constituents expected in the groundwater or vadose zone at the Facility. In general, the permeability of the sealing material shall be one to two orders of magnitude lower than the least permeable parts of the formation in contact with the well. The precise volume of annular sealants required shall be calculated and recorded before placement, and the actual volume shall be determined and recorded during well construction. Any significant discrepancy between the calculated volume and the actual volume shall be explained.

During well construction, an annular seal shall be placed on top of the filter pack. This seal shall consist of a high solids (10-30 percent) bentonite material in the form of bentonite pellets, granular bentonite, or bentonite chips. The bentonite seal shall be placed in the annulus through a tremie pipe if the well is deep (greater than 30 feet), or by pouring directly down the annulus in shallow wells (less than 30 feet). If the bentonite materials are poured directly down the annulus (which is an acceptable method only in wells less than 30 feet deep), a tamping device shall be used to ensure that the seal is emplaced at the proper depth and the bentonite has not bridged higher in the well casing. The bentonite seal shall be placed above the filter pack a minimum of two feet vertical thickness. The bentonite seal shall be allowed to completely hydrate in conformance with the manufacturer's specifications prior to installing the overlying annular grout seal. The time required for the bentonite seal to completely hydrate will differ with the materials used and the specific conditions encountered, but is generally a minimum of four to 24 hours.

A grout seal shall be installed on top of the filter pack annular seal. The grout seal may consist of a high solids (30 percent) bentonite grout, a neat cement grout, or a cement/bentonite grout. The grout shall be pumped under pressure (not gravity fed) into the annular space by the tremie pipe method, from the top of the filter pack annular seal to within a few feet of the ground surface. The tremie pipe shall be equipped with a side discharge port (or bottom discharge for grouting at depths greater than 100 feet) to minimize damage to the filter pack or filter pack annular bentonite seal during grout placement. The grout seal shall be allowed to cure for a minimum of 24 hours before the concrete surface pad is installed. All grouts shall be prepared in accordance with the manufacturer's specifications. High solids (30 percent) bentonite grouts shall have a minimum density of ten pounds per gallon (as measured by a mud balance) to ensure proper setup. Cement grouts shall be mixed using six and one-half to seven gallons of water per 94-pound bag of Type I Portland cement. Bentonite (five to ten percent) may be added to delay the setting time and reduce the shrinkage of the grout.

### **9.2.5 Groundwater Well Development**

All groundwater monitoring wells shall be developed to create an effective filter pack around the well screen, correct damage to the formation caused by drilling, remove fine particles from the formation near the borehole, and assist in restoring the natural water quality of the aquifer in the vicinity of the well. Development stresses the formation around the screen, as well as the filter pack, so that mobile fines, silts, and clays are pulled into the well and removed. Development is also used to remove any foreign materials (e.g., water, drilling mud) that may have been introduced into the borehole during the drilling and well installation activities, and to aid in the equilibration that will occur between the filter pack, well casing, and the formation water. The development of a well is extremely important to ensuring the collection of representative groundwater samples.

Newly installed groundwater monitoring wells shall not be developed for at least 48 hours after the surface pad and outer protective casing are installed. This will allow sufficient time for the well materials to cure before the development procedures are initiated. A new monitoring well shall be developed until the column of water in the well is free of visible sediment, and the pH, temperature, turbidity, and specific conductivity have stabilized. In most cases, the above requirements can be satisfied. However, in some cases, the pH, temperature, and specific conductivity may stabilize but the water remains turbid. In this case, the well may still contain well construction materials, such as drilling mud in the form of a mud cake or formation soils that have not been washed out of the borehole. Thick drilling mud cannot be flushed out of a borehole with one or two well volumes of flushing. Instead, continuous flushing over a period of several days may be necessary to complete the well development. If the well is pumped dry, the water level shall be allowed to sufficiently recover before the next development period is initiated. The common methods used for developing wells include:

- i. pumping and overpumping;
- ii. backwashing;
- iii. surging (with a surge block);
- iv. bailing;
- v. jetting; and
- vi. airlift pumping.

These development procedures can be used, either individually or in combination, to achieve the most effective well development. However, the most favorable well development methods include pumping, overpumping, bailing, surging, or a combination of these methods. Well development methods and equipment that alter the chemical composition of the groundwater shall not be used. Development methods that involve adding water or other fluids to the well or

borehole, or that use air to accomplish well development should be avoided, if possible. Approval shall be obtained from the NMED prior to introducing air, water, or other fluids into the well for the purpose of well development. If water is introduced to a borehole during well drilling and completion, then the same or greater volume of water shall be removed from the well during development. In addition, the volume of water withdrawn from a well during development shall be recorded.

### **9.2.6 Surface Completion**

Monitoring wells may be completed either as flush-mounted wells, or as above-ground completions. A surface seal shall be installed over the grout seal and extended vertically up the well annulus to the land surface. The lower end of the surface seal shall extend a minimum of one foot below the frost line to prevent damage from frost heaving. The composition of the surface seal shall be neat cement or concrete. In above-ground completions, a three-foot wide, four-inch thick concrete surface pad shall be installed around the well at the same time the protective casing is installed. The surface pad shall be sloped so that drainage will flow away from the protective casing and off the pad. In addition, a minimum of one inch of the finished pad shall be below grade or ground elevation to prevent washing and undermining by soil erosion.

A locking protective casing shall be installed around the well casing (riser) to prevent damage or unauthorized entry. The protective casing shall be anchored in the concrete surface pad below the frost line and extend several inches above the well riser stickup. A weep hole shall be drilled into the protective casing just above the top of the concrete surface pad to prevent water from accumulating and freezing inside the protective casing around the well riser. A cap shall be placed on the well riser to prevent tampering or the entry of foreign materials, and a lock shall be installed on the protective casing to provide security. If the wells are located in an area that receives traffic, a minimum of three bumper guards consisting of steel pipes three to four inches in diameter and a minimum of five-foot length should be installed. The bumper guards should be installed to a minimum depth of two feet below the ground surface in a concrete footing and extend a minimum of three feet above ground surface. The pipes should be filled with concrete to provide additional strength. The pipes should be painted a bright color to reduce the possibility of vehicular damage.

If flush-mounted completions are required (e.g., in active roadway areas), a protective structure such as a utility vault or meter box should be installed around the well casing. In addition, measures should be taken to prevent the accumulation of surface water in the protective structure and around the well intake. These measures should include outfitting the protective structure with a steel lid or manhole cover that has a rubber seal or gasket, and ensuring that the bond between the cement surface seal and the protective structure is watertight.

### **9.3 Well Abandonment**

Wells deleted from the facility monitoring program or when they are damaged beyond repair shall be plugged and abandoned. Well plugging and abandonment methods and certification shall be conducted in accordance with *Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells* [19.27.4 NMAC]. The Permittee shall notify the NMED and submit a well abandonment plan to the New Mexico State Engineers Office and to the NMED no less than 30 days prior to the date the wells are removed from the monitoring program.

The goal of well abandonment is to seal the borehole in such a manner that the well cannot act as a conduit for migration of contaminants from the ground surface to the aquifer or between aquifers. To properly abandon a well, the preferred method is to completely remove the well casing and screen from the borehole, clean out the borehole, and backfill with a cement or bentonite grout, neat cement, or concrete.

For wells with small diameter casing, abandonment shall be accomplished by overdrilling the well with a large diameter hollow-stem auger. After the well has been overdrilled, the well casing and grout can be lifted out of the ground with a drill rig, and the remaining filter pack can be drilled out. The open borehole can then be pressure grouted (via the tremie pipe method) from the bottom of the borehole to the ground surface. After the grout has cured, the top two feet of the borehole shall be filled with concrete to insure a secure surface seal.

Several other well abandonment procedures are available for wells with larger diameter screens and casings. One method is to force a drill stem with a tapered wedge assembly or a solid-stem auger into the well casing and pull the casing out of the ground. However, if the casing breaks or the well cannot be pulled from the ground, the well will have to be grouted in place. To abandon a well in place, a tremie pipe shall be placed at the lowest point in the well (at the bottom of the screen or in the well sump). The entire well is then pressure grouted from the bottom of the well upward. The pressurized grout will be forced out through the well screen into the filter pack and up the inside of the well casing sealing off all breaks and holes in the casing. Once the well is grouted, the casing is cut off even with the ground surface and covered with concrete.

If a PVC well cannot be abandoned due to internal casing damage (e.g., the tremie pipe cannot be extended to the bottom of the screen), it may be necessary to drill out the casing with a roller cone or drag bit using the wet rotary drilling method, or grind out the casing using a solid-stem auger equipped with a carbide tooth bit. Once the casing is removed, the open borehole can be cleaned out and pressure grouted from the bottom of the borehole upward.

### **9.4 Documentation**

All information on the design, construction, and development of each monitoring well shall be recorded and presented on a boring log, a well construction log, and well construction diagram. The well construction log and well construction diagram shall include the following information:

- i. well name/number;
- ii. date/time of well construction;
- iii. borehole diameter and well casing diameter;
- iv. well depth;
- v. casing length;
- vi. casing materials;
- vii. casing and screen joint type;
- viii. screened interval(s);
- ix. screen materials;
- x. screen slot size and design;
- xi. filter pack material and size;
- xii. filter pack volume (calculated and actual);
- xiii. filter pack placement method;
- xiv. filter pack interval(s);
- xv. annular sealant composition;
- xvi. annular sealant placement method;
- xvii. annular sealant volume (calculated and actual);
- xviii. annular sealant interval(s);
- xix. surface (grout) sealant composition ;
- xx. surface (grout) seal placement method;
- xxi. surface (grout) sealant volume (calculated and actual);
- xxii. surface(grout) sealant interval;
- xxiii. surface completion and well apron design and construction;
- xxiv. well development procedure and turbidity measurements;
- xxv. well development purge volume(s) and stabilization parameter measurements;

- xxvi. type and design and construction of protective casing;
- xxvii. well cap and lock;
- xxviii. ground surface elevation;
- xxix. survey reference point elevation on well casing;
- xxx. top of monitoring well casing elevation; and
- xxxi. top of protective steel casing elevation.

## **PART 10: REPORTING REQUIREMENTS**

### **10.1 Highlights**

The purpose of this Permit Part is to provide the general reporting requirements and report formats for corrective action activities required under this Permit. This Permit Part is not intended to provide reporting requirements for every potential corrective action conducted at the Facility. Therefore, the formats for all types of reports are not presented below. The described formats include the general reporting requirements and formats for site-specific investigation work plans, investigation reports, routine monitoring reports, risk assessment reports, and corrective measures evaluations. The Permittee shall generally consider the reports to be the equivalents of RFI work plans, RFI reports, periodic monitoring reports, risk assessments, and CMS reports, respectively, for the purposes of RCRA compliance. The Permittee shall include detailed, site-specific requirements in all interim status unit, SWMU, and AOC investigation work plans, investigation reports, monitoring reports, and corrective measures evaluations. All plans and reports shall be prepared with technical and regulatory input from the NMED. All work plans and reports shall be submitted to the NMED in the form of two paper copies and an electronic copy.

The reporting requirements listed in this Part do not include all sections that may be necessary to complete each type of report listed. The Permittee or the NMED may determine that additional sections may be needed to address additional site-specific issues or information collected during corrective action or monitoring activities not listed below. However, The Permittee must submit variations of the general report format and the formats for reports not listed in this Permit Part in outline form to the NMED for approval prior to submittal of the reports. The NMED will approve or disapprove, in writing, the proposed report outline after receipt of the outline. If the NMED disapproves the report outline, the NMED will notify the Permittee, in writing, of the outline's deficiencies and will specify a date for submittal of a revised report outline. All reports submitted by the Permittee shall follow the general approach and limitations for data presentation described in this Permit Part.

### **10.2 Investigation Work Plan**

The Permittee shall fulfill the requirements acceptable to the NMED for preparation of work plan for unit-specific or corrective action activities at the Facility using the general outline below. The minimum requirements for describing proposed activities within each section are included. All research, locations, depths and methods of exploration, field procedures, analytical analyses, data collection methods, and schedules shall be included in each work plan. In general, interpretation of data acquired during previous investigations shall be presented only in the background sections of the work plans. The other text sections of the work plans shall be reserved for presentation of anticipated site-specific activities and procedures relevant to the project. The general work plan outline is provided below.

### **10.2.1 Title Page**

The title page shall include the type of document, Facility name and the unit, SWMU, or AOC name (s) and the submittal date. A signature block providing spaces for the name, title, and organization of the preparer and the responsible representative of the Facility shall be provided on the title page in accordance with the signature requirements in 40 CFR § 270.11(b).

### **10.2.2 Executive Summary (Abstract)**

The executive summary (or abstract) shall provide a brief summary of the purpose and scope of the investigation to be conducted at the subject site. The Facility, unit, SWMU or AOC name, and location, shall be included in the executive summary.

### **10.2.3 Table of Contents**

The table of contents shall list all text sections and subsections, tables, figures, and appendices or attachments included in the work plan. The corresponding page numbers for the titles of each section of the work plan shall be included in the table of contents.

### **10.2.4 Introduction**

The introduction shall include the Facility name, unit name and location, and unit status (e.g., active operations, closed, corrective action). General information on the current site usage and status shall be included in this section. A brief description of the purpose of the investigation and the type of site investigation to be conducted shall be provided in this section.

### **10.2.5 Background**

The background section shall describe relevant background information. This section shall briefly summarize historical site uses including the locations of current and former site structures and features. A labeled figure shall be included in the document showing the locations of current and former site structures and features. The locations of pertinent subsurface features such as pipelines, underground tanks, utility lines, and other subsurface structures shall be included in the background summary and labeled on the site plan.

This section shall identify potential receptors, including groundwater, and include a brief summary of the type and characteristics of all waste and all contaminants, the known and possible sources of contamination, the history of releases or discharges of contamination, and the known extent of contamination. This section shall include brief summaries of results of previous investigations including references to pertinent figures, data summary tables, and text in previous reports. At a minimum, detections of contaminants encountered during previous investigations shall be presented in table format, with an accompanying figure showing sample locations. References to previous reports shall include page, table, and figure numbers for referenced information. Summary data tables and site plans showing relevant investigation locations shall be included in the tables and figures sections of the document, respectively.

## **10.2.6 Site Conditions**

### **10.2.6.a Surface Conditions**

A section on surface conditions shall provide a detailed description of current site topography, features and structures including a description of drainages, vegetation, erosional features, and a detailed description of current site uses and current operations at the site. In addition, descriptions of features located in surrounding sites that may have an impact on the subject site regarding sediment transport, surface water runoff, or contaminant fate and transport shall be included in this section.

### **10.2.6.b Subsurface Conditions**

A section on subsurface conditions shall provide a brief, detailed description of the site conditions observed during previous subsurface investigations, including relevant soil horizons, stratigraphy, presence of vadose zone fluids and groundwater, and other relevant information. A site plan showing the locations of all borings and excavations advanced during previous investigations shall be included in the figures section of the work plan. A brief description of the anticipated stratigraphic units that may be encountered during the investigation may be included in this section if no previous investigations have been conducted at the site.

## **10.2.7 Scope of Activities**

A section on the scope of activities shall briefly describe a list of all anticipated activities to be performed during the investigation including background information research, health and safety requirements that may affect or limit the completion of tasks, drilling, test pit or other excavations, well construction, field data collection, survey data collection, chemical analytical testing, aquifer testing, and IDW storage, disposal and reporting.

## **10.2.8 Investigation Methods**

A section on investigation methods shall provide a description of all anticipated locations and methods for conducting the activities to be performed during the investigation. This section shall include but is not limited to research methods, health and safety practices that may affect the completion of tasks, drilling methods, test pit or other excavation methods, sampling intervals and methods, well construction methods, field data collection methods, geophysical and land survey methods, field screening methods, chemical analytical testing, materials testing, aquifer testing, pilot testing, and other proposed investigation and testing methods. This information may also be summarized in table format, if appropriate.

## **10.2.9 Monitoring and Sampling Program**

A section on monitoring and sampling shall describe the anticipated monitoring and sampling program to be implemented after the initial investigation activities are completed. This section shall provide a description of the anticipated vadose zone fluids, groundwater, vadose zone

vapor, vadose zone moisture, and other monitoring and sampling programs to be implemented at the unit.

#### **10.2.10 Schedule**

A section shall provide the anticipated schedule for completion of field investigation, pilot testing, and monitoring and sampling activities. In addition, this section shall provide a schedule for submittal of reports and data to the NMED including a schedule for submitting all status reports and preliminary data, and the final investigation report.

#### **10.2.11 Tables**

The following summary tables may be included in the investigation work plans, if previous investigations have been conducted at the unit. Data presented in the tables shall include information on dates of data collection, analytical methods, detection limits, and significant data quality exceptions. All data tables shall include only detected analytes and data quality exceptions that could potentially mask detections.

- i. Summaries of regulatory criteria, background, and applicable cleanup levels (may be included in the analytical data tables instead of as separate tables),
- ii. summaries of historical field survey location data,
- iii. Summaries of historical field screening and field parameter measurements of soil, rock, sediments, groundwater, surface water, and air quality data.
- iv. Summaries of historical soil, rock, or sediment laboratory analytical data shall include the analytical methods, detection limits, and significant data quality exceptions that could influence interpretation of the data.
- v. Summaries of historical groundwater elevation and depth to groundwater data. The table shall include the monitoring well depths, the screened intervals in each well, and the dates and times measurements were taken.
- vi. Summaries of historical groundwater laboratory analytical data. The analytical data tables shall include the analytical methods, detection limits, and significant data quality exceptions that could influence interpretation of the data.
- vii. Summary of historical surface water laboratory analytical data. The analytical data tables shall include the analytical methods, detection limits, and significant data quality exceptions that could influence interpretation of the data.
- viii. Summary of historical air sample screening and chemical analytical data. The data tables shall include the screening instruments used, laboratory analytical methods, detection limits, and significant data quality exceptions that could influence interpretation of the data.
- ix. Summary of historical pilot or other test data, if applicable, including units of measurement and types of instruments used to obtain measurements.

### 10.2.12 Figures

The following figures shall be included with each investigation work plan for each site, including presentation of data where previous investigations have been conducted. All figures must include an accurate bar scale and a north arrow. An explanation shall be included on each figure for all abbreviations, symbols, acronyms, and qualifiers.

- i. A vicinity map showing topography and the general location of the site relative to surrounding features and properties,
- ii. a unit site plan that presents pertinent site features and structures, underground utilities, well locations, and remediation system locations and details. Off-site well locations and other relevant features shall be included on the site plan, if appropriate. Additional site plans may be required to present the locations of relevant off-site well locations, structures, and features,
- iii. figures showing historical and proposed soil boring or excavation locations and sampling locations,
- iv. figures presenting historical soil sample field screening and laboratory analytical data,
- v. figures presenting the locations of all existing and proposed borings and vapor monitoring point locations, presenting historical vadose zone organic vapor data,
- vi. figures showing all existing and proposed monitoring wells and piezometers, presenting historical groundwater and vadose zone fluid elevation data, and indicating groundwater and vadose zone fluid flow directions,
- vii. figures presenting historical groundwater and vadose zone fluid laboratory analytical data, if applicable. The chemical analytical data corresponding to each sampling location can be presented in tabular form on the figure or as an isoconcentration map,
- viii. figures presenting historical and proposed vadose zone fluid neutron probe access tube locations and field measurement data for soil moisture, if applicable,
- ix. figures presenting historical surface water laboratory analytical data, if applicable,
- x. figures showing historical and proposed air sampling locations and presenting historical air quality data, if applicable,
- xi. figures presenting historical pilot testing locations and data, where applicable, including site plans and graphic data presentation, and
- xii. figures presenting geologic cross-sections, based on outcrop and borehole data acquired during previous investigations, if applicable.

### **10.2.13 Appendices**

An IDW management plan shall be included as an appendix to the investigation work plan. Additional appendices may be necessary to present additional data or documentation not listed above.

### **10.3 Investigation Report**

The Permittee shall prepare investigation reports at the Facility using the general outline below. The Investigation Report shall be the reporting mechanism for presenting the results of completed Investigation Work Plans. This section (10.3) describes the minimum requirements for reporting on site investigations. All data collected during each site investigation event in the reporting period shall be included in the reports. In general, interpretation of data shall be presented only in the background, conclusions and recommendations sections of the reports. The other text sections of the reports shall be reserved for presentation of facts and data without interpretation or qualifications. The general report outline is provided below.

#### **10.3.1 Title Page**

The title page shall include the type of document; Facility name; the unit, SWMU, or AOC; and the submittal date. A signature block providing spaces for the name, title, and organization of the preparer and the responsible Facility representative shall be provided on the title page in accordance with the signature requirements in 40 CFR § 270.11(b).

#### **10.3.2 Executive Summary**

The executive summary shall provide a brief summary of the purpose, scope, and results of the investigation conducted at the subject site during the reporting period. In addition, this section shall include a brief summary of conclusions based on the investigation data collected and recommendations for future investigation, monitoring, remedial action or site closure.

#### **10.3.3 Table of Contents**

The table of contents shall list all text sections, subsections, tables, figures, and appendices or attachments included in the report. The corresponding page numbers for the titles of each section of the report shall be included in the table of contents.

#### **10.3.4 Introduction**

The introduction section shall include the Facility name, unit name and location, and unit status (e.g., active operations, closed, corrective action). General information on the site usage and status shall be included in this section. A brief description of the purpose of the investigation, the type of site investigation conducted, and the type of results presented in the report also shall be provided in this section.

### **10.3.5 Background**

The background section shall describe relevant background information. This section shall briefly summarize historical site uses including the locations of current and former site structures and features. A labeled figure shall be included in the document showing the locations of current and former site structures and features. The locations of subsurface features such as pipelines, underground tanks, utility lines, and other subsurface structures shall be included in the background summary and labeled on the figure. In addition, this section shall include a brief summary of the possible sources of contamination, the history of releases or discharges of contamination, the known extent of contamination, and the results of previous investigations including references to previous reports. The references to previous reports shall include page, table, and figure numbers for referenced information. A site plan, showing relevant investigation locations, and summary data tables shall be included in the figures and tables sections of the document, respectively.

### **10.3.6 Scope of Activities**

This section on the scope of activities shall briefly describe all activities performed during the investigation event including background information research, implemented health and safety measures that affected or limited the completion of tasks, drilling, test pit or other excavation methods, well construction methods, field data collection, survey data collection, chemical analytical testing, aquifer testing, remediation system pilot testing, and IDW storage or disposal.

### **10.3.7 Field Investigation Results**

A section shall provide a summary of the procedures used and the results of all field investigation activities conducted at the site including, but not limited to, the dates that investigation activities were conducted, the type and purpose of field investigation activities performed, field screening measurements, logging and sampling results, pilot test results, construction details and conditions observed. Field observations or conditions that altered the planned work or may have influenced the results of sampling, testing and logging shall be reported in this section. At a minimum, the following subsections shall be included, where appropriate.

#### **10.3.7.a Surface Conditions**

A section on surface conditions shall describe current site topography, features, and structures including topographic drainages, man-made drainages, vegetation, and erosional features. It shall also include a description of current site uses and any operations at the site. In addition, descriptions of features located in surrounding sites that may have an impact on the subject site regarding sediment transport, surface water runoff, or contaminant transport shall be included in this section.

### **10.3.7.b Exploratory Drilling or Excavation Investigations**

A section shall describe the locations, methods, and depths of subsurface explorations. The description shall include the types of equipment used, the logging procedures, the soil or rock classification system used to describe the observed materials, exploration equipment decontamination procedures, and conditions encountered that may have affected or limited the investigation.

A description of the site conditions observed during subsurface investigation activities shall be included in this section, including soil horizon and stratigraphic information. Site plans showing the locations of all borings and excavations shall be included in the figures section of the report. Boring and test pit logs for all exploratory borings and test pits shall be presented in an appendix or attachment to the report.

### **10.3.7.c Subsurface Conditions**

A section on subsurface conditions shall describe known subsurface lithology and structures, based on observations made during the current and previous subsurface investigations, including interpretation of geophysical logs and as-built drawings of man-made structures. A description of the known locations of pipelines and utility lines and observed geologic structures shall also be included in this section. A site plan showing boring and excavation locations and the locations of the site's above- and below-ground structures shall be included in the figures section of the report. In addition, cross-sections shall be constructed, if appropriate, to provide additional visual presentation of site or regional subsurface conditions.

### **10.3.7.d Monitoring Well Construction, Boring, or Excavation Abandonment**

A section shall describe the methods and details of monitoring well construction and the methods used to abandon or backfill exploratory borings and excavations. The description shall include the dates of well construction, boring abandonment, or excavation backfilling. In addition, boring and test pit logs, and well construction diagrams shall be included in an attachment or appendix and well construction diagrams shall be included with the associated boring logs for monitoring well borings.

### **10.3.7.e Groundwater Conditions**

A section shall describe groundwater conditions observed beneath the subject site and relate local groundwater conditions to regional groundwater conditions. A description of the depths to water, aquifer thickness, and groundwater flow directions shall be included in this section for alluvial groundwater, shallow perched groundwater, intermediate perched groundwater, and regional groundwater, as appropriate to the investigation. Figures showing well locations, surrounding area, and groundwater elevations and flow directions for each hydrologic zone shall be included in the Figures section of the report.

#### **10.3.7.f Surface Water Conditions**

A section shall describe surface water conditions and include a description of surface water runoff, drainage, surface water sediment transport, and contaminant transport in surface water as suspended load and as a dissolved phase in surface water via natural and man-made drainages, if applicable. A description of contaminant fate and transport shall be included, if appropriate.

#### **10.3.7.g Subsurface Air and Soil Moisture Conditions**

A section shall describe subsurface air monitoring and sampling methods used during the site investigation. It shall also describe observations made during the site investigation regarding subsurface flow pathways and the subsurface air-flow regime.

#### **10.3.7.h Materials Testing Results**

A section shall discuss the materials testing results, such as core permeability testing, grain size analysis, or other materials testing results. Sample collection methods, locations, and depths shall also be included. Corresponding summary tables shall be included in the Tables section of the report.

#### **10.3.7.i Pilot Testing Results**

A section shall discuss the results of any pilot testing. Pilot testing is typically conducted after initial subsurface investigations are completed and the need for additional investigation or remediation has been evaluated. Pilot testing, including aquifer testing and remediation system pilot testing, shall be addressed through separate work plans and pilot test reports. The format for pilot test work plans and reports shall be approved by the NMED prior to submittal.

#### **10.3.8 Regulatory Criteria**

A section shall set forth the applicable cleanup standards, screening levels, and risk-based cleanup goals for each pertinent medium at the subject site. The appropriate cleanup levels for each site shall be included if site-specific levels have been established at separate Facility sites or units. A table summarizing the applicable cleanup standards or inclusion of applicable cleanup standards in the data tables shall be included as part of the document. Risk-based evaluation procedures, if used to calculate cleanup levels, shall be presented in a separate document or in an appendix to this report. If cleanup levels calculated in a risk evaluation are employed, the risk evaluation document shall be referenced and shall include pertinent page numbers for referenced information.

#### **10.3.9 Site Contamination**

A section shall provide a description of sampling intervals and methods for detection of surface and subsurface contamination in soils, rock, sediments, groundwater, and surface water, and as vapor-phase contamination. Only factual information shall be included in this section.

Interpretation of the data shall be reserved for the summary and conclusions sections of the report. Tables summarizing all sampling, testing, and screening results for detected contaminants shall be prepared in a format approved by the NMED. The tables shall be presented in the Tables section of the report.

#### **10.3.9.a Soil, Rock and Sediment Sampling**

A section shall describe the sampling of soil, rock and sediment. It shall include the dates, locations and methods of sample collection; sampling intervals; sample logging methods; screening sample selection methods; and laboratory sample selection methods including the collection depths for samples submitted for laboratory analyses. A site plan showing the sample locations shall be included in the figures section of the report.

#### **10.3.9.b Sample Field Screening Results**

A section shall describe the field screening methods used during the investigation and the field screening results. Field screening results also shall be presented in summary tables in the tables section of the document. The limitations of field screening instrumentation and any conditions that influenced the results of field screening shall be discussed in this subsection.

#### **10.3.9.c Soil, Rock and Sediment Sampling Chemical Analytical Results**

A section shall briefly summarize the laboratory analyses conducted, the analytical methods and the analytical results and provide a comparison of the data to cleanup standards or established cleanup levels for the site. The laboratory results also shall be presented in summary tables in the Tables section of the document. Field conditions and sample collection methods that could potentially affect the analytical results shall be described in this section. If appropriate, soil analytical data shall be presented with sample locations on a site plan and included in the Figures section of the report.

#### **10.3.9.d Subsurface Vapor Sampling**

A section shall describe the air and subsurface vapor sampling. It shall describe the dates, locations, methods of sample collection, methods for sample logging, and methods for laboratory sample selection. A site plan showing all air and subsurface vapor sampling locations shall be provided in the figures section of the report.

#### **10.3.9.e Subsurface Vapor Field Screening Results**

A section shall describe the subsurface vapor field screening results. It shall describe the field screening methods used for ambient air and subsurface vapors during the investigation and the field screening results. Field screening results shall also be presented in summary tables in the Tables section of the report. The locations of ambient air and subsurface vapor screening sample collection shall be presented on a site plan included in the figures section of the report. The

limitations of field screening instrumentation and any conditions that influenced the results of field screening shall be discussed in this section.

#### **10.3.9.f Air and Subsurface Vapor Laboratory Analytical Results**

This section shall describe the results of air and subsurface vapor laboratory analyses. It shall describe the air sampling laboratory analytical methods and analytical results, and provide a comparison of the data to applicable cleanup levels for the site. The rationale or purpose for altering or modifying the subsurface vapor sampling program outlined in the site investigation work plan also shall be provided in this section. Field conditions that may have affected the analytical results during sample collection shall be described in this section. Tables summarizing the air sample laboratory, field, and analytical QA/QC data; applicable cleanup levels; and modifications to the air sampling program shall be provided in the tables section of the report. Contaminant concentrations shall be presented as data tables or as isoconcentration contours on a map included in the figures section of the report.

#### **10.3.10 Conclusions**

A conclusions section shall provide a brief summary of the investigation activities and a discussion of the conclusions of the investigation conducted at the site. In addition, this section shall provide a comparison of the results to applicable cleanup levels, and to relevant historical investigation results and analytical data. Potential receptors, including groundwater, shall be identified and discussed. An explanation shall be provided with regard to data gaps. A risk assessment may be included as an appendix to the investigation report; however, the risk analysis shall be presented in the Risk Assessment format described in Permit Part 10.5. References to the risk analysis shall be presented only in the summary and conclusions sections of the Investigation Report.

#### **10.3.11 Recommendations**

A section shall discuss the need for further investigation, corrective measures, risk assessment and monitoring, or recommendations for corrective action completed, based on the conclusions provided in the Conclusions section. It shall include explanations regarding additional sampling, monitoring, and site closure. A corresponding schedule for further action regarding the site shall also be provided.

#### **10.3.12 Tables**

This section shall provide the following summary tables. Data presented in the tables shall include the current data, dates of data collection, analytical methods, detection limits, and significant data quality exceptions. All summary data tables shall include only detected analytes and data quality exceptions that could potentially mask detections.

- i. Tables summarizing regulatory criteria, background levels, and applicable cleanup levels. This information may be included in the analytical data tables instead of as separate tables,
- ii. tables summarizing field survey location data. Separate tables shall be prepared for well locations and individual medium sampling locations except where the locations are the same for more than one medium,
- iii. tables summarizing field screening and field parameter measurements of soil, sediment, vadose zone fluid, vadose zone vapor, vadose zone moisture, and groundwater surface water, and air quality data,
- iv. a table summarizing soil laboratory analytical data. It shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data,
- v. a table summarizing the groundwater elevations, and depth to water data. The table shall include the monitoring well depths and the screened intervals in each well,
- vi. a table summarizing the groundwater laboratory analytical data. The analytical data tables shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data,
- vii. a table summarizing the surface water laboratory analytical data. The analytical data tables shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data,
- viii. a table summarizing the air sample screening and laboratory analytical data. The data tables shall include the screening instruments used, laboratory analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data.
- ix. tables summarizing the pilot testing data, if applicable, including units of measurement and types of instruments used to obtain measurements, and
- x. a table summarizing the materials testing data if applicable.

### **10.3.13 Figures**

All figures shall be included with each investigation report as appropriate. All figures must include a scale and a north arrow. An explanation shall be provided on each figure for all abbreviations, symbols, acronyms, and qualifiers. All maps shall have a date. A section shall provide the following figures:

- i. a vicinity map showing topography and the general location of the site relative to surrounding features and properties;

- ii. a site plan that presents pertinent site features and structures, underground utilities, well locations, and remediation system locations and details. Off-site well locations and other relevant features shall be included on the site plan. Additional site plans may be required to present the locations of relevant off-site well locations, structures and features;
- iii. figures showing boring or excavation locations and sampling locations;
- iv. figures presenting soil sample field screening and laboratory analytical data;
- v. figures displaying the locations of all newly installed and existing wells and borings;
- vi. figures presenting monitoring well locations, groundwater elevation data, and groundwater flow directions;
- vii. figures presenting groundwater laboratory analytical data, including any past data requested by the NMED. The chemical analytical data corresponding to each sampling location may be presented in table form on the figure or as an isoconcentration map;
- viii. figures presenting surface water sample locations and field measurement data including any past data requested by the NMED;
- ix. figures presenting surface water laboratory analytical data including any past data, if applicable. The laboratory analytical data corresponding to each sampling location may be presented in tabular form on the figure;
- x. figures showing air and subsurface vapor sampling locations and presenting air and subsurface vapor quality data. The field screening or laboratory analytical data corresponding to each sampling location may be presented in tabular form on the figure or as an isoconcentration map;
- xi. figures presenting geologic cross-sections based on outcrop and borehole data; and
- xii. figures presenting pilot testing locations and data, where applicable, including site plans or graphic data presentation.

#### **10.3.14 Appendices**

Each investigation report shall include the following appendices. Additional appendices may be necessary to present data or documentation not listed below.

##### **10.3.14.a Field Methods**

An appendix shall provide detailed descriptions of the methods used to acquire field measurements of each media that was surveyed or tested during the investigation. Methods shall include, but are not limited to, exploratory drilling or excavation methods, the methods and types of instruments used to obtain field screening, field analytical or field parameter measurements,

instrument calibration procedures, sampling methods for each medium investigated, decontamination procedures, sample handling procedures, documentation procedures, and a description of field conditions that affected procedural or sample testing results. Methods of measuring and sampling during pilot testing shall be reported in this appendix, if applicable. Copies of IDW disposal documentation shall be provided in a separate appendix.

#### **10.3.14.b Boring/Test Pit Logs and Well Construction Diagrams**

An appendix shall provide boring logs, test pit logs, or other excavation logs, and well construction details. In addition, a key to symbols and a soil or rock classification system shall be included in this appendix. Geophysical logs shall be provided in a separate section of this appendix.

#### **10.3.14.c Chemical Analytical Program**

Chemical analytical methods, a summary of data quality objectives and data quality review procedures shall be reported in an appendix. A summary of data quality exceptions and their effect on the acceptability of the field and laboratory analytical data with regard to the investigation and the site status shall be included in this appendix along with references to case narratives provided in the laboratory reports.

#### **10.3.14.d Chemical Analytical Reports**

A section shall include all laboratory chemical analytical data generated for the reporting period. The reports must include all chain-of-custody records and QA/QC results provided by the laboratory. The laboratory reports may be provided electronically in a format approved by the NMED and shall be in the form of a final laboratory report. Laboratory report data tables may be submitted in Microsoft Excel format. Hard (paper) copies of the chain-of-custody forms shall be submitted with the reports regardless of whether the final laboratory report is submitted electronically or in hard copy.

#### **10.3.14.e Other Appendices**

Other appendices containing additional information shall be included as required by the NMED or as otherwise appropriate.

### **10.4 Periodic Monitoring Report**

The Permittee shall use the following guidance for preparing periodic monitoring reports. The reports shall present the reporting of periodic landfill, groundwater, surface water, vapor, and remediation system monitoring at the Facility. The following sections provide a general outline for monitoring reports, and also provide the minimum requirements for reporting of periodic monitoring conducted at the Facility. All data collected during each monitoring and sampling event in the reporting period shall be included in the reports. In general, interpretation of data shall be presented only in the background, conclusions, and recommendations sections of the

reports. The other text sections of the reports shall be reserved for presentation of facts and data without interpretation or qualifications.

#### **10.4.1 Title Page**

The title page shall include the type of document, Facility name and the unit, SWMU, or AOC name (s) and the submittal date. A signature block providing spaces for the name, title, and organization of the preparer and the responsible representative of the Facility shall be provided on the title page in accordance with the signature requirements in 40 CFR § 270.11(b).

#### **10.4.2 Executive Summary**

The executive summary shall provide a brief summary of the purpose, scope, and results of the monitoring conducted at the subject site during the reporting period. The Facility, unit, SWMU, and AOC names and location shall be included in the executive summary. In addition, this section shall include a brief summary of conclusions based on the monitoring data collected.

#### **10.4.3 Table of Contents**

The table of contents shall list all text sections, subsections, tables, figures, and appendices or attachments included in the report. The corresponding page numbers for the titles of each section of the report shall be included in the table of contents.

#### **10.4.4 Introduction**

The introduction section shall include the Facility name, unit name and location and unit status (e.g. active operations, closed, corrective action). General information on the site usage and status shall be included in this section. A brief description of the purpose of the monitoring, type of monitoring conducted, and the type of results presented in the report also shall be provided in this section.

#### **10.4.5 Scope of Activities**

A section on the scope of activities shall briefly describe all activities performed during the monitoring event or reporting period including field data collection, analytical testing, if applicable, and purge/decontamination water storage and disposal.

#### **10.4.6 Regulatory Criteria**

A section on regulatory criteria shall provide information regarding applicable cleanup standards, risk-based screening levels, and risk-based cleanup goals for the site. A table summarizing the applicable cleanup standards or inclusion of applicable cleanup standards in the data tables can be substituted for this section. The appropriate cleanup levels for each site shall be included, if site-specific levels have been established at separate sites. Risk-based evaluation procedures, if used to calculate cleanup levels, must either be included as an attachment or referenced. The specific document and page numbers must be included for all referenced materials.

#### **10.4.7 Monitoring Results**

A section shall provide a summary of the results of monitoring conducted at the site. This section shall include the dates and times that monitoring was conducted, the measured depths to groundwater, directions of groundwater and vadose zone fluids flow, field air and water quality measurements, static pressures, field measurements and a comparison to previous monitoring results. Field observations or conditions that may influence the results of monitoring shall be reported in this section. Tables summarizing leachate and vapor-monitoring parameters, groundwater and vadose zone fluid elevations, depth to water measurements, and other field measurements may be substituted for this section. The tables shall include all information required in Permit Part 10.4.11 below.

#### **10.4.8 Chemical Analytical Data Results**

A section shall discuss the results of the chemical analyses. It shall provide the dates of sampling and the analytical results. It shall also provide a comparison of the data to previous results and to any cleanup standards or established cleanup levels for the site. The rationale or purpose for altering or modifying the sampling program shall be provided in this section. A table summarizing the laboratory analytical data, QA/QC data, applicable cleanup levels, and modifications to the sampling program may be substituted for this section. The tables shall include all information required in Permit Part 10.4.11.

#### **10.4.9 Remediation System Monitoring**

A section shall discuss remediation system monitoring. It shall summarize the remediation system's capabilities and performance. It shall also provide monitoring data, treatment system discharge sampling requirements, and system influent and effluent sample analytical results. The dates of operation, system failures, and modifications made to the remediation system during the reporting period shall also be included in this section. A summary table may be substituted for this section. The tables shall include all information required in Permit Part 10.4.11.

#### **10.4.10 Summary**

A summary section shall provide a discussion and conclusions of the monitoring conducted at the site. In addition, this section shall provide a comparison of the results to applicable cleanup levels, and to relevant historical monitoring and chemical analytical data. An explanation shall be provided with regard to data gaps. A discussion of remediation system performance, monitoring results, modifications if applicable, and compliance with discharge requirements shall be provided in this section. Recommendations and explanations regarding future monitoring, remedial actions, or site closure shall also be included in this section.

#### **10.4.11 Tables**

A section shall provide the following summary tables for the media sampled. With prior approval from the Department, the Respondents may combine one or more of the tables. Data presented in the tables shall include the current sampling and monitoring data plus data from the three previous monitoring events or, if data from less than three monitoring events is available, data acquired during previous investigations. Remediation system monitoring data also shall be presented. The dates of data collection shall be included in the tables. Summary tables may be substituted for portions of the text. The analytical data tables shall include only detected analytes and data quality exceptions that could potentially mask detections.

- i. a table summarizing the regulatory criteria (a Regulatory Criteria text section may be substituted for this table or the applicable cleanup levels may be included in the analytical data tables);
- ii. a table summarizing groundwater and vadose zone fluid elevations, and depths to water data. The table shall include the monitoring well depths, casing elevations, the screened intervals in each well, and the dates and times of measurements;
- iii. a table summarizing field measurements of surface water quality data, if applicable;
- iv. a table summarizing field measurements of subsurface vapor monitoring and soil moisture data (including historical vapor monitoring data as described above);
- v. a table summarizing field measurements of groundwater and vadose zone fluid quality data (including historical water quality data as described above);
- vi. a table summarizing subsurface vapors chemical analytical data, if applicable (including historical analytical data as described above);
- vii. a table summarizing surface water chemical analytical data, if applicable (including historical surface water analytical data as described above);
- viii. a table summarizing groundwater and vadose zone fluid chemical analytical data (including historical groundwater analytical data as described above); and
- ix. a table summarizing remediation system monitoring data, if applicable (including historical remediation system monitoring data as described above).

#### **10.4.12 Figures**

A section shall include the following figures. All figures shall include a scale and north arrow. An explanation shall be provided on each figure for all abbreviations, symbols, acronyms, and qualifiers. All figures shall have a date.

- i. a vicinity map showing topography and the general location of the site relative to surrounding features or properties,
- ii. a Facility site plan that presents pertinent site features and structures, well and piezometer neutron probe access tubes locations and remediation system location(s) and features. Off-site well locations and pertinent features shall be included on the site plan, if practical. Additional site plans may be required to present the locations of relevant off-site well locations, structures, and features,
- iii. figures presenting the locations of neutron probe access tubes, monitoring and other well locations, groundwater and vadose zone fluid elevation data, and groundwater and vadose zone fluid flow directions,
- iv. figures presenting groundwater and vadose zone fluid analytical data for the current monitoring event. The analytical data corresponding to each sampling location may be presented in tabular form on the figure or as an isoconcentration map,
- v. figures presenting surface water sampling locations and analytical data for the current monitoring period,
- vi. figures presenting vertical profiles of soil moisture content for neutron probe measurements for the current monitoring period,
- vii. figures presenting subsurface vapor sampling locations and analytical data for the current monitoring event. The analytical data corresponding to each sampling location may be presented in table form on the figure or as an isoconcentration map, and
- viii. figures presenting geologic cross-sections based on outcrop and borehole data, if applicable.

#### **10.4.13 Appendices**

Each monitoring report shall include the following appendices. Additional appendices may be necessary to present data or documentation not listed below.

##### **10.4.13.a Field Methods**

An appendix shall include the methods used to acquire field measurements of groundwater and vadose zone fluid elevations, subsurface vapor, soil moisture, water quality data, and subsurface vapor, vadose zone fluid, and groundwater samples. It shall include the methods and types of instruments used to measure depths to water, air or headspace subsurface vapor parameters, soil moisture information, and water quality parameters. In addition, decontamination, well purging techniques, well sampling techniques, and sample handling procedures shall be provided in this appendix. Methods of measuring and sampling remediation systems shall be reported in this section, if applicable.- Purge and decontamination water storage and disposal methods shall also

be presented in this appendix. Copies of purge and decontamination water disposal documentation shall be provided in a separate appendix.

#### **10.4.13.b Chemical Analytical Program**

An appendix shall discuss the analytical program. It shall include the analytical methods, a summary of data quality objectives, and data quality review procedures. A summary of data quality exceptions and their effect on the acceptability of the analytical data with regard to the monitoring event and the site status shall be included in this appendix along with references to case narratives provided in the laboratory reports.

#### **10.4.13.c Chemical Analytical Reports**

An appendix shall include all laboratory chemical analytical data generated for the reporting period. The data may be submitted electronically on a compact disc in Microsoft Excel format. The reports shall include all chain-of-custody records and QA/QC results provided by the laboratory. Hard (paper) copies of all chain-of-custody records shall be submitted as part of this appendix.

### **10.5 Risk Assessment Report**

The Permittee shall prepare risk assessment reports for sites requiring corrective action at the Facility using the format described below. This Section provides a general outline for risk assessments and also sets forth the minimum requirements for describing risk assessment elements. In general, interpretation of data shall be presented only in the background, conceptual site model, and conclusions and recommendations sections of the reports. The other text sections of the Risk Assessment report shall be reserved for presentation of sampling results from all investigations, conceptual and mathematical elements of the risk assessment, and presentations of toxicity information and screening values used in the risk assessment. Permit Part 10.5.8 and subsequent sections should be presented in separate sections for the human health and ecological risk assessments, but the general risk assessment outline applicable to both sections is provided below.

#### **10.5.1 Title Page**

The title page shall include the type of document, Facility name and the unit, SWMU, or AOC name (s) and the submittal date. A signature block providing spaces for the name, title, and organization of the preparer and the responsible representative of the Facility shall be provided on the title page in accordance with the signature requirements in 40 CFR § 270.11(b).

#### **10.5.2 Executive Summary**

The executive summary section shall provide a brief summary of the purpose and scope of the risk assessment of the subject site. The executive summary shall also briefly summarize the

conclusions of the risk assessment. The Facility, unit, SWMU, or AOC names and locations shall be included in the executive summary.

### **10.5.3 Table of Contents**

The table of contents shall list all text sections, subsections, tables, figures, and appendices or attachments included in the risk assessment. The corresponding page numbers for the titles of each unit of the report shall be included in the table of contents.

### **10.5.4 Introduction**

The introduction section shall include the Facility name, unit name and location, and unit status (e.g., active operations, closed, corrective action). General information on the current site usage and status shall be included in this section.

### **10.5.5 Background**

The background section shall describe relevant background information. This section shall briefly summarize historical site uses including the locations of current and former site structures and features. A labeled figure shall be included in the document showing the locations of current and former site structures and features.

#### **10.5.5.a Site Description**

A section shall provide a description of current site topography, features and structures including a description of drainages, erosional features, current site uses, and other data relevant to assessing risk at the site. Depth to groundwater, vadose zone fluids, and directions of groundwater and vadose zone fluids, flow shall be included in this section. The presence and location of surface water bodies such as springs or wetlands shall be noted in this section. Photos of the site may be incorporated into this section if desired. Ecological features of the site should be described here, including type and amount of vegetative cover, observed and expected wildlife receptors, and level of disturbance of the site. A topographical map of the site and vicinity of the site showing habitat types, boundaries of each habitat, and any surface water features shall be included in the Figures section of the document.

#### **10.5.5.b Sampling Results**

A section shall include a summary of the history of releases of contaminants, known and possible sources of contamination, and the vertical and lateral extent of contamination present in each media. This section shall include summaries of sampling results of all investigations including site plans (included in the Figures section of the document) showing locations of detected contaminants. This section shall reference pertinent figures, data summary tables and references in previous reports. References to previous reports shall include page, table and figure numbers for referenced information. Summaries of sampling data for each constituent shall include the maximum value detected, the detection limit, the 95% UCL of the mean value detected (if

applicable to the data set) and whether that 95% UCL of the mean was calculated based on a normal or lognormal distribution. Background values used for comparison to inorganic constituents at the site shall be presented in this subsection. The table of background values should appear in the Tables section of the document and include actual values used as well as the origin of the values (facility-wide, site-specific, UCL, UTL). This section shall also include a discussion of how “non-detect” sample results were handled in the averaging of data.

#### **10.5.6 Site Conceptual Model**

A section shall present the conceptual site model. It shall include information on the expected fate and transport of contaminants detected at the site. This section shall provide a list of all sources of contamination at the site. Sources that are no longer considered to be ongoing but represent the point of origination for contaminants transported to other locations shall be included. The discussion of fate and transport shall address potential migration of each contaminant in each medium, potential breakdown products and their migration, and anticipated pathways of exposure for human or ecological receptors. Diagrammatic representations of the conceptual site model shall appear in the figures section of the document.

For human health risk assessments, the conceptual site model shall include residential land use as the future land use for all risk assessments. In addition, site-specific future land use may be included, provided that written approval to consider a site-specific future land use has been obtained from the NMED prior to inclusion in the risk assessment. If a site-specific future land use scenario appears in the risk assessment, all values for exposure parameters and the source of those values shall be included in table format and presented in the Tables section of the document.

Conceptual site models presented for ecological risk assessments shall identify assessment endpoints and measurement receptors for the site. The discussion of the model shall explain how the measurement receptors for the site are protective of the wildlife receptors identified by the Permittee in the site description, Permit Part 10.5.5.a.

#### **10.5.7 Risk Screening Levels**

A section shall present the actual screening values used for each contaminant for comparison to all human health and ecological risk screening levels. A discussion of the methods used to calculate the screening levels in accordance with Permit Section 7.4 and any variances from those procedures shall be included in this Section. If no valid toxicological studies exist for the receptor or contaminant, the contaminant and receptor combination shall be addressed using qualitative methods. If an approved site-specific risk scenario is used for the human health risk assessment, this section shall include all toxicity information and exposure assessment equations used for the site-specific scenario as well as the sources for that information. Other regulatory levels applicable to screening the site, such as drinking water MCLs, shall also be included in this section.

### **10.5.8 Risk Assessment Results**

This section shall present all risk values, Hazard Quotient (HQ), and Hazard Index (HI) for human health under projected future residential scenario and any site-specific scenarios. This section shall also present the HQ and HI for each contaminant for each ecological receptor.

#### **10.5.8.a Uncertainty Analysis**

This section shall include discussion of qualitative, semi-quantitative, and quantitative uncertainty in the risk assessment and estimate the potential impact of the various uncertainties.

### **10.5.9 Conclusions and Recommendations**

This section shall include an interpretation of the results of the risk assessment and any recommendations for future disposition of the site. This section may include additional information and considerations that the Permittee believes are relevant to the analysis of the site.

### **10.5.10 Tables**

Data presented in the summary tables shall include information on detection limits and significant data quality exceptions. All data tables shall include only detected analytes and data quality exceptions that could potentially mask detections. A section shall provide the following summary tables, as appropriate. With prior approval from the NMED, the Permittee may combine one or more of the tables.

- i. a table presenting background values used for comparison to inorganic constituents at the site. The table shall include actual values used as well as the origin of the values (Facility-wide, site-specific, UCL, UTL, or maximum);
- ii. a table summarizing sampling data shall include, for each constituent, all detected values above background, the maximum value detected, the 95 percent UCL of the mean value detected (if applicable to the data set), and whether that 95 percent UCL of the mean was calculated based on a normal or lognormal distribution;
- iii. a table of all screening values used and the sources of those values;
- iv. a table presenting all risk values, HQs, and HIs under projected future residential scenario;
- v. a table presenting all risk values, HQs, and HIs under approved additional site-specific future land use scenario; and
- vi. a table presenting the HQ and HI for each contaminant for each ecological receptor.

### **10.5.11 Figures**

This section shall present the following figures for each site, as appropriate. With prior approval from the NMED, the Permittee may combine one or more of the figures. All figures shall include a scale and a north arrow. An explanation shall be provided on each figure for all abbreviations, symbols, acronyms, and qualifiers.

- i. A vicinity map showing topography and the general location of the site relative to surrounding features or properties,
- ii. for human health risk assessments, a site plan that presents pertinent site features and structures, underground utilities, well locations, and remediation system locations and its details. Off-site well locations and other relevant features shall be included on the site plan if practical. Additional site plans may be required to present the locations of relevant off-site well locations, structures, and features,
- iii. for ecological risk assessments, a topographical map of the site and vicinity of the site showing habitat types, boundaries of each habitat, and any surface water features, and
- iv. conceptual site model diagrams for both human health and ecological risk assessments.

### **10.5.12 Appendices**

Appendices may be included to present additional relevant information for the risk analysis such as the results of statistical analyses of data sets and comparisons of data, ecological checklists for the site, full sets of results of all sampling investigations at the site or other data as appropriate.

## **10.6 Corrective Measures Evaluation**

The Permittee shall prepare corrective measures evaluations for sites requiring corrective measures using the format described below. This Permit Section (10.6) provides a general outline for corrective measures evaluations and also sets forth the minimum requirements for describing corrective measures when preparing these documents. All investigation summaries, site condition descriptions, corrective action goals, corrective action options, remedial options selection criteria, and schedules shall be included in the corrective measures evaluations. In general, interpretation of historical investigation data shall be presented only in the background sections of the corrective measures evaluations. At a minimum, detections of contaminants encountered during previous site investigations shall be presented in the corrective measures evaluations in table format with an accompanying site plan showing sample locations. The other text sections of the corrective measures evaluations shall be reserved for presentation of corrective action-related information regarding anticipated or potential site-specific corrective action options and methods relevant to the project. The general corrective measures evaluation outline is provided below.

### **10.6.1 Title Page**

The title page shall include the type of document; Facility name, the unit, SWMU, or AOC names; and the submittal date. A signature block providing spaces for the name, title, and organization of the preparer and the responsible Facility representative shall be provided on the title page in accordance with the signature requirements in 40 CFR § 270.11(b).

### **10.6.2 Executive Summary**

The executive summary shall provide a brief summary of the purpose and scope of the corrective measures evaluation to be conducted at the site. The executive summary or abstract shall also briefly summarize the conclusions of the evaluation. The Facility, unit, SWMU, or AOC names and location shall be included in the executive summary.

### **10.6.3 Table of Contents**

The table of contents shall list all text sections, subsections, tables, figures, and appendices or attachments included in the corrective measures evaluation. The corresponding page numbers for the titles of each section of the report shall be included in the table of contents.

### **10.6.4 Introduction**

The introduction section shall include the Facility name, unit location and unit status (e.g., active operations, closed, corrective action). General information on the current site usage and status shall be included in this section. A brief description of the purpose of the corrective measures evaluation and the corrective action objectives for the project also shall be provided in this section.

### **10.6.5 Background**

The background section shall describe the relevant background information. This section shall briefly summarize historical site activities including the locations of current and former site structures and features. A labeled figure shall be included in the document showing the locations of current and former site structures and features. The locations of subsurface features such as pipelines, underground tanks, utility lines, and other subsurface structures shall be included in the background section and labeled on the site plan.

This section shall include contaminant and waste characteristics, a brief summary of the history of contaminant releases, known and possible sources of contamination, and the vertical and lateral extent of contamination present in each medium. This section shall include brief summaries of results of previous investigations, including references to pertinent figures, data summary tables, and text in previous reports. References to previous reports shall include page, table, and figure numbers for referenced information. Summary tables and site plans showing relevant investigation locations shall be referenced and included in the tables and figures sections of the document, respectively.

## **10.6.6 Site Conditions**

### **10.6.6.a Surface Conditions**

A section on surface conditions shall describe current and historic site topography, features, and structures, including a description of topographic drainages, man-made drainages, vegetation, and erosional features. It shall also include a description of current uses of the site and any current operations at the site. This section shall also include a description of those features that could potentially influence corrective action option selection or implementation such as archeological sites, wetlands, or other features that may affect remedial activities. In addition, descriptions of features located in surrounding sites that may have an effect on the subject site regarding sediment transport, surface water runoff or contaminant transport shall be included in this section. A site plan displaying the locations of all pertinent surface features and structures shall be included in the figures section of the corrective measures evaluation.

### **10.6.6.b Subsurface Conditions**

A section on subsurface conditions shall describe the site conditions observed during previous subsurface investigations. It shall include relevant soil horizon and stratigraphic information, groundwater and vadose zone fluid conditions, fracture data, and subsurface vapor information. A site plan displaying the locations of all borings and excavations advanced during previous investigations shall be included in the figures section of the corrective measures evaluation.

## **10.6.7 Potential Receptors**

### **10.6.7.a Sources**

A section shall provide a list of all sources of contamination at the site where corrective measures are to be considered or required. Sources that are no longer considered to be releasing contaminants at the site, but may be the point of origination for contaminants transported to other locations, shall be included in this section.

### **10.6.7.b Pathways**

A section shall describe potential migration pathways that could result in either acute or chronic exposures to contaminants. It shall include such pathways as utility trenches, paleochannels, surface exposures, surface drainages, stratigraphic units, fractures, structures, and other features. The migration pathways for each contaminant and each medium should be tied to the potential receptors for each pathway. A discussion of contaminant characteristics relating to fate and transport of contaminants through each pathway shall also be included in this section.

### **10.6.7.c Receptors**

A section shall provide a listing and description of all anticipated potential receptors that could possibly be affected by the contamination present at the site. Potential receptors shall include

human and ecological receptors, groundwater, and other potential receptors. This section shall identify relevant pathways such as pathways that could divert or accelerate the transport of contamination to human receptors, ecological receptors, and groundwater.

#### **10.6.8 Regulatory Criteria**

A section shall set forth the applicable cleanup standards, risk-based screening levels, and risk-based cleanup goals for each medium at the site. The appropriate cleanup levels for each site shall be included, if site-specific levels have been established. A table summarizing the applicable cleanup standards, or inclusion of applicable cleanup standards in the summary data tables providing the results of previous investigations, shall be included in the Tables section of the document. If cleanup levels calculated in a risk evaluation are employed, the risk evaluation document shall be referenced including pertinent page numbers for referenced information.

#### **10.6.9 Identification of Corrective Measures Options**

A section shall identify and describe potential corrective measures for source, pathway, and receptor controls. Corrective measures options shall include the range of available options including, but not limited to, a no action alternative, institutional controls, engineering controls, in-situ and onsite remediation alternatives, complete removal, and any combination of alternatives that would potentially achieve cleanup goals.

#### **10.6.10 Evaluation of Corrective Measures Options**

A section shall provide an evaluation of the corrective measures options identified in Section 10.6.9 above. The evaluation shall be based on the applicability, technical feasibility, effectiveness, implementability, impacts to human health and the environment, and cost of each option. A table summarizing the corrective measures alternatives and the criteria listed below shall be included in the Tables section of this document. The general basis for evaluation of corrective measures options is described below.

##### **10.6.10.a Applicability**

Applicability addresses the overall suitability for the corrective action option for containment or remediation of the contaminants in the relevant media with regard to protection of human health and the environment.

##### **10.6.10.b Technical Feasibility**

Technical feasibility describes the uncertainty in designing, constructing, and operating a specific remedial alternative. The description shall include an evaluation of historical applications of the remedial alternative including performance, reliability, and minimization of hazards.

#### **10.6.10.c Effectiveness**

Effectiveness assesses the ability of the corrective measure to mitigate the measured or potential impact of contamination in a medium under the current and projected site conditions. The assessment also shall include the anticipated duration for the technology to attain regulatory compliance. In general, all corrective measures described above will have the ability to mitigate the impacts of contamination at the site, but not all remedial options will be equally effective at achieving the desired cleanup goals to the degree and within the same time frame as other options. Each remedy shall be evaluated for both short-term and long-term effectiveness.

#### **10.6.10.d Implementability**

Implementability characterizes the degree of difficulty involved during the installation, construction, and operation of the corrective measure. Operation and maintenance of the alternative shall be addressed in this section.

#### **10.6.10.e Human Health and Ecological Protectiveness**

This category evaluates the short-term (remedy installation-related) and long-term (remedy operation-related) hazards to human health and the environment of implementing the corrective measure. The assessment shall include whether the technology will create a hazard or increase existing hazards and the possible methods of hazard reduction.

#### **10.6.10.f Cost**

A section shall discuss the anticipated cost of implementing the corrective measure. The costs shall be divided into: 1) capital costs associated with construction, installation, pilot testing, evaluation, permitting, and reporting of the effectiveness of the alternative; and 2) continuing costs associated with operating, maintaining, monitoring, testing, and reporting on the use and effectiveness of the technology.

#### **10.6.11 Selection of Preferred Corrective Measure**

The Permittee shall propose the preferred corrective measures at the site and provide a justification for the selection in this section. The proposal shall be based upon the ability of the remedial alternative to: 1) achieve cleanup standard objectives in a timely manner; 2) protect human and ecological receptors; 3) control or eliminate the sources of contamination; 4) control migration of released contaminants; and 5) manage remediation waste in accordance with State and Federal regulations. The justification shall include the supporting rationale for the remedy selection, based on the factors listed in Permit Part 10.6.10 and a discussion of short- and long-term objectives for the site. The benefits and possible hazards of each potential corrective measure alternative shall be included in this section.

### **10.6.12 Design Criteria to Meet Cleanup Objectives**

The Permittee shall present descriptions of the preliminary design for the selected corrective measures in this section. The description shall include appropriate preliminary plans and specifications to effectively illustrate the technology and the anticipated implementation of the remedial option at the site. The preliminary design shall discuss the design life of the alternative and provide engineering calculations for proposed remediation systems.

### **10.6.13 Schedule**

A section shall set forth a proposed schedule for completion of remedy-related activities such as bench tests, pilot testing, construction, installation, remedial excavation, cap construction, installation of monitoring points, and other remedial actions. The anticipated duration of corrective action operations and the schedule for conducting monitoring and sampling activities shall also be presented. In addition, this section shall provide a schedule for submittal of reports and data to the NMED, including a schedule for submitting all status reports and preliminary data.

### **10.6.14 Tables**

A section shall present the following summary tables, as appropriate. Data presented in the summary tables shall include information on dates of sample collection, analytical methods, detection limits, and significant data quality exceptions. All data tables shall include only detected analytes and data quality exceptions that could potentially mask detections. The following summary tables shall be included in the corrective measures evaluations, as appropriate:

- i. a table summarizing regulatory criteria, background, and the applicable cleanup standards;
- ii. a table summarizing historical field survey location data;
- iii. tables summarizing historical field screening and field parameter measurements for each media;
- iv. tables summarizing historical soil, rock, or sediment laboratory analytical data. The summary tables shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data;
- v. a table summarizing historical groundwater elevation and depth to water data. The table shall include the monitoring well depths and the screened intervals in each well;
- vi. tables summarizing historical groundwater and vadose zone laboratory analytical data. The analytical data tables shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data;

- vii. tables summarizing historical surface water laboratory analytical data. The analytical data tables shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data.
- viii. tables summarizing historical air sample screening and analytical data. The data tables shall include the screening instruments used, laboratory analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data.
- ix. tables summarizing historical pilot or other testing data, if applicable, including units of measurement and types of instruments used to obtain measurements;
- x. a table summarizing the corrective measures alternatives and evaluation criteria; and
- xi. a table presenting the schedule for installation, construction, implementation, and reporting of selected corrective measures.

#### **10.6.15 Figures**

This section shall present the following figures for each site, as appropriate. All figures shall include a scale. All plan view figures shall include a north arrow. An explanation shall be provided on each figure for all abbreviations, symbols, acronyms, and qualifiers. All figures shall have a date.

- i. a vicinity map showing topography and the general location of the subject site relative to surrounding features or properties.
- ii. a unit site plan that presents pertinent site features and structures, underground utilities, well locations, and remediation system locations and details. Off-site well locations and other relevant features shall be included on the site plan if practical. Additional site plans may be required to present the locations of relevant off-site well locations, structures, and features.
- iii. figures showing historical soil boring or excavation locations and sampling locations.
- iv. figures presenting historical soil sample field screening and laboratory analytical data, if appropriate.
- v. figures showing all existing wells including vapor monitoring wells and piezometers. The figures shall present historical groundwater elevation data and indicate groundwater flow directions.
- vi. figures presenting historical groundwater laboratory analytical data including past data, if applicable. The analytical data corresponding to each sampling location may be presented as individual concentrations, in table form on the figure or as an isoconcentration map.

- vii. figures presenting historical surface water sample locations and analytical data including past data, if applicable. The laboratory analytical data corresponding to each sampling location may be presented as individual concentrations or in table form on the figure.
- viii. figures presenting historical air sampling locations and presenting air quality data. The field screening or laboratory analytical data corresponding to each sampling location may be presented as individual concentrations, in table form on the figure or as an isoconcentration map.
- ix. figures presenting historical pilot or other test locations and data, where applicable, including site plans or graphic data presentation.
- x. figures presenting geologic cross-sections based on outcrop and borehole data, if applicable.
- xi. figures presenting the locations of existing and proposed remediation systems.
- xii. figures presenting existing remedial system design and construction details.
- xiii. figures presenting preliminary design and construction details for preferred corrective measures.

#### **10.6.16 Appendices**

Each corrective measures evaluation shall include, as an appendix, as appropriate, the management plan for waste, including investigation derived waste, generated as a result of construction, installation, or operation of remedial systems or activities conducted. Each corrective measures evaluation shall include additional appendices presenting relevant additional data, such as pilot or other test or investigation data, remediation system design specifications, system performance data, or cost analyses as necessary.