DRAFT

RESOURCE CONSERVATION AND RECOVERY ACT FACILITY OPERATING PERMIT

EPA ID No. NMD980698849

issued to
SAFETY-KLEEN SYSTEMS, INC.
FARMINGTON SERVICE CENTER

for

HAZARDOUS WASTE STORAGE

located in

SAN JUAN COUNTY, NEW MEXICO

Prepared by the

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE BUREAU

AUGUST 2019

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PERMIT PART 1

GENERAL PERMIT CONDITIONS

1.1 AUTHORITY

This Permit is issued pursuant to the authority of the New Mexico Environment Department (Department or NMED) under the New Mexico Hazardous Waste Act (HWA), NMSA 1978, §§ 74-4-1 through 74-4-14, 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. (20.4.1.900 NMAC incorporating 40 CFR § 270.32(b)(2)).

Any violation of a requirement in this Permit may subject the Permittees or their officers, employees, successors, and assigns to: 1) a compliance order under § 74-4-10 of the HWA or § 3008(a) of RCRA (42 U.S.C. § 6928(a)); 2) 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)); 3) civil penalties under §§ 74-4-10 and 74-4-10.1 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)); 4) 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 5) 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.

1.2. PERMITTED ACTIVITY

The Secretary of the New Mexico Environment Department issues this Permit for hazardous waste management and storage, to J.D & Joy M. Kinsey, the Owners, and Safety-Kleen Systems, Inc., the Operator of the Farmington Center (SKFA) hazardous waste Container and Tank Storage Units (the Facility) located at 4210A Hawkins Road, Farmington, New Mexico 87401 (EPA ID Number NMD980698849). Hereafter, the Owner and Operator shall collectively be called herein as the Permittees.

This Permit authorizes the Permittees to manage and store hazardous waste at the Facility and 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 Facility at SKFA and corrective action pursuant to the HWA and HWMR.

1.2.1. Scope of Permit

This Permit authorizes the management and storage of hazardous wastes in containers and tanks, as identified in Section 1.4 of this Permit. Storage, treatment or disposal of hazardous wastes is not authorized at any other location at the Facility. This Permit also requires the Permittees to conduct closure of permitted units, if hazardous waste storage is terminated and to conduct corrective actions at any solid waste management units and areas of concern at the facility.

1.3. PERMIT CITATIONS

Whenever the Permit cites a provision of 20.4.1 NMAC or Title 40 Code of Federal Regulations (40 CFR) the Permit shall be deemed to incorporate the citation by reference, including all subordinate provisions of the cited provision, and make binding the full text of the cited provision.

Hazardous waste management regulations are frequently cited throughout this Permit. The federal hazardous waste management regulations, 40 CFR Parts 260 through 273, are generally cited rather than the New Mexico Hazardous Waste Management Regulations, 20.4.1 NMAC.

The federal regulations are cited because only the federal regulations set forth the detailed regulatory requirements; the State regulations incorporate by reference, with certain exceptions, the federal regulations in their entirety. Citing only the federal regulations also serves to avoid encumbering each citation with references to two sets of regulations. However, it is the State regulations that are legally applicable and enforceable. Therefore, for 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.

1.4. EFFECT OF PERMIT

Compliance with this Permit during its term constitutes compliance, for purposes of enforcement, with 40 CFR Parts 264, 266 and 268, except for those requirements not included in this Permit under 40 CFR § 270.4(a), only for those management practices specifically authorized by this Permit. 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 the Permittees from the responsibility of complying with all applicable state or federal laws and regulations. (*See* 40 CFR §§ 270.4, 270.30(g)).

1.5. SEVERABILITY

The provisions of the Permit are severable, and if any provision of this Permit, or any application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby.

1.6. DEFINITIONS

Terms used in this Permit shall have the same meanings as those in the HWA, RCRA, and their implementing regulations unless this Permit specifically provides otherwise. Where a term is not defined in the HWA, RCRA, implementing regulations, or this Permit, the meaning of the term shall be determined by a standard dictionary reference, EPA guidelines or publications, or the generally accepted scientific or industrial meaning of the term.

"**Area of Concern**" (**AOC**) means any area that may have had a release of a solid or hazardous waste or hazardous constituents, which is not a solid waste management unit.

"**Corrective Action**" means all corrective action necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any Solid Waste Management Unit (SWMU) or Area of Concern (AOC) at the Facility, regardless of the time at which waste was placed in the Unit, 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.

"**Days**" refers to calendar days unless specified otherwise in this Permit.

"**Department**" means the New Mexico Environment Department and any successor or predecessor agencies.

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

"**Facility**" means the Safety-Kleen Farmington Container and Tank Storage Center including all contiguous land, and structures, other appurtenances, and improvements on the land.

For the purpose of implementing corrective action under 40 CFR § 264.101, 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 the HWA. The Facility also includes all the future/potential SWMUs and AOCs that will be covered by this Permit. The regional location of the Facility is shown in Figure 1 of Permit Attachment L (Figures).

"**Foreign Source**" means a hazardous waste source outside 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; 2) any constituent identified in 40 CFR Part 261, Appendix VIII, 3) any constituent listed in Table 1 of 40 CFR § 261.24 and 4) any constituent identified in 40 CFR Part 264 Appendix IX.

"**Hazardous Waste**" means any solid waste, or combination of solid wastes which because of its quantity, concentration, or physical, chemical, or infectious characteristics meets the description set forth in NMSA § 74-4-3(K) or is listed as a hazardous waste or exhibits a hazardous waste characteristic under 40 CFR Part 261.

"**Hazardous Waste**", for the purposes of corrective action for solid waste management units and areas of concern conducted pursuant to § 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 § 74-4-3(I) of the HWA. Hazardous waste, for the purposes of corrective action, includes, without limitation any 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.T NMAC, any contaminant defined in this Permit Section (1.12) or for which the EPA has promulgated a maximum contaminant level (MCL) at 40 CFR parts 141 and 143, perchlorate, methyl tertiary butyl ether, polychlorinated biphenyls (PCBs), dioxins, furans and per- and polyfluoroalkyl substances,

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

"**Hazardous Waste Management Regulations**" means the New Mexico Hazardous Waste Management Regulations, 20.4.1 NMAC.

"**Hazardous Waste Management Unit**" 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 Hazardous 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**" means actions necessary to minimize or prevent the further migration of hazardous constituents and limit actual or potential human and environmental exposure to hazardous constituents while long-term corrective action remedies are evaluated and, if necessary, implemented.

"**NMED**" means the New Mexico Environment Department and any successor or predecessor agencies.

"**Off-Site Source**" means a generator of hazardous waste or a treatment, storage, or disposal facility (TSDF) managing hazardous waste generated within the United States of America, but outside of the Facility boundary.

"**Permit**" means this Permit, EPA ID No. NMD980698849, issued to the Permittees for the Facility pursuant to the HWA and the HWMR, to operate hazardous waste storage units and to conduct post-closure care and corrective action, as it may be modified or amended. This Permit consists of Permit Parts 1 through 7 and Attachments A through L.

"**Permitted Unit**" means a Hazardous Waste Management Unit authorized for operations or for which post-closure care is required by this Permit. The Permitted Units authorized by this Permit are listed in Attachment J (Hazardous Waste Management Units), Table J-1.1 (Units Permitted for Storage in Containers (Process Code S01) and Tanks (S02)), and Table J-2 (Permitted Units Undergoing Post-Closure Care (Process Code S99)). The locations of the Permitted Units are shown in Figure 2 (Site Plan), Permit Attachment L (Figures).

"**Permittees**" means J.D & Joy M. Kinsey, the Owners, and Safety-Kleen Systems, Inc., the Operator of the Facility. The Permittees are subject to the conditions of this Permit.

"**RCRA**" means the Resource Conservation and Recovery Act of 1980 (42 U.S.C. §§ 6901 to 6992K) as amended by the Hazardous and Solid Waste Amendments (HSWA) in 1984.

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

"Remediation Waste" means all solid and hazardous wastes; and all media (including groundwater, surface water, soils, and sediments) and debris; that are managed for implementing cleanup.

"**Solid Waste Management Unit**" (**SWMU**) means any discernible unit at which solid waste has been placed at any time, and from which the Department determines there may be a risk of a release of hazardous waste or hazardous constituents, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at the Facility at which solid wastes have been routinely and systematically released; they do not include one-time spills. (*See* 61 Fed. Reg. 19431, 19442-43 (May 1, 1996)).

"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.

1.7. EFFECT OF INACCURACIES IN PERMIT APPLICATION

This Permit is based on information submitted in Parts A and B of the Permit Application dated March 2013 submitted by the Permittees, and subsequent revisions and supplemental information, herein referred to as the Application.

Any inaccuracies found in the Application may be grounds for the termination, revocation and re-issuance, or modification of the Permit in accordance with 40 CFR §§ 270.41 through 270.43, which are incorporated herein by reference, and for enforcement action.

1.8. PERMIT ACTIONS

1.8.1. Duration of Permit

This Permit shall be effective for a fixed term of ten years from its effective date, except as provided in Permit Section 1.8.3 (40 CFR § 270.50(a) and (b)). The effective date of this Permit shall be 30 days after notice of the Department's decision has been served on the Permittees or such later time as the NMED may specify.

1.8.2. 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 these regulations. The filing of a permit modification request by the Permittees, or the notification by the Permittees of planned changes or anticipated noncompliance, does not stay the applicability or enforceability of any permit condition. (40 CFR § 270.30(f))

1.8.3. Permit Suspension, Termination, and Revocation and Re-Issuance

This Permit may be suspended, terminated, or revoked and re-issued for cause as specified in § 74-4-4.2 of the HWA and 40 CFR § 270.41.

1.8.4. Permit Re-Application

If the Permittees intend to continue an activity regulated by this Permit after the expiration date of this Permit, the Permittees shall submit a complete application for a new permit at least 180 days prior to the expiration date of this Permit unless permission for a later date has been granted by the NMED in compliance with 40 CFR §§ 270.10(h)(1) and 270.30(b). The NMED may not allow the Permittees to submit applications later than the expiration date of this Permit. (40 CFR § 270.10(h)(1))

1.8.5. Continuation of Expiring Permit

If the Permittees have submitted a timely and complete application for renewal of this Permit, in compliance with 40 CFR §§ 270.10 and 270.13 through 270.27 and Permit Section 1.8.4, this Permit shall remain in effect until the effective date of the new permit if, through no fault of the Permittees, the NMED has not issued a new permit on or before the expiration date of this Permit. (40 CFR § 270.51)

1.9. DUTIES AND REQUIREMENTS

1.9.1 Duty to Comply

The Permittees shall comply with all conditions in this Permit, except to the extent and for the duration such noncompliance is authorized in a temporary emergency permit pursuant to 40 CFR § 270.61. Any Permit noncompliance, except under the terms of an emergency permit, constitutes a violation of the HWA and RCRA and is grounds for enforcement or other Department action and may subject the Permittees to an administrative or civil enforcement action, including civil penalties and injunctive relief, as provided in Permit Section 1.1, 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 §§ 270.41and 270.43.

1.9.2 Transfer of Permit

The Permittees shall not transfer this Permit to any person except after prior written approval of the Department. The Department will require modification or revocation and re-issuance of the Permit, as specified in 40 CFR §§ 270.30(l)(3), 270.40(b) and 270.41(b)(2), to identify the new Permittee and incorporate other applicable requirements under the HWA, RCRA, and their implementing regulations. The prospective new Permittee shall file a disclosure statement with the Department, if applicable and as specified at § 74-4-4.7 of the HWA, prior to modification or revocation and re-issuance of the Permit.

Before transferring ownership or operation of the Facility, the Permittees shall notify the new owner and operator in writing of all applicable requirements of this Permit and 40 CFR Parts 264 and 270 as specified in 40 CFR § 264.12(c).

1.9.3 Need to Halt or Reduce Activity Not a Defense

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

1.9.4 Duty to Mitigate

In the event of noncompliance with this Permit, the Permittees 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))

1.9.5 Proper Operation and Maintenance

The Permittees shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the Permittees 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 (QA/QC) procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with this Permit. (40 CFR § 270.30(e))

1.9.6 Duty to Provide Information

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

The Permittees shall also furnish to the NMED, upon request, copies of records that are required to be kept by this Permit. Information and records requested by the NMED pursuant to this condition shall be provided in hard copy paper form or in an electronic format specified by the NMED. (40 CFR §§ 264.74(a) and 270.30(h))

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

1.9.7 Inspection and Entry

The Permittees shall allow authorized representatives of the NMED, upon the presentation of credentials and at reasonable times, and under the conditions of this Permit, to:

1. Enter upon the Permittees' premises where the Permitted Unit or activity is located or conducted or where records must be kept;

2. Have access to and photograph any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required;

3. Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required;

4. Have access to, and copy, any records that must be kept; and

5. 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. (40 CFR § 270.30(i))

The Permittees shall provide full access, for the purposes above, to authorized representatives of the NMED, limited only by any access restrictions established to protect human health or the environment. To the extent that any such access restrictions exist, the Permittees shall provide a means for authorized representatives of the NMED to accomplish these purposes using remote-operated technology or by other safe methods.

1.9.8 Representative Sampling

All samples and measurements collected by the Permittees under this Permit shall be representative of the medium, waste, or other material being sampled. (40 CFR § 270.30(j)(1)). The Permittees shall maintain records of all monitoring information in accordance with 40 CFR § 270.30(j)(2).

1.9.9 Duty to Report

1.9.9.1 Reporting Planned Changes

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

1.9.9.2 Reporting Anticipated Noncompliance

The Permittees shall give advanced written notice to the NMED of any planned changes to any of the Container or Tank Storage Units at the Facility or of any activity, which may result in noncompliance with Permit requirements. For a new facility, the Permittees may not manage, store or dispose of hazardous waste; and for a facility being modified, the Permittees may not store or dispose of hazardous waste in the modified portion of the facility except as provided in 40 CFR § 270.42 until the provision of 40 CFR § 270.30(l)(2)(i) and (ii) are satisfied. (40 CFR § 270.30(l)(2))

1.9.9.3. 24 Hour and Subsequent Reporting

The Permittees shall report to the NMED, both orally and in writing, any noncompliance that may endanger human health or the environment. (*See* 40 CFR § 270.30(l)(6)). This report shall be submitted in accordance with Permit Sections 1.9.9.4 and 1.9.5.

1.9.9.4. 24 Hour Oral Report

The Permittees shall make an initial oral report within 24 hours after the time the Permittees become aware of the circumstances of the noncompliance. The oral report shall include, at a minimum, the following information:

1. A description of the occurrence and its cause including:

a. name, address, and telephone number of the owner or operator, and name and telephone number of person making the report;
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))

2. Information concerning the release of any hazardous waste which may endanger public drinking water supplies;

3. Any information of a fire or explosion at the Facility; and

4. Any information of a release or discharge of hazardous waste or hazardous constituents which may threaten the environment or human health outside the permitted unit. (40 CFR § 270.30(l)(6)(i)(A) through (G)).

The oral report shall be made by calling the Hazardous Waste Bureau's main telephone number (505) 476-6000 during regular business hours, or by calling the New Mexico Department of Public Safety dispatch telephone number (505) 827-9329 during non-business hours and requesting that the report be forwarded to the NMED spill number.

1.9.9.5. Five Day Written Report

The Permittees shall submit a written report in hard copy or via e-mail within five days after the time the Permittees become aware of the noncompliance under Permit Section 1.9.9.3. Any such report transmitted by e-mail is not subject to the certification and signatory requirements under Permit Section 1.12. However, if such a report is provided to the NMED by e-mail, the Permittees must also submit to the NMED the same report in hard copy or an updated report, if the time extension is approved by the NMED, within 15 days after the Permittees become aware of the noncompliance. The written report must meet the certification and signatory requirements of Permit Section 1.12. The Permittees must include in the written report the information required in Permit Section 1.9.9.4 (items 1-4) and the following information:

1. The period of the noncompliance including exact dates and times, and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

2. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. (*See* 40 CFR §§ 270.30(l)(6)(iii) and 270.32(b)(2)).

The NMED may extend the time for submitting the written report up to fifteen (15) calendar days. (40 CFR § 270.30(l)(6)(iii).

1.9.9.6. Reports Required by the Contingency Plan

If any emergency requires implementation of the Contingency Plan provided in Permit Attachment D, the Permittees shall comply with the reporting requirements required by this Permit Section (1.9.9) 40 CFR § 264.56(i), Permit Section 2.13.5.3, and the Contingency Plan.

1.9.9.7. Reports of Other Noncompliance

The Permittees shall report, at the time monitoring reports are submitted, all other instances of noncompliance not reported under this Permit Section (1.9.9). These reports shall contain, at a minimum, the information required by Permit Section 1.9.9.5. (40 CFR § 270.30(1)(10))

1.9.9.8. Manifest Discrepancy Report

If a significant discrepancy in a manifest is discovered, the Permittees shall attempt to reconcile the discrepancy. If not resolved within 15 calendar days, the Permittees shall submit a letter report, including a copy of the manifest to the NMED in accordance with (40 CFR § 264.72 and 40 CFR § 270.30(l)(7).

1.9.9.9. Unmanifested Waste Report

If the facility accepts for treatment, or storage unmanifested hazardous waste from an off-site source, the Permittees shall meet the reporting requirements of 40 CFR § 264.76 and 40 CFR § 270.30(l)(8).

1.9.9.10. Biennial Report

A biennial report must be submitted by March 1 of each even numbered calendar year. The report must address all facility activities during the previous calendar year in accordance with the requirements of 40 CFR § 264.75 and § 270.30(l)(9).

1.10. ADMISSIBILITY OF DATA

In any administrative or judicial action to enforce a condition of this Permit, the Permittees waive any objection to the admissibility as evidence of any data generated pursuant to this Permit.

1.11. OTHER INFORMATION

Whenever the Permittees become aware that it failed to submit any relevant facts in the Permit Application, or submitted incorrect information in the Permit Application, or in any report to the NMED, the Permittees shall promptly submit such facts or correct information in writing to the Department. (40 CFR § 270.30(l)(11)).

1.12. SIGNATORY REQUIREMENT

The Permittees shall sign and certify all applications, reports, or information submitted to or requested by the Department or required by this Permit, in accordance with the requirements in 40 CFR §§ 270.11 and 270.30(k). The Permittees shall provide written notification to the NMED within thirty days of any changes concerning the names of and contact information for the responsible corporate and principal executive officers or their duly authorized representatives.

1.13. COMPLIANCE SCHEDULES

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Permit shall be submitted no later than 14 calendar days following each scheduled date. (40 CFR § 270.30(l)(5)).

1.14. SUBMITTAL OF REPORTS, NOTIFICATIONS, AND INFORMATION TO THE DEPARTMENT

1.14.1 Information Submittal

Unless otherwise provided in this Permit, the Permittees shall submit to the NMED, by certified mail, courier/delivery service, or hand delivery, all reports, notifications, or other submissions required by this Permit.

A summary of the reporting requirements pursuant to this Permit is found in Attachment I (Compliance Schedule). This Attachment is not exhaustive and the absence of a reporting requirement in the Attachment shall not be interpreted to waive an otherwise applicable requirement.

The original plans, reports, notifications and other submissions shall be submitted as two paper (hard) copies and two electronic copies, respectively, to the NMED by certified mail, courier/delivery service or hand delivery. Copies shall be submitted to:

Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6313
Telephone Number: (505) 476-6000
Facsimile Number: (505) 476-6030

And:

New Mexico Environment Department
Hazardous Waste Bureau
121 Tijeras Avenue NE
Suite 1000
Albuquerque NM 87102
Telephone Number: (505) 222-9500

Facsimile Number: (505) 222-9510

Electronic submittals shall be in a format acceptable to the NMED.

1.14.2. Approval of Submittals

All documents that the Permittees prepare under the terms of this Permit and submit to the NMED are subject to the provisions of 20.4.2 NMAC. Documents requiring NMED approval that are not subject to the provisions of 20.4.2 NMAC also may be reviewed and approved, approved with modifications or directions, disapproved, denied, or rejected by the NMED in accordance with 20.4.2.201.B.

Upon the Department'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.

1.14.3. Extensions of Time

The Permittees 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. 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.

1.15. CONFIDENTIAL INFORMATION

The Permittees may claim confidentiality for any information required to be submitted by this Permit. Any such claim must be asserted at the time of submittal in the manner prescribed on the application form, or in the case of other submittals, by stamping the words "confidential business information" on each page containing such information. If no claim is made, the NMED may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in 40 CFR Part 2 (Public Information). (Section 74-4-4.3(D) and (F) of the HWA and 40 CFR § 260.2 and 40 CFR § 270.12).

PERMIT PART 2 GENERAL FACILITY REQUIREMENTS

2.1 DESIGN, CONSTRUCTION, MAINTENANCE, AND OPERATION OF THE FACILITY

The Permittees shall design, construct, maintain, and operate the Permitted Units to minimize the possibility of a fire, explosion, or any sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, sediment, groundwater, or surface water which could threaten human health or the environment, as required by 40 CFR § 264.31.

2.2 WASTE SOURCES

2.2.1. Permitted Waste

The Permittees shall store only those hazardous wastes specified in Permit Part 3 and Permit Attachment B (Authorized Wastes).

2.2.2. Hazardous Waste from Foreign Sources

The Permittees shall not accept, store, treat, or otherwise manage hazardous wastes from foreign sources at the Facility.

2.2.3. Hazardous Waste from Off-site Sources

The Permittees may accept, store, or otherwise manage at the permitted units at the Facility, only the hazardous wastes from off-site sources with an available final disposal path.

The Permittees shall not store the wastes for more than one year prior to shipping the wastes off-site.

The Permittees shall receive from off-site sources only the hazardous waste types listed in Permit Attachment B (Authorized Wastes) for storage at the Facility.

2.2.4. Restrictions on PCB-Contaminated Waste

The Permittees are prohibited from storing liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations equal to or greater than 50 parts per million (ppm) unless such storage is in compliance with all requirements of the Toxic Substance Control Act at 40 CFR § 761.65(b). The Permittees are prohibited from storing liquid hazardous wastes containing PCBs for more than one year from the date such wastes are first placed into storage, pursuant to 40 CFR § 268.50(f).

2.3 LAND DISPOSAL RESTRICTIONS

The Permittees shall comply with the requirements of 40 CFR Part 268. The Permittees are prohibited from storage of hazardous wastes restricted from land disposal as specified in 40 CFR Part 268, unless the requirements of 40 CFR Part 268, Subpart E, are met.

Pursuant to 40 CFR § 268.7, the Permittees shall determine if a hazardous waste managed under this Permit must be treated before it may be land disposed in accordance with 40 CFR §§ 268.40, 268.45, 268.48, and 268.49. The Permittees shall make this determination in one or both of the following ways, as appropriate:

1. Testing the waste for either total constituent concentrations for the hazardous constituents of concern or the concentrations of hazardous constituents in an extract of the waste using Test Method 1311, depending upon whether the treatment standard for the waste is expressed as a total constituent concentration or the concentration of the constituent in the waste extract.

2. Using Acceptable Knowledge of the waste that includes chemical analyses data provided by the generator of the waste or specific information regarding the waste composition and properties that is adequate to determine if the waste can be land disposed or both.

2.3.1 Prohibition on Dilution or Aggregation as a Substitute for Treatment

In accordance with 40 CFR § 268.3, the Permittees shall not dilute a waste that is restricted from land disposal or the residue from treatment of a restricted waste. Dilution to avoid an applicable treatment standard includes, but is not limited to, the addition of solid waste to reduce a hazardous constituent's concentration and ineffective treatment that does not destroy, remove, or permanently immobilize hazardous constituents. The Permittees shall not aggregate a waste that is restricted from land disposal with other waste or materials as a substitute for compliance with 40 CFR § 268.3. Aggregating or mixing wastes as part of a legitimate treatment process is not considered impermissible dilution for purposes of complying with this Permit.

2.3.2 Documentation of Exclusion or Exemption

Pursuant to 40 CFR § 268.7(a)(7), the Permittees shall place a one-time notice in the Facility Operating Record for any land disposal prohibited wastes that the Permittees determine are excluded from the definition of hazardous or solid waste or determine are exempted from Subtitle C regulation under 40 CFR §§ 261.2 through 261.6 subsequent to the point of generation. Exemptions required to be documented include, but are not limited to, hazardous waste managed in wastewater treatment systems subject to the Clean Water Act (CWA) as specified at 40 CFR §§ 264.1(g)(6) and 260.10. The Operating Record shall include in this documentation a description of the process that generated the waste, the justification for its exemption or exclusion, and a description of the final disposition of the waste.

The Permittees shall not place in any land disposal unit the wastes specified in 40 CFR Part 268 after the effective date of the prohibition unless the Department has established disposal or treatment standards for the hazardous waste and the Permittees meet such standards and other applicable conditions of this Permit. Notwithstanding the foregoing, the Permittees may land dispose hazardous waste restricted by 40 CFR Part 268 which does not meet treatment standards if a variance from the treatment standards has been granted by the Department pursuant to 40 CFR § 268.44.

2.4 WASTE ANALYSIS

2.4.1 General Waste Characterization Requirements

The Permittees shall accept, store, or otherwise manage at the Permitted Units at the Facility only those hazardous wastes that have been characterized in accordance with 40 CFR § 264.13, the requirements of this Permit Part, and Permit Attachment C (Waste Analysis Plan).

At a minimum, the Permittees must obtain and document all the necessary information that must be known to manage a hazardous waste in accordance with 40 CFR Parts 264, this Permit Part, and Permit Attachment C (Waste Analysis Plan), including but not limited to:

1. Applicable EPA hazardous waste numbers
2. Waste characterization necessary to prevent the mixing or placing of incompatible wastes in the same container or tank (*see* 40 CFR § 264.17 and § 264.177) and to prevent the impairment of containers or the tank. (*See* 40 CFR § 264.172);
3. Waste characterization necessary to prevent accidental or spontaneous ignition or reaction of ignitable or reactive wastes, including, but not limited to, ignition or reaction in containers and tanks. (*See* 40 CFR § 264.17 and 40 CFR § 264.177);
4. Whether the waste contains free liquids; and
5. A description of the waste generation process that includes material inputs, or other information, as needed to determine hazardous waste codes and the physical form(s) of the waste.

The Permittees shall characterize waste by using sampling and analysis methods that are specified in SW-846, or equivalent methods approved by the NMED, acceptable knowledge, or a combination of the two. When acceptable knowledge is insufficient to fully characterize a waste for management at the Facility, the Permittees shall conduct sampling and analysis to complete the characterization.

The Permittees shall maintain all waste characterization information in the Facility Operating Record. For records that contain waste characterization information concerning any hazardous wastes managed under this Permit, which are required to be archived elsewhere at the Facility (e.g., laboratory record books), the Permittees shall maintain a traceable identifier to this documentation or use another method to facilitate access to the information by the Permittees and the NMED (*see* 40 CFR § 270.32(b)(2)). The Permittees shall maintain waste

characterization documentation in accordance with the record retention requirements in Permit Section 2.14.4.

2.4.2 Sampling and Analysis for Hazardous Wastes

The Permittees shall perform all sampling and analytical procedures used for waste characterization in accordance with Permit Attachment C, the most recent version of "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (U.S. EPA Publication SW-846), or an equivalent method which has received prior written approval from the NMED in accordance with 40 CFR § 260.21.

The Permittees shall ensure that samples collected and analyzed for waste characterization are representative of both the nature and the entire volume of the waste under consideration.

The Permittees shall ensure that the sampling and analytical procedures used preserve each sample in its original physical form and composition and ensure prevention of contamination or changes in concentration of the constituents to be analyzed.

The Permittees shall identify, collect or prepare, and analyze the appropriate number of quality control samples associated with each sample collected (including trip and field blanks, field duplicates, and field spikes). When performing laboratory analysis required under Section 2.4.2 of this Permit Part (2), the Permittees shall analyze the appropriate number of method blanks, laboratory duplicates, and other laboratory control samples to assess the quality of the data generated. The Permittees shall maintain a record of these quality assurance procedures and results in the Facility Operating Record, as required under 40 CFR § 264.73 and Permit Section 2.14.2.

The Permittees shall use an independent contract laboratory to perform waste analyses and require the analytical laboratory to conduct such analyses in accordance with the waste analysis conditions set forth in this Permit.

When using laboratory analysis to characterize an unknown waste for which no information is available concerning its chemical makeup or origin, the Permittees shall require the laboratory to report concentrations of all hazardous constituents listed at 40 CFR § 268.48, Table UTS, and that the analytical test method used is capable of measuring, as specified at the most recent version of the U.S. EPA's Test Methods for Evaluating Solid Wastes (SW-846). (*See* 40 CFR § 270.32(b)).

When using laboratory analyses to determine whether a waste meets its applicable Land Disposal Restrictions (LDR) treatment standard concentrations specified in 40 CFR § 268.40, Treatment Standards for Hazardous Wastes, in compliance with 40 CFR §§ 268.7(a) and (b), the Permittees shall ensure that the analytical method detection limits are appropriate for making such a determination. (*See* 40 CFR § 270.32(b)).

2.4.3 Acceptable Knowledge

If the Permittees use Acceptable Knowledge for waste characterization, the Permittees shall include as part of the Acceptable Knowledge documentation, all the background information assembled and used in the characterization process. Acceptable Knowledge documentation must be maintained in writing or in an electronic format in the Facility Operating Record. Acceptable Knowledge records must document the resolution of any data discrepancies between Acceptable Knowledge sources. When Acceptable Knowledge is insufficient to characterize a waste, the Permittees shall perform the necessary sampling and analysis to characterize the waste in accordance with Section 2.4.1 of this Permit Part.

The Permittees shall assign a traceable identification number to this documentation to facilitate access to this information by the Permittees and the Department and maintain the documentation in the Facility Operating Record in accordance with Permit Section 2.14.2.

2.4.4 Waste Characterization Review

The Permittees shall ensure that the initial characterization of any hazardous waste is reviewed or repeated according to the frequency established in Permit Attachment C (Waste Analysis Plan) to verify that characterization is accurate and up-to-date, as required by 40 CFR § 264.13(b)(4). The Permittees shall also:

1. Annually review the characterization of the hazardous wastes per Safety-Kleen's Waste Analysis Plan and annual recharacterization process to verify that the characterization is accurate.
2. Recharacterize a hazardous waste whenever there is a change in waste-generating processes that may affect the physical or chemical properties, listed status of the waste, or the land disposal restriction status of the waste.
3. Recharacterize a hazardous waste whenever the Permittees are notified by an off-site facility that the characterization of the waste received at the off-site facility does not match a pre-approved waste analysis certification or accompanying waste manifest or shipping paper.

All waste characterization reviews shall be documented in the Operating Record.

2.4.5 Wastes Received from Off-Site

If a hazardous waste is received at the Facility from an off-site source identified at Permit Section 2.2.3, the Permittees shall obtain waste characterization information from the source. If acceptable knowledge is used for the waste characterization, the Permittees shall require the source to provide all process, testing and other acceptable knowledge documentation used to characterize the waste as required by 40 CFR § 264.13. In addition, the Permittees shall ensure that all applicable waste characterization requirements specified in Permit Section 2.4.1 have been met and documented.

The Permittees shall ensure that the waste matches the identity of the waste designated on the accompanying manifest or shipping paper. If discrepancies between the waste received from an

off-site treatment facility and the information on the manifest are found, the Permittees shall comply with the requirements of 40 CFR § 264.72 to resolve the discrepancies.

2.4.6. Hazardous Waste Generated On-Site

The Permittees shall characterize any wastes generated on-site by determining whether the waste is a hazardous waste in compliance with the requirements of Section 2.4.1 of this Permit Part, 40 CFR § 264.13 and Permit Attachment C (Waste Analysis Plan), and comply with the record-keeping requirements specified in 40 CFR § 264.73.

2.4.7 Procedures to Ensure Compliance with LDR Requirements

The Permittees shall comply with LDR requirements for wastes through compliant management of wastes subject to LDR storage prohibitions, and through characterization of treated waste for LDR compliance, and processing of the applicable LDR certifications and notifications for such treated wastes.

2.4.8 Prohibition of Treatment of Hazardous Wastes

Treatment of hazardous waste is prohibited under this Permit. Hazardous wastes generated at the Facility that require treatment prior to disposal must be shipped to an appropriate RCRA-permitted facility for any required treatment to meet LDR treatment standards.

2.4.9. Waste Characterization for Compliance with RCRA Air Emission Requirements

The Permittees shall characterize hazardous wastes subject to emission controls in accordance with this Permit Section 2.4 (Waste Analysis) and Attachment C (Waste Analysis Plan).

The Permittees shall characterize hazardous wastes managed in containers to determine the average volatile organic compound (VOC) concentration relative to 500 parts per million by weight (ppmw) at the point of waste origination in compliance with 40 CFR Part 264, Subpart CC. The Permittees shall determine the average VOC concentration either by utilizing acceptable knowledge or by using the procedures specified in 40 CFR § 264.1083(a). The Permittees shall review and update this determination at least once every 12 months following the date of the initial determination in compliance with 40 CFR § 264.1082(c)(1).

The Permittees are not required to characterize the waste for its average VOC concentration in the following circumstances.

a) The container storing the wastes has a total capacity of less than 0.1 cubic meters (approximately 26 gallons). (*See* 40 CFR § 264.1080(b)(2)).

The Permittees shall not be required to determine the average VOC concentration of wastes if control of air pollution emissions from containers is achieved utilizing the container construction specifications and operation requirements specified in 40 CFR § 264.1086(b)(1).

2.5 WASTE MINIMIZATION PROGRAM

The Permittees shall implement and maintain a waste minimization program to reduce the volume and toxicity of hazardous wastes generated at the Facility (*see* 40 CFR § 264.73(b)(9)). The waste minimization program shall include proposed, practicable methods currently available to the Permittees to minimize the present and future threat to human health and the environment. The Waste Minimization Program shall include the following items:

1. Plan for reducing the volume and toxicity of hazardous waste at the Facility and recycling of hazardous waste at the Facility;
2. Employee training designed to identify and implement source reduction and recycling opportunities for all hazardous wastes;
3. Waste minimization and recycling implemented over the last year and additional waste minimization efforts that could be implemented at the Facility in the next federal fiscal year; and
4. Estimated costs devoted to waste minimization and recycling of hazardous waste.

The Permittees shall submit to the Department a report regarding progress made in the waste minimization program in the previous year. The report shall address items (1) - (4) above, shall show changes from the previous report, and shall be submitted annually by December 15 for the previous fiscal year ending September 30th.

2.6 DUST SUPPRESSION

The Permittees shall not use waste or used oil for dust suppression or road treatment (*see* 40 CFR § 266.23(b)).

2.7 SECURITY

2.7.1 Barriers and Means to Control Entry

The Permittees shall prevent the unknowing entry and minimize the possibility for the unauthorized entry of persons or livestock onto the Facility in accordance with 40 CFR § 264.14.

The Permittees shall ensure the Facility's security by implementing the following measures as specified by 40 CFR § 264.14(b):

1. 24-hour surveillance system continuously monitoring and controlling entry into the Facility; or

2. Controlled entry into the Facility at all times via gates, stations, or other means (e.g., attendants, locks, prohibited or controlled roadway access).

The Permittees shall maintain and ensure the effectiveness of all security fences, entry gates, and entry stations surrounding the Facility.

2.7.2 Warning Signs

The permanent perimeter fence surrounding each permitted unit and the entrance to the unit shall be posted with "Danger: Unauthorized Personnel Keep Out" signs (or signs with equivalent language). The signs shall state the warning in English and Spanish, shall be legible from a distance of 25 feet, and shall be visible from any approach to each Permitted Unit as required by 40 CFR § 264.14(c).

2.8 GENERAL INSPECTION REQUIREMENTS

The Permittees shall inspect all the permitted units for malfunctions, deterioration, operator errors, and discharges which has caused or may lead to:

1. A release of hazardous waste constituents to the environment; or

2. A threat to human health or the environment.

(40 CFR § 264.15(a)).

Inspections shall be conducted of all waste management structures, base materials, containers, monitoring equipment, safety and emergency equipment, security devices, and operating equipment that are important in preventing, detecting, and responding to environmental or human health hazards associated with hazardous wastes as required by 40 CFR § 264. 15(b)(1) and (b)(4)).

The Permittees shall implement the inspection program for the Facility in compliance with the operating schedule, recordkeeping, and response action obligations listed in Permit Attachment E (Inspection Plan).

The Permittees shall maintain Attachment E (Inspection Plan) at the administrative office of all applicable permitted units or at the permitted unit. The Permittees' ability to access an electronic version of this Permit's inspection requirements at the above locations shall be deemed to satisfy this Permit condition. Electronic versions of inspection records shall match the inspection forms included in Permit Attachment E. Electronic versions of inspection records for the previous three years must be accessible for viewing by NMED personnel upon request in accordance with 40 CFR § 264. 15(d).

2.8.1 Inspection Schedule

The Permittees shall inspect the permitted units and all associated structures and equipment, in compliance with the inspection schedules contained in Attachment E (Inspection Plan) and in accordance with 40 CFR § 264.15(b).

2.8.2 Repair of Equipment and Structures

The Permittees shall remedy any deterioration or malfunction of equipment or structures discovered during an inspection within 24 hours of discovery. If repair or replacement of such equipment or structures cannot be accomplished within 24 hours of discovery, at a minimum, the repairs or replacement shall be completed on a schedule which ensures the problem does not lead to an environmental or human health hazard as required by 40 CFR §§ 264.15(c). The Permittees shall document all repairs and the reasons for exceeding the 24-hour remedy requirement specified in this Permit Section (2.8.2) in the Facility Operating Record.

2.8.3 Inspection Logs and Records

The Permittees shall record the results of each inspection conducted in accordance with this Permit Section (2.8) and Attachment E. At a minimum, the Permittees shall produce a record of the date and time of each inspection, an identification of the permitted unit and associated structures or equipment, the name and signature of the inspector, a notation of the observations made, and the date and nature of any repairs or other remedial actions taken as specified in 40 CFR § 264.15(d). The Permittees shall ensure that these records are clearly legible, all handwritten information shall be in ink, and errors are crossed out with a single line, initialed, and dated by the individual making the correction.

The Permittees shall record the following observations or actions in the Facility Operating Record:

1. The results of any preventive maintenance activities including, but not limited to, maintenance on floors, secondary containment structures, unit drainage structures, and fire protection equipment at a permitted unit;
2. Any malfunctions and deterioration of such structures or equipment;
3. Any errors potentially affecting waste containment or compliance with this Permit;
4. The locations, dimensions, and repairs of all identified cracks or gaps in floors, walls or base materials;
5. Any discharges of hazardous waste, hazardous constituents, or fire suppression systems at a permitted unit; and
6. Any occurrences that might cause or exacerbate the contamination of a permitted unit.

The Permittees shall maintain inspection logs in the Facility Operating Record as specified in Permit Section 2.14.2.

2.9 PERSONNEL TRAINING

The Permittees shall ensure that all Facility personnel who are involved in hazardous waste management activities regulated under this Permit successfully complete all training programs in compliance with the training requirements specified in 40 CFR § 264.16 and the training requirements included in Attachment F (Personnel Training Plan).

2.10 SPECIAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR

INCOMPATIBLE WASTE

The Permittees shall comply with the requirements of 40 CFR §§ 264.17, 264.176, and 264.177. The Permittees shall follow the procedures for handling ignitable, reactive, and incompatible wastes specified in Permit Attachment A (Facility Description). The Permittees shall ensure that containers holding ignitable or reactive wastes are located at least 15 meters (50 feet) from the Facility boundary as required by 40 CFR §§ 264.176.

The Permittees shall take precautions during the management of ignitable, reactive and incompatible waste, to prevent reactions that could lead to or cause the following in accordance with 40 CFR § 264.17(b):

1. Generation of extreme heat, pressure, fire, explosions, or violent reactions;
2. Production of uncontrolled toxic mist, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;
3. Production of uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;
4. Damage to the structural integrity of a container, permitted unit, or other structure associated with the Facility;
5. A threat to human health or the environment;
6. Spontaneous combustion; or
7. Reaction of wastes with water. Water-reactive wastes shall not be stored in waste management areas equipped with automatic water sprinkler systems. When water-reactive wastes are present in such waste management areas (e.g. for temporary staging), the Permittees shall isolate the wastes with water-resistant barriers such as cabinets or over pack drums to prevent water from coming in contact with the waste.

2.10.1 Ignitable and Reactive Waste Precautions

The Permittees shall prevent accidental ignition or reaction of ignitable or reactive wastes by taking the following precautions.

1. Ensure there are no sources of open flames in, on, or around the containers or tanks;
2. Segregate and separate ignitable or reactive wastes and protect them from sources of ignition or reaction such as cutting and welding, frictional heat, sources of sparks (e.g., static, electrical, mechanical), hot surfaces, spontaneous ignition, and radiant heat (e.g., heat-generating wastes).
3. Ensure that no forklifts or other motorized equipment are used near open containers or tanks of ignitable or reactive wastes unless such equipment is designed for use in flammable environments.
4. Maintain adequate clearance around fire hydrants and fire suppression equipment at permitted units;

5. Use only non-sparking/spark-proof tools when managing open containers or tanks of hazardous waste that contain ignitable or reactive wastes, and when opening or closing such containers. When flammable or reactive liquids are transferred from one container to another (for conductive containers), grounding procedures or equivalent methods shall be used to minimize or dissipate static electric charge;
6. Ensure appropriate lightning protection is provided for all storage units;
7. Perform inspection, testing, and maintenance of fire protection equipment;
8. Confine smoking and open flames to designated areas that are a minimum of 50 feet from areas where ignitable or reactive wastes are handled; and
9. Ensure that each permitted unit's fire suppression system is compatible with the waste being stored at the permitted unit.

2.10.2 Incompatible Waste Precautions

The Permittees shall ensure that any storage container or tanks holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other waste or materials or protected from them by means of a dike, berm, wall, or other device in accordance with 40 CFR § 264.177(c).

The Permittees shall ensure that wastes are not stored with incompatible wastes or materials within or on the same secondary containment structure. The Permittees shall ensure that all wastes are stored in containers or tanks made of or lined with materials that are compatible with the wastes. (40 CFR § 264.172).

The Permittees shall not store cyanides and cyanide mixtures or solutions with acids if a mixture of the materials could generate hydrogen cyanide. The Permittees shall not store U.S. DOT Class 8 (corrosive) liquids above or adjacent to Class 3 or 4 (flammable) or Class 5 (oxidizing) wastes except when it is known that the mixture of the wastes could not cause a fire or a dangerous evolution of heat or gas.

The Permittees shall ensure that hazardous wastes are not placed in an unwashed container or tanks that previously held an incompatible waste or material as specified in 40 CFR § 264.177(b).

2.10.3 Presence of Liquids in Containers

Containers and tanks that contain free liquids shall be stored in areas equipped with secondary containment. Before storing containers and tanks in areas without secondary containment, the Permittees shall verify that the containers and tanks do not contain free liquids by direct observation and/or reviewing the information provided by the waste generator as detailed under the Waste Analysis Plan in Permit Attachment C.

2.11 PREPAREDNESS AND PREVENTION

2.11.1 Required Equipment

At a minimum, the Permittees shall maintain the equipment set forth in Permit Attachment D (Contingency Plan), and as required by 40 CFR § 264.32.

The Permittees shall maintain required equipment, including internal communications or alarm systems; devices to summon emergency assistance; fire control, spill control, and decontamination equipment; and adequate water volume and pressure for fire suppression equipment at each Permitted Unit. The Facility shall be equipped with fire suppression systems. The Permittees shall maintain portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment as required by 40 CFR § 264.32(c). The Permittees shall make available fire control inspection records upon request by the NMED.

A list of required equipment, with the location and capabilities of the equipment, is provided in each Unit-specific Section of Permit Attachment D (Contingency Plan) of this Permit. (40 CFR § 264.32).

2.11.2 Testing and Maintenance of Equipment

The Permittees shall test and maintain the equipment specified in Permit Attachment D (Contingency Plan), as necessary, to assure its proper operation in time of emergency, as required by 40 CFR § 264.33.

This equipment shall undergo inspection at a frequency specified in Attachment E, and in accordance with 40 CFR §264.15(b)(4) to ensure that all equipment is in good working order.

If testing identifies any nonfunctioning communication equipment, alarm system component or fire protection component, spill control or decontamination equipment, the Permittees shall promptly repair the malfunctioning equipment and shall provide substitute equipment or systems during the time it takes to make repairs.

The Permittees shall assure that communications and alarm systems and fire protection, spill control, and decontamination equipment are inspected or tested according to the inspection plans and schedules detailed in Permit Attachment E. Maintenance, repair, and replacement of emergency equipment shall be performed as needed to ensure continuous proper function.

2.11.3 Access to Communications or Alarm System

The Permittees shall maintain access to the communications or alarm system as required by 40 CFR § 264.34, and in accordance with Permit Attachments D (Contingency Plan) and E (Inspection Plan).

The Permittees shall ensure that whenever waste is being managed at the permitted units, the personnel involved shall have immediate access to an internal alarm or emergency

communication device, either directly or through visual or voice contact with another individual. In the event of an emergency, this communication equipment or method must allow personnel to contact the Emergency Coordinator and the Emergency Operations Center. (40 CFR § 264.32(a-b) and 40 CFR § 264.34).

2.12. HAZARD PREVENTION

2.12.1. Preventing Hazards in Loading and Unloading

Only closed waste containers shall be accepted for transportation to the Permitted Units. Prior to transport, containers shall be inspected to ensure that they are properly closed, labeled, secured, and in suitable condition for transport.

If loading and unloading operations occur outdoors, they shall be conducted in an area immediately adjacent to the Facility to minimize the distance that the waste must be moved. Spills that occur during loading or unloading operations shall be promptly cleaned up. In the event of an emergency, cleanup shall be conducted in accordance with spill response procedures contained in Permit Attachment D (Contingency Plan). All loading and unloading areas shall be level, and the asphalt, concrete, or other pavement maintained in good condition.

Loading and unloading areas shall be free of overhead obstructions and other obstructions to visibility and operations. All containers shall be handled in a manner to prevent shifting or falling while being stored or transported. Containers too large to hand carry shall be transported using forklifts, drum dollies, pallet jacks, or other appropriate equipment. Waste-handling equipment shall be maintained and operated in accordance with manufacturers' guidance. Except as necessary in an emergency, only qualified personnel trained in hazardous waste management procedures may handle waste at the Facility. The Permittees shall be aware of weather conditions and other operations that could adversely affect the safety of waste management operations and shall exercise caution.

2.12.2. Preventing Runoff or Flooding

Run-on of surface water from surrounding areas, run-off of hazardous waste or hazardous waste constituents, runoff of surface water contaminated with hazardous waste or hazardous waste constituents shall be prevented at the storage areas of the Facility both by design and operating practices. The storage area run-on and run-off features and operating precautions are described in Permit Attachment A (Facility Description).

2.12.3. Preventing Contamination of Water Supplies

Releases of waste or chemicals shall be cleaned up promptly. Releases occurring outside of buildings shall be immediately contained upon discovery. (40 CFR § 270.32(b)(2)).

2.12.4. Mitigating Effects of Equipment Failure and Power Outages

In the event of a power loss or equipment failure at the Facility, the Permittees shall place the affected equipment in a safe state, close or cover all open containers and tanks of hazardous wastes, stop operations until power is restored, or take other measures to ensure the failure or outage does not adversely affect human health or the environment. (40 CFR §§270.30(d)).

2.12.5. Preventing Undue Exposure

Facility personnel and visitors at the storage areas and at SWMUs/AOCs undergoing corrective action shall be required to use appropriate PPE to protect themselves from hazards, including, but not limited to, handling heavy containers, operating waste-handling equipment, weather conditions, and contact with or other exposure to hazardous wastes and hazardous waste constituents.

2.12.6. Arrangements with Local Authorities

The Permittees shall maintain Coordination Agreements with the City of Farmington police, fire department, State and local emergency response teams, the San Juan Regional Medical Center, and one or more local hospitals that would respond to emergencies at the Facility. The Coordination Agreements shall be in writing executed by the Permittees and the local authorities and shall include the requirements specified in 40 CFR § 264.37. Any such agreements shall be listed in Attachment D (Contingency Plan).

2.13. CONTINGENCY PLAN

2.13.1 Implementation of Contingency Plan

The Permittees shall implement the Contingency Plan (Attachment D) in accordance with this Permit and 40 CFR § 264.51(b) immediately whenever at a permitted unit (including any unit undergoing post-closure care) in the event of:

1. A release of a hazardous waste or hazardous waste constituents occurs which could threaten human health or the environment;
2. an explosion; or
3. a fire.

2.13.2 Distribution

The Permittees shall maintain current copies of the Contingency Plan in the main Facility office and in the Facility Operating Record. The Permittees shall also distribute copies of the current Contingency Plan to all entities with which the Permittees have arrangements in accordance with Permit Section 2.12.6.

The Permittees shall distribute any modifications to the Contingency Plan within fifteen days of the effective date of any modification of the Contingency Plan to all entities with which the Permittees have arrangements in accordance with Permit Section 2.12.6 in accordance with 40 CFR § 264.53. The Permittees shall ensure that all copies of the Contingency Plan distributed

outside the Facility are sent in hard copy by mail. The Permittees shall obtain a record of receipt to ensure distribution to each recipient. A record of compliance with this requirement shall be maintained in the Facility Operating Record.

The Permittees shall ensure that evacuation routes for the Facility are prominently posted at each Permitted Unit. (40 CFR § 264.52(f)).

2.13.3 Amendments to Plan

Pursuant to 40 CFR § 264.54 the Permittees shall review the Contingency Plan and amend the Plan, if necessary, whenever:

1. This Permit is revised;
2. The Contingency Plan fails during an emergency;
3. The Permittees modify the Facility in either its design, construction, operation, maintenance, or other circumstances;
4. A change in the Facility design or operation affects the response necessary in an emergency;
5. The Permittees modify the list of Emergency Coordinators;
6. The Permittees modify the list of emergency response equipment; or
7. The Permittees review and evaluate its emergency response resources and capabilities with respect to hazardous waste management and finds deficiencies.

The Permittees shall ensure that all amendments to the Contingency Plan adhere to the permit modification requirements at 40 CFR §§ 270.42, including. But not limited to, the modification classifications listed in 40 CFR § 270.42 Appendix 1, Category B.6.

2.13.4 Emergency Coordinator

The Permittees shall designate an Emergency Coordinator required by 40 CFR § 264.55, who shall be responsible for coordinating all emergency response measures related to the management of hazardous wastes. An Emergency Coordinator shall be on call at all times, be familiar with the Contingency Plan, and shall have the authority to commit promptly the personnel and financial resources needed to implement the Contingency Plan in accordance with 40 CFR § 264.55. The Permittees shall specify at least one alternate Emergency Coordinator who shall assume the responsibilities of the Emergency Coordinator in accordance with Permit Attachment D (Contingency Plan).

The Permittees shall notify the NMED in writing of changes to the personnel designated as Emergency Coordinators (EC) and listed with their telephone numbers in Attachment D (Contingency Plan), Table D-1 within five business days of making a change. This notification shall be a Class 1 permit modification.

2.13.5. Required Emergency Procedures

2.13.5.1. Immediate Notifications

In the event of an imminent or actual emergency, Permitted Unit personnel shall immediately activate the internal facility alarm or communication systems to notify all facility personnel. The Emergency Coordinator shall ensure that the appropriate federal, tribal, state, and local agencies with designated response roles are notified as necessary.

2.13.5.2. Hazard Assessment

The Emergency Coordinator shall, in the event of a fire, explosion, or release:

1. As soon as practicable, identify the character, source, amount, and areal extent of any released materials as required by 40 CFR § 264.56(b)); and

2. Assess possible hazards to human health or the environment that may result from the release, fire, or explosion, considering both direct and indirect effects of the release, fire, or explosion (e.g., the effects of any toxic, irritating, or asphyxiating gases that are generated, or the effects of any hazardous surface water runoff from water or chemical agents used to control fire and heat induced explosions as specified in 40 CFR § 264.56(c).

2.13.5.3 Reporting Emergencies

If the Emergency Coordinator determines that there has been a release, fire, or explosion that may threaten human health or the environment outside of the Facility boundary, he or she shall report the emergencies as follows:

1. If an assessment indicates that evacuation of local areas may be advisable, he or she shall immediately notify the appropriate local authorities and shall be available to assist appropriate officials in deciding whether local areas should be evacuated in accordance with 40 CFR § 264.56(d)(1); and

2. Immediately notify the New Mexico Department of Public Safety dispatcher (1-505-827-9329), and the National Response Center (1-800-424-8802) (40 CFR § 264.56(d)(2)). This notification shall include the list of items found in Permit Attachment D Section D.8.

2.13.5.4 Mitigative Measures

When the Contingency Plan is implemented under this Permit Section(2.13.5), the Emergency Coordinator shall take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other wastes or other substances at the Facility. These measures shall include, where applicable, stopping processes and operations, collecting and containing released wastes, and removing or isolating containers as specified in 40 CFR § 264.56(e).

2.13.5.5 Monitoring

When the Contingency Plan is implemented under this Permit Section (2.13.5), the Emergency Coordinator shall measure and characterize, to the extent practicable, any air emissions both inside and outside the Facility boundary caused by a fire, explosion, or release to the atmosphere. (40 CFR § 270.32(b)(2)).

If the Facility stops operations in response to a fire, release, or explosion, the Emergency Coordinator shall monitor for leaks, pressure buildup, gas generation, or ruptures in containers, tanks, valves, pipes, or other equipment as appropriate in accordance with 40 CFR § 264.56(f).

2.13.6. Post-Emergency Procedures

Immediately after an emergency in which the Contingency Plan was implemented, the Emergency Coordinator shall provide for the treatment, storage, or disposal of recovered wastes, contaminated soils or surface water, or any other material or contaminated environmental media that resulted from the fire, explosion, or release at the Facility as specified by 40 CFR § 264.56(g).

The Emergency Coordinator shall, as required by 40 CFR § 264.56(h), ensure that in the affected areas of the Facility:

1. No waste that may be incompatible with the released material is, stored in the impacted area until cleanup procedures are completed; and

2. All emergency equipment listed in the Contingency Plan is cleaned and fit for its intended use before operations are resumed

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2.13.7 Need for Further Corrective Action

If, after implementation of the Contingency Plan in response to a fire, explosion or release, the NMED determines that the area affected by the fire, explosion or release has not been entirely remediated, the Permittees shall conduct corrective action as directed by the NMED and in accordance with Permit Part 7 (Corrective Action Procedures).

2.13.8 Notification and Record Keeping

The Permittees shall notify the NMED of implementation of the Contingency Plan in compliance with 40 CFR § 264.56(i) and Permit Section 1.9.9.

Before operations resume in the Facility's affected areas the Permittees shall notify the NMED, in writing, that the Facility is in compliance with Permit Section 2.13.6.

2.14. RECORD KEEPING AND REPORTING

The Permittees shall comply with the record keeping and reporting requirements specified throughout this Permit and in accordance with 40 CFR § 264.73.

2.14.1 Manifest Systems

The Permittees shall comply with the record keeping and reporting requirements associated with manifests in accordance with 40 CFR §§ 264.71, 264.72, and 264.76, whenever a shipment of hazardous waste is either received or shipped from the Facility.

2.14.2 Operating Record

The Permittees shall comply with the recordkeeping and reporting requirements specified in 40 CFR § 264.73(a), 40 CFR § 270.30(j)(2) and (3), and elsewhere in this Permit. Pursuant to 40 CFR § 264.73, the Permittees shall maintain a written Operating Record at the Facility for the active life of the Facility, and in accordance with 20.4.1.501.A(5).

All electronic records shall be readily accessible in a format capable of producing a paper copy immediately upon request. Any substantive alterations made to the electronic record shall be documented, dated, and made part of the Facility Operating Record.

The Permittees shall incorporate into the Facility Operating Permit the following documents and all amendments, revisions and modifications to these documents:

1. A description of all hazardous waste received and the methods of storage at each Permitted Unit in accordance with Appendix I of 40 CFR Part 264;
2. The location of each type of hazardous waste within the Facility storage units, and the total quantity of all hazardous wastes at each unit. This information must include cross-references to specific manifest document numbers for any waste received in accordance with Permit section 2.2.3;
3. Records and results of waste analyses and waste determinations that are performed pursuant to Permit Attachment C (Waste Analysis Plan), and 40 CFR § 264.13, and any section cited in 40 CFR §264.73(b)(3);
4. Reports and details of all emergencies that required the implementation of Permit Attachment D (Contingency Plan) as specified in 40 CFR § 264.56(i);

5. Information on any instance of fire, explosion, spill, or release from, or at, a Permitted Unit regardless of whether the incident required implementation of the Contingency Plan;
6. Records and results of inspections for each Unit as required in Permit Attachment E (Inspection Plan) and 40 CFR § 264.73(b)(5);
7. Monitoring, testing, analytical data, and response actions when required by 40 CFR §§ 264.13, 264.191, 264.1082, 264.1083, and 264.1086 through 264.1090;
8. Notices to off-site generators as specified in 40 CFR § 264.12(b);
9. An annual certification, pursuant to 40 CFR 264.73(b)(9), stating a Facility program is in place to reduce the volume and toxicity of hazardous waste generated;
10. All monitoring reports and records required by this Permit, including but not limited to;
    a. records of all monitoring data used to complete Permit Application(s),
    b. all data gathered or generated during the closure process, and
    c. all raw data, such as laboratory reports, drilling logs, bench scale or pilot scale data, and other supporting information gathered or generated during activities undertaken pursuant to this Permit. Raw data shall be made available to the NMED upon request;
11. Documentation demonstrating distribution of the Contingency Plan in accordance with Permit Section 2.13.2;
12. Documentation demonstrating the installation and maintenance of secondary containment system coatings or sealants as required at Part 3, Permit Section 3.6;
13. Personnel training records including both introductory and continuing training programs used to prepare employees to safely operate and maintain each Permitted Unit in compliance with 40 CFR § 264.16(d) and (e), and Permit Attachment F (Personnel Training Plan)
14. Documentation of all instances where an indoor fire suppression system has been activated resulting in fire suppressants directly contacting hazardous waste;
15. This Permit, including the Waste Analysis Plan set forth in Attachment C (Waste Analysis Plan), the Contingency Plan as set forth in Attachment D (Contingency Plan), the Closure Plans set forth in Attachment G (Closure Plans), as required under 40 CFR § 264.112 and all other Permit Parts and Attachments;

The Permittees shall maintain the Operating Record at the Facility where it can easily be retrieved and reviewed:

1. Inspection Schedule and all completed inspection records for that the Facility for the current calendar year as set forth in Attachment E (Inspection Plan), as required by 40 CFR § 264.15(b) and this Permit,
2. Records for the current year of all training required by this Permit for current personnel at the Facility;

3. The Contingency Plan for the Unit (consisting of the general Facility requirements and the applicable Unit-specific requirements in Permit Attachment D).

Corrective action documents required by Part 7 of this Permit shall be retained at the Facility by the Permittees through completion of closure of the Facility and through completion of post-closure care, if applicable.

2.14.3 Availability of Facility Operating Record

The Permittees shall furnish and make reasonably available for inspection, upon request by any officer, employee, or representative of the NMED, the Facility Operating Record and all other records required under 40 CFR Part 264 or this Permit in accordance with 40 CFR § 264.74(a) and pursuant to 74-4-4.3 NMSA 1978). Information and records requested by the NMED pursuant to this condition shall be made available for inspection in hard copy or in an electronic format acceptable to NMED.

2.14.4 Record Retention

The Permittees shall retain all records required by this Permit during the course of any unresolved enforcement action regarding the Facility or as required by the Department as specified by 40 CFR § 264.74(b)).

PERMIT PART 3 STORAGE OF HAZARDOUS WASTE IN CONTAINERS

3.1. GENERAL CONDITIONS

The Permittees shall store and otherwise manage containers of hazardous waste in accordance with 40 CFR Part 264, Subpart I (Use and Management of Containers) and Attachment A (Facility Description).

The Permittees shall store containers of hazardous wastes subject to this Permit only at the permitted units specified in Attachment J (Hazardous Waste Management Units), Table J-1.1 (Units Permitted for Storage in Containers (Process Code SO1)) (Units Permitted for Storage in Tanks, SO2). The Permittees are authorized to store only those wastes identified by EPA Hazardous Waste Numbers (waste codes) listed in Attachment B (Authorized Wastes). The Permittees shall not store containers of hazardous waste in excess of the maximum capacities listed in Attachment J, Table J-1.1.

3.1.1 Storage Prohibitions

Hazardous wastes are prohibited from land disposal unless they meet the applicable treatment standards listed in 40 CFR 268. Prohibited wastes (i.e., wastes that do not meet the applicable treatment standards) may be stored for up to one year at the Permitted Units in compliance with 40 CFR § 268.50(b). The Permittees shall assume that all the hazardous wastes at the Facility are prohibited from land disposal (i.e., they do not meet the applicable treatment standards) and shall apply the one-year time limit to all hazardous wastes stored at the Facility.

3.2 CONDITION OF CONTAINERS

The Permittees shall ensure that all containers and tanks used to store hazardous wastes subject to this Permit are in good condition (e.g., no significant corrosion or structural defects) in accordance with 40 CFR § 264.171. If a container or tank is not in good condition or begins to leak, the Permittees shall transfer the waste from such a container or tank into a container or tank that is in good condition immediately upon discovery of the problem in accordance with 40 CFR § 264.171.

3.3 ACCEPTABLE STORAGE CONTAINERS

The Permittees shall only use containers and tanks that comply with 40 CFR Part 264 Subpart I for storage of hazardous waste at Permitted Units.

3.4 COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittees shall use containers made of, or lined with materials that will not react with, and are otherwise compatible with the hazardous waste to be stored so that the ability of the container to contain the waste is not impaired as specified by40 CFR § 264.172.

3.5 MANAGEMENT OF CONTAINERS

The Permittees shall ensure that all containers are kept closed during storage except when waste is added or removed from the container or tank or when a container's contents need to be repackaged (40 CFR § 264.173(a). The Permittees shall not open, handle, or store a container or tank holding hazardous waste in a manner that may rupture the container or cause the container to leak. (*See* 40 CFR § 264.173(b)).

The Permittees shall mark containers either with the words "Hazardous Waste" or with other words that identify the contents of the containers. All containers that contain hazardous waste shall be clearly labeled as containing hazardous waste in accordance with 40 CFR 262.34(a)(3).

The Permittees shall ensure that when waste containers are moved during storage, the location of each hazardous waste and the quantity at each location is documented in accordance with Permit Section 2.12 and 40 CFR § 264.73(b)(2).

3.5.1 Storage Configuration and Required Aisle Space

The Permittees shall maintain adequate aisle space at all times to allow the unobstructed movement of personnel, emergency medical equipment, fire protection equipment, spill control equipment, and decontamination equipment within the permitted units. Additionally, emergency egress aisles with a minimum aisle space of four feet must be maintained at all personnel doors. (40 CFR § 264.35).

Containers shall be placed on pallets as appropriate and shall be stored in a stable configuration. The stacking configuration of waste containers shall not exceed the load-bearing capacity of the floor or metal grating. The Permittees shall store gas cylinders containing waste in a manner that provides support and restraint, (e.g., racks, baskets, or specially constructed pallets).

The Permittees shall store containers in a manner that allows for their inspection, as specified in Section 3.7 of this Permit Part (3), and in a manner that their container labels are visible.

3.5.2 Outdoor Storage

The Permittees shall ensure that hazardous waste containers that are stored outdoors and are not being actively managed are protected from degradation caused by precipitation or other weather conditions using weather protective equipment (e.g., secured tarp) or are protected by the design of the equipment.

3.6 CONTAINMENT SYSTEMS

3.6.1 Containers with Free Liquids

The Permittees shall maintain secondary containment systems in all permitted units used to store wastes which contain free liquids, in compliance with 40 CFR § 264.175. Secondary containment systems shall also:

1. Have sufficient capacity to contain at least 10 percent of the volume of containers or the volume of the largest container, whichever is greater;
2. Prevent contact between containers and spilled material or waste;
3. Prevent run-on and run-off; and
4. Prevent releases of liquids from the secondary containment system.

The containment systems at the Permitted Units shall be designed to be sufficiently impervious to contain leaks, spills, or accumulated precipitation until the liquid is removed. Asphalt or asphaltic pavement shall not be used to construct secondary containment systems without the use of a chemical resistant sealing material that prevents adsorption or infiltration of hazardous waste or hazardous constituents into the asphalt or asphalt pavement.

Unless waste is removed, or another form of secondary containment is provided, the Permittees shall immediately repair any damage to a secondary containment system. The Permittees shall perform all repairs using an appropriate repair method (e.g., ACI standards or manufacturer's recommendations), on a schedule that will prevent harm to human health or the environment. (40 CFR §§ 264.15(c)).

The Permittees shall apply chemical resistant coatings or sealants, as applicable, to the repaired area before waste storage activities resume. The Permittees must record any damage or repair to containment systems in the inspection logs required by Permit Section 3.7.

Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as necessary to prevent overflow of the collection system as specified by 40 CFR § 264.175(b)(5). The Permittees shall determine the source of liquids that accumulate in secondary containment systems. If the source of the release can be identified (e.g., a leaking container) the Permittees shall characterize the liquid based on knowledge of the source of leak and shall remove and manage it appropriately. If the source cannot be identified, or if the liquid cannot be characterized based on knowledge of the source of the leak, the Permittees shall follow the process described in Permit Attachment C to characterize the liquid for appropriate management. The liquid shall then be pumped into containers, or absorbed onto absorbent material, or swept up, as appropriate, and placed into containers.

Accumulated liquids or water generated during fire suppression activities in the Permitted Units shall be characterized using the process described in the Waste Analysis Plan contained in Permit Attachment C. Accumulated liquids present in secondary containment systems from

precipitation or snowmelt shall be characterized in accordance with Permit Attachment C and managed appropriately.

3.6.2 Containers that do not Contain Free Liquids

For containers that do not contain free liquids the Permittees shall ensure that:

1. The containers are stored in storage areas that are sloped or otherwise designed and operated to drain and remove liquid resulting from precipitation in accordance with 40 CFR § 264.175(c)(1); or
2. The containers are elevated or otherwise protected from contact with accumulated liquids in accordance with 40 CFR § 264.175(c)(2).

The Permittees shall comply with the secondary containment requirements for containers that do not contain free liquids and contain wastes that have the following waste codes: F020, F021, F022, F023, F026 and F027 as specified by 40 CFR § 264.175(d)(1).

3.7 INSPECTIONS

The Permittees shall inspect the permitted units for the condition of containers and secondary containment systems, safety equipment, and aisle space for evidence of leaks; deterioration of the containment system by corrosion, cracking, differential settlement or other factors; and to ensure safety equipment and aisle space are adequate in the event of an emergency as specified in Attachment E (Inspection Plan) and in accordance with 40 CFR § 264.174.

Containers in which hazardous waste is placed shall be visually inspected at the time they first arrive at a Unit. A visual inspection shall be done to ensure that there are no cracks, holes, gaps, or other defects and that the cover or other closure devices are secured in the closed position. At each Permitted Unit where containers will be stored, the Permittees shall:

1. Check the condition of containers and the placement of their covers or other closure devices;
2. For containers subject to air emission standards in 40 CFR 264.1086(c), when a defect is detected for the container cover or closure devices, the Permittees shall make first efforts at repair of the defect no later than 24 hours after detection, and repair is to be completed as soon as possible but no later than five calendar days after detection. If a repair of a defect cannot be completed within five calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired.
3. For containers not subject to air emission standards in 40 CFR 264.1086(c), the Permittees shall take corrective action no later than 24 hours after detection, and repair is to be completed as soon as possible but no later than five calendar days after detection upon discovery of a defect in a container or cover to ensure the problem does not lead to an environmental or human health hazard or noncompliance with this Permit.

4. Document the condition of damaged or defective containers and any remedial actions taken. The documentation shall be placed in the Facility Operating Record in accordance with Permit Section 2.14.2 (Operating Record).

3.8 AIR EMISSIONS

The Permittees shall control air emissions from each hazardous waste container at a permitted unit in accordance with the applicable regulations in 40 CFR Part 264.1086.

PERMIT PART 4 STORAGE OF HAZARDOUS WASTE IN TANKS

4.1 INTRODUCTION

The Permittees shall store and otherwise manage hazardous waste in tanks pursuant to the following permit conditions and in accordance with 40 CFR Part 264, Subpart J (Tank Systems) and Attachment A (Facility Description).

4.2 GENERAL CONDITIONS

The Permittees shall, in accordance with this Permit Part, maintain and operate the hazardous waste storage tanks and all ancillary equipment (tank system) as defined in 40 CFR § 260.10, and the associated secondary containment systems at the Facility.

The Permittees shall store hazardous waste only in the tanks associated with the permitted unit identified with process code S02 in Permit Attachment J (Hazardous Waste Management Units), Table J-1 (Active Portion of the Facility). The Permittees shall not store hazardous waste in quantities that exceed the operating capacities of the tanks that are identified in Attachment J, Table J-1.1. The Permittees shall store in the tanks only those wastes with the EPA Waste Codes for the Federally Regulated Hazardous Wastes listed in association with the applicable storage tank in Attachment B (Part A Permit Application).

The Permittees shall ensure that hazardous wastes are not placed in the storage tanks if they could cause the units, their ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail as specified by 40 CFR § 264.194(a).

4.3. EXISTING TANK SYSTEM INTEGRITY

The Permittees shall maintain in the Facility Operating Record the inspections records and written integrity assessments of the existing tank unit system provided in Permit Attachment E.

4.4. REPLACEMENT OF TANK SYSTEM COMPONENTS

The Permittees shall ensure either that storage tank repairs are performed in accordance with 40 CFR §§ 264.196(e)(2) through (4), or that the system be closed in accordance with the closure requirements included in Permit Part 5 (Closure Requirements) and 40 CFR § 264.197.

During replacement of tank unit systems and ancillary equipment the Permittees shall ensure that proper handling procedures are adhered to thus preventing damage to the units, their components, or any ancillary equipment in accordance with 40 CFR § 264.192(b). Replacement equipment shall be made of the same or similar materials as those described in Attachment A (Facility Description). The Permittees shall ensure that prior to replacing a portion of the tank, a registered engineer trained and experienced in the proper installation of tank systems or

components inspects the system in accordance with the requirements of 40 CFR § 264.192(b). A record of this inspection shall be maintained in the Facility Operating Record.

If the Permittees repair the storage tank unit systems, the Permittees shall certify that the system is capable of handling hazardous wastes without release for the intended life of the system in accordance with the requirements of 40 CFR § 264.196(f). This certification must be submitted to the NMED within seven days after returning the tank system to use. Replacement tanks, their ancillary equipment, and ancillary equipment shall be tested for tightness prior to being placed into use in accordance with 40 CFR § 264.192(d). If a replacement tank, tank ancillary unit, and ancillary equipment are found not to be tight, all repairs necessary to remedy the leak(s) in the system shall be performed prior to the system being used.

The Permittees shall obtain and keep in the Facility Operating Record the written statements required by 40 CFR § 264.192(g).

4.5. TANK SYSTEMS SECONDARY CONTAINMENT

The Permittees shall ensure that the tanks have associated secondary containment systems that conform to the requirements specified at 40 CFR § 264.193. The Permittees shall consider the walls and floor of rooms as the secondary containment systems for the storage tanks.

The Permittees shall use appropriate controls and practices to prevent spills and overflows from the storage tanks and their associated containment system in accordance with 40 CFR § 264.194(b). The Permittees shall ensure that spilled, leaked, or otherwise accumulated liquids are removed from the secondary containment system, including but not limited to the sumps, within 24 hours of detection of the spill, leak, or accumulation. The Permittees may seek an extension of time if the they can demonstrate that removal of the released waste or accumulated liquids cannot be accomplished within 24 hours 40 CFR § 264.193(c)(4). Such a determination must be made within 24 hours of detection of the spill, or leak of the released waste. The Permittees shall also follow the procedures specified in40 CFR § 264.196 in the event of a spill or release and shall notify the NMED of any accumulated liquids within the secondary containment system within 24 hours of detection of such liquids as specified by 40 CFR § 264.196(d)(1).

The Permittees shall ensure that the secondary containment system comprised in part by floor, wall, or joint sealants, is installed and maintained in accordance with the sealant manufacturer's recommendations and shall maintain documentation of this fact in the Facility Operating Record. This documentation shall include a copy of the manufacturer's recommendations and a certification from a registered engineer stating that the Permittees' installation and maintenance procedures were performed in accordance with the recommendations. Secondary containment systems utilizing sealants existing at the time of the effective date of this Permit but not having associated sealant manufacturer's recommendations or an associated certification statement shall be re-sealed within 90 days of the effective date of this Permit. The Permittees shall ensure that all ancillary equipment have secondary containment in accordance with 40 CFR § 264.193(f). The aboveground waste piping, including welded flanges, joints, and connections, shall be inspected for leaks each operating day (*i.e.*, each day that waste is present in a tank).

The Permittees shall ensure that a storage tank unit, secondary containment system, or a portion of these units or systems, from which there has been a leak or spill, or which is unfit for use, is removed from service immediately and otherwise complies with the requirements of 40 CFR § 264.196.

The Permittees shall ensure that any release of hazardous waste from a storage tank to the environment (*e.g.*, soil, surface water, groundwater, atmosphere) is reported to the Department by e-mail or facsimile within 24 hours of its detection (*see* 40 CFR § 264.196(d)). Within 30 days of detection of a release to the environment, the Permittees shall submit a written report to the Department containing the information required by 40 CFR § 264.196(d)(3).

4.6 IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES

The Permittees shall ensure that ignitable or reactive waste is not managed in the hazardous waste storage tanks. The Permittees shall ensure that incompatible wastes, or wastes and other materials that are incompatible, are not placed in the same tank system as specified by 40 CFR § 264.199.

4.7. ORGANIC AIR EMISSION REQUIREMENTS

The Permittees manage wastes that are subject to organic air emissions requirements of 40 CFR Part 264, Subpart CC. For wastes that are not eligible for exemption, the Permittees shall address the applicable requirements for control of air pollutant emissions as follows:

1. In lieu of determining the concentration of VOCs in a waste at the point of generation, the Permittees may declare that a container holding the waste is subject to the requirements of 40 CFR Part 264, Subpart CC.
2. To determine the VOC concentration, the Permittees shall follow the waste determination procedures specified in 40 CFR 264.1083(a). If sampling and analysis is necessary, it shall be performed in accordance with the methods specified in Permit Attachment C of this Permit.
3. Whenever changes to the source generating the waste are reasonably likely to or may potentially cause the average VOC concentration of the hazardous waste to increase to a level that is equal to or greater than the applicable VOC concentration limits specified in 40 C.F.R. § 264.1082(c)(1), a new waste evaluation shall be performed by the Permittees, as specified in 40 C.F.R. § 264.1083(a)(1)(ii).
4. The Permittees shall review the characterization documentation for VOCs as part of the characterization process discussed in Permit Attachment C of this Permit.
5. Characterization of routinely generated hazardous wastes that are subject to 40 C.F.R. Part 264, Subpart CC shall be reviewed and updated at least once every 12 months to determine whether Subpart CC requirements apply.

PERMIT PART 5 CLOSURE REQUIREMENTS

5.1. INTRODUCTION

The Permittees shall close the Facility in accordance with the requirements in 40 CFR §§ 264.110 through 264.116, and 264.178 as applicable, this Permit Part (5), and the procedures described in the closure plan in Attachment G (Closure Plan). Closure constitutes the permanent termination of storage of hazardous wastes at a Facility.

It is anticipated that the storage facility will achieve the clean closure criteria listed in Permit Section 5.3.1. Permitted storage Facilities that do not clean close remain subject to the requirements for post-closure care under 40 CFR Part 264 Subpart G.

The closure process for the Facility is not complete until the NMED approves the Closure Report and Closure Certification required under Permit Section 5.5.

For closure purposes, the Facility consists of the permitted unit structures, equipment, outdoor storage pads and loading areas, driving surfaces, and environmental media. These components of the Facility shall undergo the decontamination and verification sampling procedures specified in Permit Attachment G unless they are removed from the site at closure.

Examples of structures include storage sheds; buildings; individual rooms within buildings; interior walls, floors and ceilings; containment systems; and fixtures appurtenant thereto (*e.g.*, stairs, railings, and ancillary piping). Examples of equipment include forklifts, secondary containment pallets, and hand tools utilized in waste management. Examples of outdoor storage pads and driving surfaces include concrete or asphalt pavements. Environmental media includes soil, groundwater, surface water, and any anthropogenic base materials (*e.g.*, base course or gravel).

Rooms such as restrooms, offices, storage rooms, and utility rooms at a Facility in which hazardous waste was not managed are exempt from closure procedures and performance standards. Office equipment, furnishings, and tools that have not contacted hazardous waste or been subject to a hazardous constituent release are also exempt from closure procedures and performance standards.

5.2. FINANCIAL ASSURANCE

The Permittees shall maintain financial assurance to cover the cost of closure conducted by a third party during the active life of the facility. The cost of closure shall be calculated based on the activities required in the Closure Plan included in Permit Attachment G and in accordance with 40 CFR § 142(a). The cost estimate for closure shall be submitted within 60 days after the effective date of this Permit. The closure cost estimate shall be adjusted annually to reflect inflation, in accordance with 40 CFR § 264.142(b). The annual adjusted cost estimates shall be submitted by March 1 of each calendar year while this Permit is in effect. The Permittees shall also continuously maintain coverage for sudden accidental occurrences in accordance with 40 CFR § 264.147.

5.3. CLOSURE PERFORMANCE STANDARDS

The Permittees shall meet the following closure performance standards for all constituents of concern at the Facility to achieve closure. As specified by 40 CFR § 264.111, the Permittees must:

1. Minimize the need for further maintenance;

2. 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 the ground, groundwater, surface water, or atmosphere;); and

3. Remove or decontaminate all hazardous waste residues and contaminated containment system components, equipment and structures in accordance with 40 CFR § 264.112(b)(4).

5.3.1. Criteria for Clean Closure

Clean closure is achieved when the following conditions are met:

1. All hazardous wastes have been removed from a Permitted Unit. Any release of a hazardous waste or hazardous constituent to environmental media at or from the Unit has been remediated, if necessary, to a concentration level that is protective of human health and the environment. Concentration levels shall be based on a residential land use scenario such that the risk of human exposure does not exceed 10-5 total excess cancer risk for carcinogenic substances and, for non-carcinogenic substances, a target Hazard Index of 1.0 in accordance with Permit Section 7.4.

2. All structures and equipment associated with a Permitted Unit have been decontaminated to remove hazardous waste residues and hazardous constituents, or such structures and equipment have been removed and managed, in accordance with all applicable requirements.

3. All the closure performance standards under Permit Section 5.3 have been met.

4. The Permittees have demonstrated that all environmental media meet the applicable human health and ecological risk criteria.

5.3.2. Inability to Achieve Clean Closure

If the Permittees are unable to achieve clean closure of the facility under the provisions of Permit Section 5.3.1, the Permittees must implement post-closure care pursuant 40 CFR §§ 264.117 through 120. The Permittees must also prepare a post-closure care plan and submit the plan to

the NMED within 90 days from the date that the Permittees or the NMED determines that clean closure cannot be or has not been achieved at the facility.

5.4. CLOSURE PROCESS

5.4.1. Notification of Closure

The Permittees shall initiate closure by notifying the NMED in writing that a permitted unit will undergo closure at least 45 days prior to the date on which final closure is to begin in accordance with 40 CFR § 264.112(d)(1).

5.4.2. Time Allowed for Closure

The Permittees shall complete all closure activities required by the closure plan included in Permit Attachment G (Closure Plan) no later than 180 days after initiating closure. The time allowed for closure may be extended if an extension is approved by the NMED (40 CFR § 264.113(b)(1) and (2)) or it is necessary to amend the closure plan in accordance with Permit Section 5.4. If the closure plan must be amended, the Permittees shall complete all closure activities in accordance with the schedule in the NMED-approved closure plan, including all amendments.

5.4.3. Closure Schedule

Closure of each storage area shall comply with the schedule presented in the closure plan included in Table 5-1 below.

5.5. CLOSURE REPORT AND CERTIFICATION

No later than 60 days after completing closure activities at the Facility, the Permittees shall submit a closure report to the NMED for review and approval. The report shall document that the Facility has been closed in compliance with this Permit Part and the approved closure plan. A certification that is signed by the Permittees and by an independent New Mexico licensed professional engineer that the Unit was closed in accordance with the specifications in the approved closure plan must be included with the report (*see* 40 CFR § 264.115).

TABLE 5.1
Closure Schedule

Closure Activity	Schedule
Notify the Department of the initiation of closure.	Day 0
Remove all hazardous wastes. Remove any solid waste that adversely interferes with closure activities.	No later than Day 60
Conduct records review	After initiating closure and before Structural Assessment
Conduct structural assessment	After removal of all wastes and before decontamination
Submit a request to modify the Closure Plan Sampling and Analysis Plan (SAP) based on the results of the records review and structural assessment.	After conducting the records review and structural assessment and prior to decontamination
Complete all closure activities	No later than Day 180 after closure is initiated or no later than specified in the NMED-approved Closure Plan (including any NMED –approved amendments), whichever is later.
Submit final Closure Report and Certification to the Department.	No later than 60 days after completing closure activities
Completion of closure	After NMED approval of the Closure Report and Certification.

PERMIT PART 6 RESERVED

PERMIT PART 7 CORRECTIVE ACTION

7.1 INTRODUCTION

If necessary, the Permittees shall conduct corrective action at all Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs), at the Facility in compliance with the requirements of this Permit and 40 CFR § 264.101.

The Permittees shall conduct corrective action under this Permit in the following circumstances:

1. New releases and newly discovered releases of hazardous waste or hazardous waste constituents from hazardous waste management units at the Facility;
2. At units undergoing closure and post closure care under 40 CFR Part 264, Subpart G, as they apply to the Facility;
3. Implementation of the controls, including long-term monitoring, for any Solid Waste Management Unit (SWMU), Area of Concern (AOC), or hazardous waste management unit.

The Permittees shall conduct corrective action as necessary to protect human health and the environment from any releases of hazardous waste or hazardous waste constituents pursuant to this Permit and in accordance with §§ 74-4-4(A)(5)(h) and (i) and 74-4-4.2(B) of the HWA and Section 3004(u) and (v) of RCRA, 42 U.S.C. § 6924(u) and (v) and 40 CFR Part 264, Subparts F and G. Any SWMU or AOC for which corrective action is required shall be subject to corrective action under this Permit Part and 40 CFR § 264.101.

7.2 GENERAL REQUIREMENTS

7.2.1 Identification and Status of SWMUs, AOCs and Hazardous Waste Management Units

The Table of SWMUs and AOCs Requiring Corrective Action under this Permit will be added as appropriate to include any newly identified SWMUs or AOCs for tracking purposes.

7.3 GENERAL CONDITIONS

7.3.1. Corrective Action beyond the Facility Boundary

The Permittees shall notify the Department, orally and in writing in accordance with Permit Section 1.9.9, upon discovering that a release of hazardous waste or hazardous constituents has migrated beyond the Facility boundary or has the potential to migrate beyond the Facility boundary.

If hazardous waste or hazardous constituents migrate beyond the Facility boundary, the Permittees shall implement corrective action beyond the Facility boundary as necessary to protect human health and the environment, unless the Permittees demonstrate to the NMED that,

despite the Permittees' best efforts, the Permittees are unable to obtain the necessary permission to undertake such actions. The Permittees are not relieved of any responsibility to clean up a release that has migrated beyond the Facility boundary where off-site access has been denied as specified in 40 CFR § 264.101(c).

7.3.2 Off-Site Access

To the extent that any corrective action requirement of this Permit requires access to property not owned or controlled by the Permittees, the Permittees shall use their best efforts to obtain access from the present owners of such property to conduct the required activities. If the Permittees cannot obtain such access, the Permittees shall provide to NMED a summary of the efforts made to gain access to the property and the reason(s) for its failure to obtain such access.

7.3.3 Newly Discovered Releases

The Permittees shall notify the NMED, orally and in writing in accordance with Permit Section 1.9.9., upon discovery of any previously unknown release of hazardous waste or hazardous constituents into soil, sediment, surface water, or groundwater. The NMED will notify the Permittees, in writing, if corrective action is required to address the release. If necessary, the Permittees may initiate emergency interim measures to address the release in accordance with Permit Section 7.8.3.

7.3.4 Field Activities

The Permittees shall notify the NMED in writing of any field sampling or other field activities undertaken pursuant to any corrective action requirement of this Permit and shall coordinate with the NMED to allow the collection of split samples upon request. The Permittees shall notify the Department no less than 15 days prior to the commencement of field activities and sampling events.

7.3.5 Health and Safety Plans

The Permittees 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. Health and Safety Plans shall be prepared as stand-alone documents and shall not be submitted as part of Work Plans or other documents.

7.3.6 Recordkeeping

The Permittees shall maintain all monitoring and sampling data, including sampling procedures, records of field measurements, laboratory analytical data, quality assurance/quality control documents, chain-of-custody records, well completion reports and periodic monitoring reports in the Facility Operating Record for a minimum of three years after the end of the operating life of the Facility and a minimum of three years after the end of any post-closure care period.

7.4 CLEANUP LEVELS

The NMED and the New Mexico Water Quality Control Commission (WQCC) have separately specified certain cleanup goals and methods of calculating cleanup levels. The NMED has also specified certain reporting requirements for sites where corrective action is required in response to releases to the environment. In general, the NMED has selected a human health target risk level of 10^{-5} for carcinogenic substances and a Hazard Index (HI) of 1.0 for non-carcinogenic substances as cleanup goals for establishing site-specific cleanup levels for one or more contaminants for which toxicological data are published. The Permittee shall follow the cleanup and screening levels for cumulative risk described in this Permit Part in implementing the corrective action requirements of this Permit. 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 Section 7.5.

7.4.1 Groundwater Cleanup Levels

The cleanup levels for all contaminants in groundwater shall be the WQCC groundwater quality standards, 20.6.2.3103 NMAC, the cleanup levels for toxic pollutants listed in 20.6.2.7.T(2) calculated in accordance with 20.6.2.3103. 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 water 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 NMED's Risk Assessment Guidance for Site Investigation and Remediation (SSG, 2019, as updated) shall be used to establish the cleanup level if neither a WQCC standard nor 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) 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 Permittees 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 Section 7.10.6, 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 Permit Section (7.4.3). Should the Permittees be unable to achieve the Soil Cleanup Levels established under Permit Section 7.4.3, it shall conduct risk assessments in accordance with Permit Sections 7.10.4 and 7.10.5. Any cleanup level based on a risk assessment must be submitted to the NMED for review and approval.

7.4.3 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 the residential, industrial land use, and construction worker risk scenarios. If the potential for migration to groundwater is applicable for a site, the NMED may determine that a dilution attenuation factor (DAF) of one or greater, as calculated using NMED-approved methods, 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 NMED's Risk Assessment Guidance for Site Investigation and Remediation (2017, as 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 Permittees 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., residential, industrial, construction worker).

7.4.4 Surface Water Cleanup Levels

The Permittees 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).

7.5 ECOLOGICAL RISK EVALUATION

Screening for ecological risk shall be conducted using NMED's SSG (2019, as updated). If no scientifically valid toxicological studies exist for a particular receptor and/or contaminant, the contaminant and receptor combination shall be addressed using qualitative methods.

7.6 VARIANCE FROM CLEAN-UP LEVELS

If attainment of the established cleanup level is demonstrated to be technically infeasible, the Permittees 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 Permittees propose 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, 20.6.2.4103.E and 4103.F NMAC, shall be followed.

For all other instances in which the Permittees seek a variance from a cleanup level, the Permittees shall submit a demonstration to the NMED that achievement of the cleanup level is impracticable. In making such demonstration, the Permittees 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 Permittees 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 Permittees 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 Permittees' 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 Permittees' impracticability demonstration, it will notify the Permittees in writing, and such notice will describe the specific actions to be taken by the Permittees.

7.7 NOTIFICATION OF NEWLY DISCOVERED SWMUS OR 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 Permittees 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 90 days or other timeframe approved by the NMED after submitting such notification, the Permittees 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 Newly Discovered Releases from SWMUs or AOCs

The Permittees shall notify the NMED orally of a newly dscovered release from a SWMU or AOC within one business day and shall notify the NMED in writing within 15 days of discovery of any contamination identified at theSWMU or AOC.

7.8 CORRECTIVE ACTION PROCEDURES

The Permittees shall conduct corrective action at sites where releases of hazardous waste or hazardous constituents have occurred. If corrective action is necessary to protect human health or the environment, the NMED will direct the Permittees to complete one or more of the requirements included in this Permit Section (7.8). The conditions listed below apply to all corrective action conducted under this Permit unless otherwise specified in Permit Part 5 (Closure Requirements).

7.8.1. Release Assessment

7.8.1.1 Release Assessment Report

If required by the Department, the Permittees shall submit a Release Assessment Report for newly discovered releases from any Permitted unit. Any revisions to the Release Assessment Report required by the Department shall be submitted within 90 calendar days of receipt of the Department's comments on the Release Assessment Report.

The Release Assessment Report shall, at a minimum, include the following information:

1. Location of unit(s) on a topographic map of appropriate scale, as required by 40 CFR § 270.14(b)(19);

2. Designation of type and function of unit(s);
3. General dimensions, capacities and structural description of unit(s) (supply any available plans/drawings);
4. Dates that the unit(s) was operated;
5. All available site history information;
6. Specifications of all wastes that have been managed at/in the unit(s) to the extent available. Include any available data on hazardous waste or hazardous constituents in the wastes; and
7. All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include ground water data, soil analyses, air, and surface water 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 7.8.5.1.

7.8.2 Interim Measures

7.8.2.1 Interim Measures Required by the NMED

Upon written notification by the NMED, the Permittees shall prepare and submit an Interim Measures (IM) Work Plan where the 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 Permittees shall submit their IM Work Plan to the NMED within 30 calendar days of the NMED's notification, unless another time period is specified by the NMED. Such interim measures may be conducted concurrently with any required corrective action.

7.8.2.2 Permittee-Initiated Interim Measures

The Permittees 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 Permittees 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 Permittees 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 Permittees may implement the proposed emergency interim measures without submitting an IM 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 Permittees shall notify the NMED within one business day of taking the emergency interim measure. The notification shall contain a description of the emergency, the types and quantities of contaminants involved, the emergency interim measures taken, and contact information for the emergency coordinator handling 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 270.61.

7.8.4 IM Work Plan Requirements

The IM Work Plan shall ensure that the interim measures are designed to mitigate any current or potential threat(s) to human health or the environment and is consistent with, and integrated into, any final corrective measures at the Facility. The IM Work Plan shall include the interim measures objectives, procedures for implementation (including any designs, plans, or specifications), and schedules for implementation.

The IM Work Plan imposed under Permit Condition 7.8.2.1 or initiated by the Permittees under Permit Condition 7.8.2.2 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 7.9.

7.8.4.1 Interim Measures Implementation

7.8.4.1.i Implementation and Completion of Approved IM Work Plan

The Permittees shall implement interim measures required under Permit Section 7.8.2 in accordance with the NMED-approved IM Work Plan. The Permittees shall complete interim measures within 180 calendar days of the start of implementation of the interim measure. The Permittees may submit a written request to the NMED to extend the period for implementation of the interim measure no less than 30 days prior to the end of the implementation period. The request must provide justification for the extension and a proposed schedule for completion of the interim measure. The NMED will notify the Permittees, in writing, of the approval or disapproval of the request.

7.8.4.1.ii Notification of Changes

The Permittees shall give notice to the NMED as soon as possible of any planned changes, reductions or additions to the IM Work Plan required by the NMED under Permit Section 7.8.2.1 or initiated by the Permittees in accordance with Permit Section 7.8.2.2.

7.8.4.1.iii Interim Measures Report

The Permittees shall submit to the NMES for review and approval, within 90 calendar days of completion of interim measures, an IM Report summarizing the results of interim measure implementation. The IM Report shall contain, at a minimum, the following information:

1. A description of interim measures implemented;
2. Summaries of results;
3. Summaries of all problems encountered during IM investigations;
4. Summaries of accomplishments and/or effectiveness of interim measures; and,
5. Copies of all relevant laboratory/monitoring data, maps, logs, and other related information.

7.8.5 Corrective Action Investigations

7.8.5.1 Investigation Work Plan

The Permittees shall submit to the NMED Investigation Work Plans for units where the NMED determines that corrective action is necessary to investigate releases to the environment.

7.8.5.1.ii Investigation Work Plan Requirements

Investigation Work Plans shall meet the requirements specified in Permit Section 7.12 (Reporting Requirements). 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 Permittees 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 the NMED. The Permittees shall provide sufficient written justification for any omissions or deviations from the minimum requirements specified in Permit Section 7.12 (Reporting Requirements). Such omissions or deviations are subject to the approval of the NMED. In addition, Investigation Work Plans shall include all investigations necessary to ensure compliance with 40 CFR § 264.101. All monitoring, sampling, and analysis shall be conducted in accordance with the investigation methods and procedures set forth in Permit Part 7.10.

7. 8.5.1.iv Work Plan Implementation Notification

The Permittees shall implement Work Plans as approved by the NMED. The Permittees shall notify the NMED at least 20 days prior to any permit or corrective action-related field activity (e.g., drilling, sampling).

7.8.5.2 Investigation Reports

The Permittees shall prepare and submit to the NMED Investigation Reports for the investigations conducted in accordance with Investigation Work Plans submitted under Permit Section 7.8.5.1. The Permittees shall submit the Investigation Reports to the NMED for review and approval in accordance with the schedules included in its approved Investigation Work Plans.

The Investigation Reports shall include an analysis and summary of all required investigations conducted under this Permit. The summary shall describe the type and extent of contamination at each unit 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 for the area. If the Investigation Report concludes that further work is necessary, the report shall include a proposed schedule for submission of a work plan for the next phase of investigation.

7.8.5.2.i Cleanup Levels

The Investigation Reports shall identify the applicable cleanup levels in accordance with Permit Section 7.4 and 7.5 for each hazardous waste or hazardous constituent found at each unit where corrective action is required. The Permittees 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.

7.8.5.2.ii Requirement to Proceed

Based upon the NMED's review of the Investigation Report, the NMED will notify the Permittees of the need for further investigative action, if necessary, and inform the Permittees, if not already notified, of the need for a Corrective Measures Evaluation. The NMED will notify the Permittees if corrective action is complete. If the NMED determines that further investigation is necessary, the NMED will require the Permittees to submit a work plan for approval that includes a proposed schedule for additional investigation(s).

7.8.5.3 Risk Assessment

The Permittees shall attain the cleanup goals outlined in Permit Sections 7.4 and 7.5. If the NMED determines that the cleanup levels included in Permit Sections 7.4 and 7.5 cannot be achieved at a site, the NMED will require performance of risk analyses to establish alternative cleanup levels. Such risk analyses shall be prepared in the format included in the Permit Section 7.12 (Reporting Requirements). The Permittees shall submit to the Department for approval a Risk Assessment Report in accordance with this Permit Section (7.8.5.3) according to the schedule set forth by the NMED for sites where risk analyses are conducted.

7.8.6. Corrective Measures Evaluation

7.8.6.1 General

The NMED will require corrective measures at a unit if the NMED determines, based on the Investigation Report and other relevant 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 or the environment from such a release. Upon making such a determination, the NMED will notify the Permittees in writing. The NMED will specify a date for the submittal of the necessary reports and evaluations in the written notification.

7.8.6.2 Corrective Measures Evaluation Report

Following written notification from the NMED that a corrective measures evaluation is required, the Permittees shall submit to the NMED for approval a Corrective Measures Evaluation Report. The Permittee shall follow the Corrective Measures Evaluation Report format outlined in Permit Section 7.12 (Reporting Requirements). 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 Corrective Measures Evaluation Report shall, at a minimum, comply with Permit Section 7.12 (Reporting Requirements) and include the following:

1. A description of the location, status, and current use of the site;
2. A description of the history of site operations and the history of releases of contaminants;
3. A description of site surface conditions;
4. A description of site subsurface conditions;
5. A description of on- and off-site contamination in all affected media;
6. An identification and description of all sources of contaminants;
7. An identification and description of contaminant migration pathways;
8. An identification and description of potential receptors;
9. A description of cleanup standards or other applicable regulatory criteria;
10. An identification and description of a range of remedy alternatives;
11. Remedial alternative pilot or bench scale testing results;
12. A detailed evaluation and rating of each of the remedy alternatives, applying the criteria set forth in Permit Section.7.12.6 including costs for long-term monitoring and maintenance (Reporting Requirements);
13. An identification of a proposed preferred remedy or remedies;
14. Design criteria of the selected remedy or remedies; and
15. A proposed schedule for implementation of the preferred remedy.

7.8.6.3 Cleanup Standards

The Permittees shall select corrective measures that can achieve the cleanup standards and goals outlined in Permit Sections 7.4 and 7.5 including, as applicable, approved alternate cleanup goals established by a risk assessment.

7.8.6.4 Remedy Evaluation Criteria

7.8.6.4.i Threshold Criteria

The Permittees shall evaluate each of the remedy alternatives for the following threshold criteria. To be selected, the remedy alternative must:

1. Be protective of human health and the environment;
2. Attain media cleanup standards;
3. Control the source or sources of releases to reduce or eliminate, to the extent practicable, further releases of contaminants that may pose a threat to human health and the environment; and
4. Comply with applicable standards for management of wastes.

7.8.6.4.ii Remedial Alternative Evaluation Criteria

The Permittees shall evaluate each of the remedy alternatives for the factors described in this Permit Section (7.8.6.4). These factors shall be balanced in proposing a preferred alternative.

7.8.6.4.iii 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 Permittees shall give preference to a remedy that reduces risks with little long-term management, and that has proven effective under similar conditions.

7.8.6.4.iv Reduction of Toxicity, Mobility, or Volume

The remedy shall be evaluated for its reduction in the toxicity, mobility, and volume of contaminants. The Permittees shall give preference to a remedy that uses treatment to more completely and permanently reduce the toxicity, mobility, and volume of contaminants.

7.8.6.4.v 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 Permittees shall give preference to a remedy that quickly reduces short-term risks, without creating significant additional risks.

7.8.6.4.vi 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 Permittees shall give preference to a remedy that can be implemented quickly and easily and poses fewer and lesser difficulties.

7.8.6.4.vii 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 for the entire anticipated post-closure care or long-term monitoring period. 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.

7.8.6.5 Corrective Measures Evaluation Report Approval

The NMED will review the Corrective Measures Evaluation (CME) Report and notify the Permittees in writing of approval, approval with modifications, or disapproval of the report in accordance with Permit Section 1.14. 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 Permittees to evaluate additional remedies or specific elements of one or more proposed remedies.

7.8.6.6 Relationship to Corrective Action 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 through 264.524)).

7.8.6.7 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 Permittees. 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.

7.8.6.8 Financial Assurance for Corrective Action

The Permittees 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.

7.8.6.9 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 7.8.6.7. This modification will serve to incorporate a final remedy into this Permit and to establish the financial cost of the remedy.

7.8.7 Corrective Measures Implementation

7.8.7.1 General

The Permittees shall implement the final remedy selected by the NMED.

7.8.7.2 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 Permittees 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:

1. A description of the selected final remedy;
2. A description of the cleanup goals and remediation system objectives;
3. An identification and description of the qualifications of all persons, consultants, and contractors that will be implementing the remedy;
4. Detailed engineering design drawings and systems specifications for all elements of the remedy;
5. A construction work plan;
6. An operation and maintenance plan;
7. The results of any remedy pilot tests;
8. A plan for monitoring the performance of the remedy, including sampling and laboratory analysis of all affected media;
9. A waste management plan;
10. A proposed schedule for submission to the Department of periodic progress reports; and
11. A proposed schedule for implementation of the remedy.

The NMED will review the Corrective Measures Implementation Plan and notify the Permittees in writing of approval, approval with modifications, or disapproval of the plan in accordance with Permit Part 1.14.

7.8.7.3 Health and Safety Plan

The Permittees 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.

7.8.7.4 Progress Reports

The Permittees shall submit to the Department 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:

1. A description of the remedy work completed during the reporting period;
2. A summary of problems, potential problems, or delays encountered during the reporting period;
3. A description of actions taken to eliminate or mitigate the problems, potential problems, or delays;
4. A discussion of the remedy work projected for the next reporting period, including all sampling events;

5. Copies of the results of all monitoring, including sampling and analysis, and other data generated during the reporting period; and
6. Copies of all waste disposal records generated during the reporting period.

7.8.8 Remedy Completion

7.8.8.1 Remedy Completion Report

Within 90 days after completion of remedy, the Permittees shall submit to the Department a Remedy Completion Report. The report shall, at a minimum, include the following items:

1. A summary of the work completed;
2. A statement, signed by a registered professional engineer, or subject to approval by the Department, another competent person with appropriate expertise or professional certification, that the remedy has been completed in accordance with the Department approved work plan for the remedy;
3. As-built drawings and specifications signed and stamped by a registered professional engineer if applicable;
4. Copies of the results of all monitoring, including sampling and analysis, and other data generated during the remedy implementation;
5. Copies of all waste disposal records, if not already submitted in a progress report; and
6. A certification, signed by a responsible official of the Permittees (J.D. Kinsey and Joy M. Kinsey, and Safety-Kleen, Inc.), 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."

7.8.9 Accelerated Clean-up Process

If the Permittees identify 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 SWMU, AOC or other contaminated location, ahead of schedule, the Permittees may implement the corrective measure as provided in this Permit Section (7.8.9), in lieu of the process established in Permit Section 7.8.5.1. 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:

1. A description of the proposed remedial action, including details of the unit or activity that is subject to the requirements of this Permit;
2. An explanation of how the proposed cleanup action is consistent with the overall corrective action objectives and requirements of this Permit;
3. The methods and procedures for characterization and remediation sample collection and analyses; and
4. A schedule for implementation and reporting on the proposed cleanup action.

The Permittees shall notify the Department of implementation of the planned accelerated corrective measure a minimum of 90 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 Department.

7.8.9.1 Accelerated Corrective Measures Work Plan

The Permittees shall obtain approval of an Accelerated Corrective Measures Work Plan prior to implementation. The Permittees shall prepare the Work Plan in general accordance with the requirements of Permit Section 7.12 (Reporting Requirements). The Work Plan shall be submitted to the NMED for review in accordance with the procedures in Permit Section 7.9. If the NMED disapproves the Accelerated Corrective Measures Work Plan, the NMED will notify the Permittees in writing of the Plan's deficiencies and specify a due date for submission of a revised Accelerated Corrective Measures Work Plan. The Permittees shall include an implementation schedule in the revised Accelerated Corrective Measures Work Plan.

7.8.9.2 Accelerated Corrective Measures Implementation

The Permittees 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 Section 7.12 (Reporting Requirements). If upon review, the NMED identifies any deficiencies in the Remedy Completion Report, the NMED will notify the Permittees in writing.

7.8.10 Recordkeeping

For each unit undergoing corrective action under this Permit, the Permittees 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 Section (7).

7.9 APPROVAL OF SUBMITTALS

All documents shall be subject to the review and approval procedures described in Permit Section 1.14.

7.10 METHODS AND PROCEDURES

The Permittees shall submit to the NMED, for review and written approval, site-specific work plans for sites prior to the commencement of field activities where environmental investigation, corrective action, sampling or monitoring is being conducted or proposed. The site-specific work plans shall include the 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 7.12 (Reporting Requirements). The Permittees shall provide notification of corrective action field activities to the NMED 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 (7.10) 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 or unit.

7.10.1 Standard Operating Procedures

The Permittees shall provide a description of investigation, sampling or analytical methods and procedures in documents submitted to the NMED that includes sufficient detail for the NMED to evaluate the expected quality of the data that would be acquired using the methods and procedures. Facility standard operating procedures (SOPs) shall not be substituted for such descriptions.

7.10.2 Investigation, Sampling, and Analysis Methods

7.10.2.1 Introduction

This Permit Section (7.10.2) provides minimum requirements for field investigations, sample collection, handling and screening procedures, field and laboratory sample analysis, and quality assurance 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.

7.10.2.2 Field Exploration Activities

Exploratory borings shall be advanced at locations specified in the NMED approved site-specific work plans. The NMED may require additional exploratory borings to fulfill the requirements of this Permit. Any additional boring locations, if required, must be determined or approved by the NMED. The depths and locations of all exploratory and monitoring well borings shall be specified in the site-specific work plans submitted to the Department for approval prior to the start of the respective field activities.

7.10.2.3 Sub-Surface Features/Utility Geophysical Surveys

The Permittees shall conduct surveys to locate underground utilities, pipelines structures, drums, debris, and other buried features, including buried waste, 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 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.

7.10.2.4 Drilling and Soil, Rock, and Sediment Sampling

7.10.2.4.i 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 Department shall approve the drilling methods selected for advancement of each boring prior to the start of field activities. Based on the drilling conditions, the borings shall be advanced using one of the following methods:

1. Hollow-stem auger;
2. Air rotary;
3. Percussion hammer;
4. Sonic;
5. Direct Push Technology (DPT);
6. Cryogenic; and
7. Cable tool.

Hollow-stem auger or DPT drilling methods are preferred, depending on the local subsurface conditions, and if vapor-phase or VOC contamination is known or suspected to be present. If drilling fluids are used, the type of drilling fluid shall be approved by the NMED prior to the start of drilling activities or prior to use at any site.

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 Permittees are 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 NEMD. The Permittees 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:

1. five feet below the deepest detected contamination;
2. five feet below the base of structures such as piping or building sumps, footings or other building structures;
3. five feet below the shallow water table; and
4. depths specified by the NMED based on specific data needs.

The Permittees shall notify the Department 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 proposed in an approved work plan 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 Section 7.10.2.5. 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 Section. The methods proposed for use by the Permittees for subsurface explorations and sampling shall be included in the site-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 Permittees after review of the investigation work plans.

Borings not completed as groundwater or vapor monitoring wells shall be properly abandoned in accordance with the methods listed in Permit Section 7.11.5 or other method approved by the NMED. Borings completed as groundwater monitoring wells shall be constructed in accordance with the requirements described in Permit Section 7.11.3.2 (Well Construction Techniques).

7.10.2.4.ii Soil and Rock Sampling

Relatively undisturbed discrete soil and rock samples shall be obtained, where possible, 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:

1. At 2.5-ft intervals5-ft intervals, 10-ft intervals, continuously, or as approved by the NMED;
2. At the depth immediately below the base of the disposal unit or facility structure;
3. At the maximum depth of each boring;
4. At the depths of contacts or first encounter, observed during drilling, with geologic units of different lithology, changes in structural or textural characteristics, or zones of relatively higher or lower permeability;
5. Of soil or rock types relatively more likely to sorb or retain contaminants than surrounding lithology;
6. At the depth of the first encounter, during drilling, with saturated zones;
7. At intervals suspected of being source or contaminated zones;
8. At the top of the regional aquifer; and
9. 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 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® or equivalent sampler is preferred, 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 Sections 7.10.2.4.v and 7.10.2.4.vi, 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 necessary. The Permittees may submit site-specific, alternative methods for homogenization of samples in the field to the NMED for review and written 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) suspected migration pathways and the stratigraphy encountered in the boring; and 5) the specific objectives and requirements of this Permit and the approved site-specific work plan. The proposed number of samples and analytical parameters shall be included as part of the site-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 investigation. Modifications to site-specific work plan tasks must be pre-approved in writing by the NMED.

7.10.2.4.iii Sediment Sampling

Surface samples shall be collected using decontaminated, hand-held stainless-steel coring device, Shelby tube, thin-wall sampler, or other device approved by the Department where sediment sampling is conducted without the use of the drilling methods described in Permit Section 7.10.2.4.i. 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® or equivalent samplers Shelby tubes, thin-wall samplers, or other method approved by the NMED. Except in the case of Encore® or equivalent samplers, the ends of the samplers shall be lined with Teflon tape or aluminum foil and sealed with plastic caps fastened to the samplers with tape for shipment to the analytical laboratory.

The physical characteristics of the sediment (such as mineralogy, ASTM 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.

7.10.2.4.iv 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 D2487 (Unified Soil Classification System) and D2488, or AGI 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 logs, test pit logs, and field well construction diagrams shall be converted to the format acceptable for use in final reports submitted to the Department. If requested, draft boring logs, test pit logs, and well construction diagrams shall be submitted to the NMED for review within 30 days after the completion of each boring or monitoring well.

7.10.2.4.v Soil, Rock, and Sediment Sample Field Screening

Samples obtained from borings or test pits and surface samples shall be screened in the field for evidence of the potential 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, rock, sediment, and vapor-phase samples for laboratory analysis. The NMED recognizes that field screening alone will not detect the possible presence or full nature and extent of all contaminants that may be encountered at a site.

The primary screening methods to be used shall include: 1) visual examination; 2) headspace vapor screening for VOCs; and 3) metals screening using X-ray fluorescence (XRF). Additional screening for site- or release-specific characteristics such as pH, High Explosives (HE), Total Petroleum Hydrocarbons (TPH), nitrates, or for other specific compounds using field test kits shall be conducted where appropriate.

Headspace vapor screening shall target VOCs and shall be conducted by placing a soil or rock 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 or rock to the air trapped in the container. The sealed container shall be allowed to rest for a minimum of five minutes while vapors equilibrate. Vapors present within the sample bag 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, combustible gas indicator, or another instrument approved by the Department shall be used for VOC field screening. The limitations, precision, and calibration procedures of the instrument to be used for VOC field screening shall be included in the site-specific investigation work plan prepared for each unit.

XRF may be used to screen soil, rock, or sediment 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 instrument calibration shall be approved by the Department prior to the start of field activities. Field XRF screening results for selected metals may be used in lieu of laboratory analyses upon written approval by the Department; however, the results shall, at a minimum, be confirmed by laboratory analyses at a frequency of 20 percent (1 sample per every 5 analyzed by XRF analysis).

Field screening results are site- and boring-specific and the results vary with instrument type, media screened, weather conditions, moisture content, soil or rock type, and type of contaminant. The Permittees shall record on the field logs all conditions capable of influencing the results of field screening. The Permittees shall submit to the NMED conditions potentially influencing field screening results as part of the site-specific investigation, remediation, or monitoring reports.

At a minimum, the Permittees shall submit the samples with the greatest apparent degree of contamination, based on field observations and field screening, for laboratory analysis. The Permittees shall also use the location of the sample relative to groundwater, stratigraphic units or contacts, and the proximity to significant site or subsurface features or structures as a guideline for sample selection. In addition, the Permittees shall submit the samples with no or little

apparent contamination, based on field screening, for laboratory analysis if the intention is to confirm that the base (or other depth interval) in a boring or other sample location is not contaminated.

7.10.2.4.vi Soil, Rock, and Sediment Sample Types

The Permittees shall collect soil, rock, and sediment samples at the frequencies outlined in the site-specific investigation, corrective action, or monitoring work plans for each unit, or other site submitted by the Permittees for review and written approval by the NMED. The samples collected shall be representative of the media and site conditions being investigated or monitored. The Permittees shall collect QA/QC samples to monitor the validity of the soil, rock, and sediment sample collection procedures. Field duplicates shall be collected at a rate of ten percent. The Permittees shall collect equipment blanks from all sampling apparatus at a frequency of ten percent of environmental samples, if disposable sampling equipment is not used. The Permittees shall collect field blanks at a frequency of one per day for each medium (except for air samples) at each unit, or other site. 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 resulting data will provide information on the variability associated with sample collection, handling, and laboratory analysis operations. The blanks and duplicates shall be submitted for laboratory analyses associated with the project-specific contaminants, data quality concerns, and media being sampled.

7.10.2.5 Sample Point and Structure Location Surveying

The horizontal and vertical coordinates of the top of each monitoring well casing and the ground surface at each monitoring well location shall be determined by a registered New Mexico professional land surveyor in accordance with the State Plane Coordinate System (§§ 47-1-49 through 56 NMSA 1978)). 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 Permittees 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.

Site attributes (e.g., soil sample locations, sediment sample locations, springs, outfalls, pertinent structures, monitoring stations, as well as staked out sampling grids), shall be located by using the global positioning system (GPS), or another NMED-approved surveying system, or by using a registered New Mexico Registered Land Surveyor using the methods described in the paragraph above. If using GPS, horizontal locations shall be measured to sub-meter accuracy. The Permittees shall provide to the NMED a statement of accuracy for survey data upon request.

7.10.2.6 Subsurface Vapor-Phase Monitoring and Sampling

Samples of subsurface vapors shall be collected from vapor monitoring points from both discrete zones, selected based on investigation and field screening results, and as total well subsurface vapor samples where required by the NMED. Subsurface vapor samples shall be collected using methods and frequency approved by the NMED that will produce reliable and representative results from the zones subject to investigation or monitoring.

NMED may require vapor sampling at sites where there is a potential for vapor-phase contamination to be present. Soil gas samples shall be obtained at the NMED-approved intervals for field screening and/or laboratory analyses. An inflatable packer shall be dropped to isolate the bottom two to three feet of the borehole. The isolated portion of the borehole shall be purged by slowly removing approximately five times the volume of the annular space beneath the packer, followed by a VOC measurement using a PID equipped with a 10.6 eV or other appropriate strength lamp, a combustible gas indicator or other instrument approved by the NMED. The data shall be logged and also used for determining the samples to be sent to an analytical laboratory.

The Permittees shall, directed or as specified in the site-specific work plan approved by the NMED, collect vapor samples for field measurement the following during subsurface vapor monitoring activities:

1. Percent oxygen;
2. Organic vapors (using a photo-ionization detector with a10.6 or higher eV (electron volt) lamp, a combustible vapor indicator or other method approved by the Department);
3. Percent carbon dioxide;
4. Static subsurface pressure; and
5. Other parameters (such as carbon monoxide and hydrogen sulfide) as required by the NMED.

The Permittees shall also collect vapor samples for laboratory analysis of the following as required:

1. Percent moisture;
2. VOCs; and
3. 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 Department. The samples shall be analyzed for VOC concentrations by EPA Method TO-15, as it may be updated or by an 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 Section 7.10.2.12 (Field Equipment Calibration Procedures). The methods used to obtain vapor-phase field measurements and samples shall be approved by the NMED in writing prior to the start of air monitoring at each Facility site where vapor-phase monitoring is conducted.

7.10.2.7 Groundwater Monitoring

7.10.2.7.i 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 and the Permittees must measure the groundwater and PSH levels at the same location (e.g., north side of casing rim, location of a notch or mark on the casing rim) during each event. The depth to groundwater shall be measured to the nearest 0.01 foot. The depth to groundwater shall be recorded relative to the surveyed well casing rim or other surveyed datum.

The Permittees shall measure groundwater levels in all wells at the facility (or the number of wells otherwise specified in a NMED-approved groundwater monitoring work plan) within 72 hours of the commencement of the monitoring activities. The Permittees shall conduct periodic measuring events in accordance with the schedule included in a groundwater monitoring work plan or other NMED approved work plan.

7.10.2.8 Groundwater Sampling

Groundwater samples shall initially be obtained from newly installed monitoring wells between ten and 30 days after completion of well development. Groundwater monitoring and sampling shall be conducted at an interval approved by the NMED after the initial sampling event. The Permittees shall sample all saturated zones screened to allow entry of groundwater into each monitoring well during each sampling event (or as otherwise specified in the NMED- approved groundwater monitoring work plan). All requests for variances from the groundwater sampling schedule shall be submitted to the Department, in writing, no less than 30 days prior to the start of scheduled monitoring and sampling events.

For exploratory borings subject to this Permit, groundwater samples shall be collected from all saturated zones, where possible, within exploratory borings not intended to be completed as monitoring wells prior to abandonment of the borings.

Water samples shall be analyzed for site-specific parameters in accordance with the NMED-approved groundwater monitoring work plan. In addition to the target analytes selected based on the contaminants released, the analytical list may include, but is not limited to, one or more of the following general chemistry parameters as required by the NMED:

nitrate/nitrite	sulfate	chloride	sodium
dissolved carbon dioxide (CO_2)	alkalinity	carbonate/bicarbonate	boron
fluoride	manganese	calcium	silicon
ferric/ferrous iron	ammonia	potassium	phosphorus/phosphate
sulfide	bromide	magnesium	methane
Total Kjeldahl Nitrogen (TKN)	total organic carbon (TOC)	total dissolved solids (TDS)	total suspended solids (TSS)
dissolved oxygen	Additional analytes as required by the NMED.		

7.10.2.8.i Well Purging

All zones in each monitoring well shall be purged by removing groundwater prior to sampling and 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, turbidity, redox potential, and temperature during purging of volumes and at measurement intervals approved by the NMED in writing. The groundwater quality parameters shall be measured using a flow-through cell and instruments approved by the NMED in writing. The volume of groundwater purged, the instruments used, and the readings obtained at each interval shall be recorded on the field monitoring log. In general, 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 and a pH variation of 0.3. The Permittees 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. The NMED will respond to the request, in writing, within 60 days of receipt of the variance request.

7.10.2.8.ii Groundwater Sample Collection

Groundwater samples shall be obtained from each well after enough 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 Section 7.10.2.9. Decontamination procedures shall be established for reusable water sampling equipment as described in Permit Section 7.10.2.11.

The methods for disposal of purge/decontamination water must be approved by the NMED prior to disposal. All purged groundwater and decontamination water shall be characterized prior to disposal unless it is disposed in the refinery wastewater treatment system upstream of the API Separator. Disposable materials shall be handled as described in Section 7.10.2.13 (Collection and Management of Investigation Derived Waste).

Groundwater samples intended for metals analysis shall be submitted to the laboratory as total metals samples. If required by the Department, the Permittees shall obtain groundwater samples for dissolved metals analysis to be filtered using disposable in-line filters with a mesh size approved by the NMED.

Per- and Polyfluoroalkyl Substances (PFAS) sample collection.

PFAS sampling and analytical methods are evolving and more effective and precise field and laboratory analytical methods will likely be developed in the future. As improved methods become accepted, the NMED will require use of such methods as applicable. At a minimum, the following practices shall be followed until improved methods become available:

The EPA SW-846 methods under development utilize PFAS-free, high-density polyethylene containers; whole sample preparation; and sample holding times of 28 days. EPA has also developed guidelines for field sampling, to minimize sample contamination and optimize data quality for site characterization and remediation. (USEPA, September 2018, Technical Brief, Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS), EPA/600/F-17/022d)

Due to the widespread use of PFAS, many materials normally used in field and laboratory operations contain PFAS. For example, polytetrafluoroethylene products (tubing, sample containers, and sampling tools) are often used in sampling; however, since these products can contain PFAS, they cannot be used in sampling for PFAS. In addition, many consumer goods, such as water-resistant jackets or fast food wrappers, brought to a sampling site may contain PFAS that can contaminate samples. Proper field sampling and laboratory hygiene protocols are critical to ensuring that testing results reflect actual PFAS levels in the analyzed media. (USEPA, September 2018, Technical Brief, Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS), EPA/600/F-17/022d)

EPA developed Analytical Method 537 for the determination of selected perfluorinated alkyl acids in drinking water by solid phase extraction and liquid chromatography/tandem mass spectroscopy (LC/MS/MS). Section 8, Sample Collection, Preservation, and Storage, of Method 537 describes the field sample collection procedure as follows (USEPA, September 2009, Method 537. Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS), EPA/600/R-08/092):

Samples must be collected in a 250-mL polypropylene bottle fitted with a polypropylene screw-cap. Five (5) grams/ liter of the preservation reagent TrizmaÒ must be added to each sample bottle as a solid prior to shipment to the field. The sample handler must wash their hands before sampling and wear nitrile gloves while filling and sealing the sample bottles. PFAA

contamination during sampling can occur from a number of common sources, such as food packaging and certain foods and beverages. Proper hand washing and wearing nitrile gloves will aid in minimizing this type of accidental contamination of the samples. Fill sample bottles, taking care not to flush out the sample preservation reagent. Samples do not need to be collected headspace free.

After collecting the sample, cap the bottle and agitate by hand until the preservative is dissolved. Keep the sample sealed from time of collection until extraction. A laboratory-supplied field reagent blank and an empty sample bottle must accompany the sample containers. At the sampling site, the sampler must transfer the preserved reagent water into the empty shipped sample bottle, seal and label this bottle as the field reagent blank (FRB). The FRB must be shipped to the laboratory along with the samples and analyzed to ensure that PFAAs were not introduced into the sample during sample collection or handling. Samples must be chilled during shipment and must not exceed 10 °C during the first 48 hours after collection. Sample temperature must be confirmed to be at or below 10 °C when the samples are received at the laboratory.

7.10.2.8.iii Surface Water Sample Collection

Surface water samples shall be collected using methods approved by the NMED. Samples shall be collected in pre-cleaned laboratory-prepared sampling containers. The methods and instruments used to measure field parameters shall be approved by the NMED prior to conducting surface water sampling. The sampling and monitoring techniques used, and the measurements obtained shall be recorded in the field monitoring reports.

7.10.2.8.iv Groundwater and Surface Water Sample Types

Groundwater samples shall be collected from each monitoring well and surface water samples shall be collected at predetermined locations. Field duplicates, field blanks, equipment rinsate blanks, reagent blanks, if necessary, and trip blanks shall be obtained for quality assurance during groundwater and surface water sampling activities. The samples shall be handled as described in Permit Section 7.10.2.9 (Sample Handling).

Field duplicate surface water and groundwater 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 five percent or a minimum of one rinsate blank per sampling day if reusable sampling equipment is used. 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 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 ten 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.

7.10.2.9 Sample Handling

At a minimum, the following procedures shall be used at all times when collecting samples during investigation, corrective action, and monitoring activities unless otherwise specified in a NMED-approved work plan:

1. Neoprene, nitrile, or other protective gloves shall be worn when collecting samples. New disposable gloves shall be used to collect each sample;

2. All samples collected of 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, Shelby tubes, thin wall samplers, 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. Samples collected in Shelby tubes or thin wall samplers shall be capped in a similar fashion. The sample depth and the top of the sample shall be clearly marked. Sample container volumes and preservation methods shall be in accordance with 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

3. Sample labels and documentation shall be completed for each sample following procedures included in the site-specific work plans 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 Section 7.10.2.14.ii, shall be followed for all samples collected. All samples shall be submitted to the laboratory within 48 hours after their collection.

Shipment procedures shall include the following:

1. 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 drainage 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;
2. Each cooler or other container shall be delivered directly to the analytical laboratory;
3. Glass bottles shall be separated in the shipping container by cushioning material to prevent breakage;
4. Plastic containers shall be protected from possible puncture during shipping using cushioning material;
5. The chain-of-custody form and sample request form shall be shipped inside the sealed storage container to be delivered to the laboratory;
6. Chain-of-custody seals shall be used to seal the sample-shipping container in conformance with EPA protocol; and
7. Signed and dated chain-of-custody seals shall be applied to each cooler prior to transport of samples from the site.

7.10.2.10 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 shall be approved, in writing, by the NMED prior to implementation. The tests shall be conducted in order to appropriately represent site conditions and in accordance with EPA, 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 requested, 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 Section 7.12 (Reporting Requirements). A report summarizing the results of each test shall be submitted to the Department within 120 days, or other NMED-approved timeframe, of completion of each test.

7.10.2.11 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, by hot-water pressure washing, or by other method 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, water level measurement instruments, and reusable vapor sampling equipment shall be decontaminated in accordance with the following procedures or other applicable methods approved by the NMED before each sampling attempt or measurement:

1. Brush equipment with a wire or other suitable brush, if necessary or practicable, to remove large particulate matter;
2. Rinse with potable tap water;
3. Wash with nonphosphate detergent or other detergent approved by the Department (examples include Fantastik™, Liqui-Nox®) followed by a tap water rinse;
4. Rinse with 0.1 molar nitric acid (to remove trace metals, if necessary) followed by a tap water rinse;
5. Rinse with methanol (to remove organic compounds, if necessary) followed by a tap water rinse;
6. Rinse with potable tap water; and
7. Double rinse with deionized water.

All decontamination solutions shall be collected and stored temporarily as described in Permit Section 7.10.2.13. Decontamination procedures and the cleaning agents used shall be documented in the daily field log.

7.10.2.12 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, as 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.

7.10.2.13 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 investigation, corrective action, or monitoring activities. All IDW shall be properly characterized in accordance with 40 CFR Part 261 and Attachment C of this Permit, and shall be managed in accordance with all Federal, State, and local rules and regulations for storage, labeling, handling, transport, and disposal of waste. The Permittees shall include a description of anticipated management of IDW as part of the applicable work plan submitted to the Department for approval prior to an investigation or corrective action.

7.10.2.14 Documentation of Field Activities

7.10.2.14.i General

Daily field activities, including observations and field procedures, shall be recorded on appropriate forms. The original field forms shall be maintained at the Facility. 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:

1. site or unit designation;
2. date;
3. time of arrival and departure;
4. field investigation team members including subcontractors and visitors;
5. weather conditions;
6. daily activities and times conducted;
7. observations;
8. record of samples collected with sample designations and locations specified;
9. photographic log;
10. field monitoring data, including health and safety monitoring if conditions arise that require modification of required work;
11. equipment used and calibration records, if appropriate;
12. list of additional data sheets and maps completed;
13. an inventory of the waste generated and the method of storage or disposal; and
14. signature of personnel completing the field record.

7.10.2.14.ii 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 Permittees shall maintain copies of all chain-of-custody forms generated as part of sampling activities. Copies of the chain-of-custody records (either paper copies or electronically scanned in PDF format) shall be included with all draft and final laboratory reports submitted to the NMED.

7.10.3 Chemical Analyses

The Permittees shall submit all samples for laboratory analysis to accredited contract laboratories. The laboratories shall use the most recent EPA and industry-accepted extraction and analytical methods for chemical analyses for target analytes as the testing methods for each medium sampled. The Permittees shall use the most sensitive laboratory methods (with the lowest detection limits) available unless specific conditions preclude their use.
The Permittees shall submit a list of analytes and analytical methods to the Department, for review and written approval as part of each site-specific investigation, corrective action, or monitoring work plan. The detection limits for each method shall be less than applicable background, screening, and regulatory cleanup levels. The preferred method detection 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. These data cannot be used for statistical analyses. All analytical data (non-detects, estimated concentrations, and detects) shall be included in an electronic copy of the associated report in a format acceptable to the NMED with qualifiers as attached from the analytical laboratory. The summary tables shall include only detects (including estimated quantities) of the data based on the corresponding qualifiers. The Permittees shall not censor the data based on detection limits, quantitation limits, or measurement uncertainty.

7.10.3.1. 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 Permittees that provide analytical services for environmental investigation, corrective action, and monitoring activities conducted at the Facility. Upon request, the Permittees shall provide the names of the contract analytical laboratories and copies of the laboratory quality assurance manuals to the NMED within 90 days of awarding a contract for analytical services to any contract laboratory.

7.10.3.1.i Quality Assurance Procedures

Contract analytical laboratories shall maintain internal quality assurance programs in accordance with EPA and industry-wide 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.

7.10.3.1.ii Equipment Calibration Procedures and Frequency

The laboratories' equipment calibration procedures, calibration frequency, and calibration standards shall be in accordance with the EPA test methodology requirements and documented in the laboratories' 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.

7.10.3.1.iii 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 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.

7.10.3.1.iv Laboratory Deliverables

The laboratory analytical data package submitted to the Department shall be prepared in accordance with EPA-established Level II analytical support protocol. The laboratory analytical data package kept on file at the Facility shall be prepared in accordance with EPA-established Level III or IV analytical support protocol. The following shall be provided by the contract analytical laboratories to the Permittees in the analytical laboratory reports submitted to the Permittees either electronically or in hard (paper) copy for each project:

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 (µg/L)); vapor sample results in consistent units (ppm or µg/m3); 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; and
16. Data report formats.

The following data deliverables for organic compounds shall be required from the laboratory:

1. 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;
2. Report of sample collection, extraction, and analysis dates, including sample holding conditions;
3. Tabulated results for samples in units as specified, including data qualification in conformance with EPA protocol, and definition of data descriptor codes;
4. Reconstructed ion chromatograms for gas chromatograph/mass spectrometry (GC/MS) analyses for each sample and standard calibration;
5. Selected ion chromatograms and mass spectra of detected target analytes (GC/MS) for each sample and calibration with associated library/reference spectra;
6. Gas chromatograph/electron capture device (GC/ECD) and/or gas chromatograph/flame ionization detector (GC/FID) chromatograms for each sample and standard calibration;
7. Raw data quantification reports for each sample and calibrations, including areas and retention times for analytes, surrogates, and internal standards;
8. 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];
9. Final extract volumes (and dilutions required), sample size, wet-to-dry weight ratios, and instrument practical detection/quantitation limit for each analyte;
10. Analyte concentrations with reporting units identified, including data qualification in conformance with the CLP Statement of Work (SOW) (include definition of data descriptor codes);
11. Quantification of analytes in all blank analyses, as well as identification of method blank associated with each sample;

12. 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
13. Report of tentatively identified compounds with comparison of mass spectra to library/reference spectra.

The following data deliverables for inorganic compounds shall be required from the laboratory:

1. 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;
2. Report of sample collection, digestion, and analysis dates, with sample holding conditions;
3. Tabulated results for samples in units as specified, including data qualification in conformance with the CLP SOW (including definition of data descriptor codes);
4. Results of all method QA/QC checks, including inductively coupled plasma (ICP) Interference Check Sample and ICP serial dilution results;
5. Tabulation of instrument and method practical detection/quantitation limits;
6. Raw data quantification report for each sample;
7. A calibration data summary reporting calibration range used and a measure of linearity, where appropriate;
8. Final digestate volumes (and dilutions required), sample size, and wet-to-dry weight ratios;
9. Quantification of analytes in all blank analyses, as well as identification of method blank associated with each sample; and
10. 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 Permittees shall present summary tables of these data and Level II QA/QC results to the NMED in the formats described in Permit Section 7.12 (Reporting Requirements). 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 the contract laboratory or Facility for reference. The Permittees shall make the data and all Level III or Level IV QA/QC data available to the NMED upon request.

7.10.3.2 Review of Field and Laboratory QA/QC Data

The Permittees 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, the latest version of SW-846, and industry-accepted QA/QC methods and procedures.

The Permittees shall require the laboratory to notify the Facility project manager of data quality exceptions within one business day of discovery 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 that may affect the ability to meet the objectives of the investigation or compliance activity 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 or by electronic mail. The Permittees shall submit the memorandum to the NMED by electronic mail within three business days of the conclusion of the data quality discussion.

7.10.3.3 Blanks, Field Duplicates, Reporting Limits, and Holding Times

7.10.3.3.i Blanks

The analytical results of field blanks and field equipment 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.

7.10.3.3.ii 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 10 percent of the total number of environmental samples submitted for analysis. RPDs for field duplicates shall be calculated. A precision of no more than 20 percent for duplicates shall be considered acceptable for soil, rock, and sediment sampling conducted at the Facility. The analytical DQO for precision shall be used for water duplicates.

7.10.3.3.iii 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 exceedance and its acceptability for use shall be provided.

7.10.3.3.iv Holding Times

The Permittees 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.

7.10.3.4 Representativeness and Comparability

7.10.3.4.i 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 Permittees 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 Permittees shall note any procedures or variations that may affect the collection or analysis of representative samples and shall qualify the data.

7.10.3.4.ii Comparability

Comparability is a qualitative parameter related to whether similar sample data can be compared. To assure comparability, the Permittees 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.

7.10.3.5 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 Section 7.12 (Reporting Requirements). Data validation procedures for all samples shall include checking the following, when appropriate:

1. Holding times;
2. Detection limits;
3. Field equipment rinsate blanks;
4. Field blanks;
5. Field duplicates;

6. Trip blanks;
7. Reagent blanks;
8. Laboratory duplicates;
9. Laboratory blanks;
10. Laboratory matrix spikes;
11. Laboratory matrix spike duplicates;
12. Laboratory blank spikes;
13. Laboratory blank spike duplicates; and
14. 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.

7.10.4 Site-Specific Human Health Risk Assessment

Should the Permittees be unable to meet the cleanup levels in Permit Section 7.4, they shall conduct a site-specific risk assessment in accordance with current and acceptable EPA, Regional EPA, and NMED guidance and methodology (as updated). If the NMED determines that a human health risk assessment work plan is necessary, the Permittees shall submit to the NMED for its review and approval a work plan that includes, at a minimum, the site-specific exposure assumptions and any additional sampling needed to support the risk assessment. The Permittees shall prepare a Human Health Risk Assessment Report in support of corrective action, and, if necessary, for closure in accordance with Permit Part 5.

7.10.4.1 Human Health Risk Assessment Methods

A risk assessment may be required for human receptors that are potentially exposed to site-related chemicals in environmental media. The risk assessment shall contain a conceptual site model (CSM), which shall aid in understanding and describing each site. The CSM shall address the following components:

1. Identification of suspected sources;
2. Identification of contaminants;
3. Identification of contaminant releases;
4. Identification of transport mechanisms;
5. Identification of affected media;
6. Identification of land use scenarios;
7. Identification of potential receptors under current land use scenario;
8. Identification of potential receptors under future land use scenario; and
9. Identification of potential routes of exposure.

Potential human receptors under current and/or future land use scenarios may include residential, industrial and construction worker. Other special receptors may be required on a site-specific basis.

7.10.4.1.i Exposure Pathways

The identification of exposure pathways shall include a discussion of all potential pathways and justify whether the pathways are complete. Pathways that shall be considered include soil, groundwater, air, surface water, sediment, and biota. An evaluation of the potential for contaminants to migrate from soil to groundwater shall also be provided. The risk assessment shall also address exposure mechanisms for each exposure pathway, including ingestion, inhalation, dermal, and inhalation of volatile organic compounds volatilized from soil and/or groundwater.

7.10.4.1.ii Data Quality Assurance

The risk assessment shall include an evaluation of analytical data and the usability of the data in the assessment. Data validation shall be conducted in accordance with current EPA guidelines. The evaluation of data shall also include a comparison of detection limits with appropriate and current risk-based screening levels, if MDLs are inconsistent and do not achieve the requirements of Permit Section 7.10.3 (Chemical Analyses).

7.10.4.1.iii Constituents of Potential Concern

Appropriate EPA and/or the Department guidance shall be used to identify constituents of potential concern (COPCs). Apart from chemicals attributed to field or laboratory contamination, all analytes detected in sampled media (i.e., soil, air, surface water, groundwater, biota, and/or sediment) shall be retained or eliminated as COPCs using one or more of the following processes:

1. Site attribution analysis;
2. Essential nutrients; and/or
3. Risk-based toxicity screen.

Unless sufficient evidence and exceptional circumstances can be provided by the Permittees, all detected organics not attributable to field or laboratory contamination shall be retained and treated as site-related chemicals.

Inorganics detected in site media shall be compared to an appropriate background data set to determine if concentrations are present at levels significantly above background. The site attribution analysis may consist of a tiered approach as follows:

1. Comparison of maximum site concentrations to a background reference value (e.g., upper tolerance limit, UTL);

2. If the site maximum exceeds the background reference value, and sample size is sufficient, statistically compare the site data set to the background data set using appropriate statistical analyses (e.g., Wilcoxon Rank Sum Test). If the sampling size is not sufficient to perform statistical analysis, a comparison of the maximum site concentration to the maximum background concentrations shall be used;
3. Conduct a graphical analysis of site data and background data (e.g., histograms and/or box and whisker plots);
4. Conduct a geochemical analysis of site data to a background reference chemical; and/or
5. Evaluate essential nutrients and compare to recommended daily allowances and/or upper intake limits.

All inorganics for which the site attribution analyses indicate are present above natural background shall be retained as COPCs for the risk assessments.

7.10.4.1.iv Exposure Point Concentrations

The Permittees shall determine exposure point concentrations (EPCs) that are representative of the concentrations of chemicals in each given medium to which a receptor may be exposed. Current EPA methodology for handling non-detects and replicates in the risk assessment shall be applied. EPA recommends a 95% or greater estimate of the upper confidence limit (UCL ≥ 95%) on the arithmetic mean be used as an EPC for chronic exposures. If conditions are identified where acute exposures must be evaluated, the maximum detected site concentration shall be used as the EPC.

The EPCs shall be determined using statistical analyses that are data distribution and size dependent. EPA and/or the Department accepted guidance and methodologies shall be used, such as the ProUCL software. EPCs shall be calculated for soil, groundwater, surface water, sediment, and biota.

EPA does not recommend estimating intakes for the air inhalation pathway, but rather compares estimated volatile/particulate air concentrations adjusted for exposure frequencies, duration, and time. For inhalation of volatiles/particulates from soil, EPCs shall be determined based upon the current EPA and/or NMED methodology, based upon the volatilization factor or particulate emission factor. Indoor air concentrations shall be determined using EPA and NMED accepted approaches.

7.10.4.1.v Toxicity Assessment

The Permittees shall use the most recently available toxicity factors to calculate carcinogenic and noncarcinogenic risks/hazards based upon the currently acceptable hierarchy of sources for toxicity data.

7.10.4.1.vi Risk Characterization

The Permittees shall quantitatively estimate the potential for carcinogenic (risk) and non-carcinogenic (hazard) effects for all chemicals with toxicity data and provide a discussion of uncertainties associated with the risk assessment. Cumulative effects for risk and hazard for all media and pathways shall be determined.

For those chemicals without toxicity data, appropriate surrogate data may be applied. If surrogate toxicity data are not available, risks/hazards shall be qualitatively addressed in the uncertainties section of the report.

7.10.4.1.vii Uncertainties

The Permittees shall provide an uncertainties section that discusses all assumptions, professional judgments, and data which may result in uncertainties in the final estimates of risk and hazard. The uncertainties shall also discuss whether risks/hazards may have been under or overestimated due to the assumptions made in the assessment.

7.10.5 Site-Specific Ecological Risk Assessment Methods

If the screening level ecological risk assessment indicates unacceptable risk, then the Permittees shall conduct a site-specific ecological risk assessment. If the NMED determines that an ecological risk assessment work plan is necessary, the Permittees shall submit to the NMED for its review and approval a work plan that includes, at a minimum, the site-specific exposure assumptions and any additional sampling needed to support the risk assessment. In addition, the Permittees shall prepare a site-specific Ecological Risk Assessment Report in support of corrective action, and, if necessary, for closure in accordance with Permit Part 5 (Closure Requirements). The assessment shall be conducted using EPA- and/or the NMED-approved guidance and methodologies. The ecological risk assessment shall follow the same methodologies outlined above in the human health risk assessment for determining constituent of potential ecological concern (COPEC) and data quality assurance.

7.10.6 Determination of Background

The Permittees shall determine an appropriate background data set for inorganic constituents at the site in accordance with NMED's Risk Assessment Guidance for Site Investigations and Remediation (SSG, 2017 as it may be updated). The Permittees shall determine whether one or more background data sets are appropriate depending on soil types and geology at the site. Background concentrations for groundwater shall be collected from up-gradient wells. The background data set shall be representative of natural conditions unaffected by site activities and shall be statistically defensible. A sufficient number of background samples shall be collected for use in the risk assessment, including conducting site attribution analyses and comparison of data sets.

The Permittees shall provide summary statistics for background metals concentrations in each medium of concern and include the following information:

1. number of detects;
2. total number of samples;
3. frequency of detection;
4. minimum detected concentration;
5. maximum detected concentration;
6. minimum sample quantitation limit (SQL);
7. maximum SQL;
8. arithmetic mean;
9. median;
10. standard deviation; and
11. coefficient of variation.

The Permittees shall determine the 95% upper tolerance limit (UTL) for each metal using a distribution-based statistical method.

7.10.6.1 Comparing Site Data to Background

The 95% UTL for each metal shall be used as the background reference value for use in screening assessments and determining whether metals are present in the subject media (e.g., soil, groundwater, surface water, sediment) due to site activities. The site maximum detected concentration shall be compared to the 95% UTL for each metal. If the site maximum detected concentration is greater than the background reference value, then additional site attribution analyses shall be conducted.

Site attribution analyses shall be conducted in accordance with Permit Section 7.10.4.1.iii and current EPA- and/or the NMED-accepted guidance. The site attribution analyses shall consist of a statistical comparison of the background data set to the site data set, if sufficient samples are available, using distribution-based tests such as the Wilcoxon Rank Sum Test.
If the results of the site attribution analyses indicate that the metal is present at the site above naturally occurring levels, then the Permittees shall include that metal as a site contaminant.

7.11. MONITORING WELL CONSTRUCTION REQUIREMENTS

7.11.1 Drilling Methods

Groundwater monitoring wells and piezometers must be designed and constructed in a manner which will yield high quality samples and ensure that the well will not serve as a conduit for contaminants to migrate between different stratigraphic units or aquifers. The design and

construction of groundwater monitoring wells shall comply with the guidelines established in various EPA RCRA guidance, including, but not limited to:

1. U.S. EPA, RCRA Groundwater Monitoring: Draft Technical Guidance, EPA/530-R-93-001 (November 1992);
2. U.S. EPA, RCRA Groundwater Monitoring Technical Enforcement Guidance Document, OSWER-9950.1 (September 1986); and
3. 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:

1. Drilling shall be performed in a manner that minimizes impacts to the natural properties of the subsurface materials;
2. Contamination and cross-contamination of groundwater and aquifer materials during drilling shall be avoided;
3. The drilling method shall allow for the collection of representative samples of rock, unconsolidated materials, and soil;
4. The drilling method shall allow the Permittees to determine when the appropriate location for the screened interval(s) has been encountered; and
5. The drilling method shall allow for the proper placement of the filter pack and annular sealants. The borehole diameter shall be at least 4 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 groundwater samples. Drilling fluids (which includes 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.

7.11.1.1 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 site 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 tend 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 wells in unconsolidated sediments and soils.

7.11.1.2 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 ensure that the system is functioning properly. In addition, a cyclone velocity dissipater 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 dissipater 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 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 near 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.

7.11.1.3 Water Rotary and Mud Rotary

The water and mud rotary drilling methods consist of rotary drilling techniques where water or drilling mud is used as the circulating fluid. In both methods, the circulating fluid is pumped down through the drill pipe and is returned up the borehole through the annular space. The circulating fluid stabilizes the borehole, cools the drill bit, and carries the drill cuttings up to the surface. While the water and mud rotary drilling techniques are rapid and effective drilling methods, the recognition of water-bearing zones is hampered by the addition of water into the system. Mud rotary drilling methods are discouraged if the well is to be used for monitoring of water quality.

Mud rotary drilling is like water rotary drilling with the exception that mud additives are added to the water to change the properties (e.g., density, viscosity, yield point, gel strength, fluid-loss-control effectiveness, and lubricity) of the circulating fluid. Drilling muds provide greater borehole stabilization than water alone. There are several types of mud presently available, including bentonite, barium sulfate, organic polymers, cellulose polymers, and polyacrylamides. While drilling muds enhance the stability of the borehole and allow for drilling in formations not appropriate to other methods, they can adversely affect the hydrologic properties and geochemistry of the aquifer. For example, drilling fluid invasion and the buildup of borehole filter cake may reduce the effective porosity of the aquifer near the borehole. In addition, bentonite drilling muds may affect the pH of groundwater and organic polymer drilling muds have been observed to facilitate bacterial growth, which reduces the reliability of sampling results. If polymer emulsions are to be used in the drilling program at the Facility, polymer dispersion agents shall be used at the completion of the drilling program to remove the polymers from the boreholes. For example, if EZ Mud® is used as a drilling additive, a dispersant (e.g., BARAFOS® or five percent sodium hypochlorite) shall be used to disperse and chemically break down the polymer prior to developing and sampling the well. If drilling fluids are used as part of well installation, the Permittees must demonstrate that all data acquired from the well is representative of existing subsurface conditions using methods approved by the Department. The Department may require additional sampling and testing periodically to ensure that the data collected is not affected by residual drilling fluids.

7.11.1.4 Dual-Wall Reverse Circulation

The dual-wall reverse circulation drilling method utilizes a double-wall drill pipe and has the reverse circulation of other conventional rotary drilling methods. The circulating fluid (water or air) is pumped down the borehole between the outer and inner drill pipe, and returns up the inner drill pipe. Cuttings are lifted to the surface through the inner drill pipe. The inner drill pipe rotates the bit, and the outer drill pipe acts as a casing and stabilizes the borehole. Typically, a tri-cone bit is used when drilling through unconsolidated formations and a down-the-hole hammer is used in hard rock.

The dual-wall reverse circulation rotary method is one of the better methods available for obtaining representative and continuous formation samples while drilling. If a roller cone bit is used, the formation that is being drilled is located only a few inches ahead of the double-wall pipe. As a result, the cuttings observed at the surface represent no more than one foot of the formation at any point in time.

When drilling with air, an in-line filter shall be used to remove oil or other impurities from the airstream. However, if a down-the-hole hammer is used, it must be used with caution since it requires oil in the airstream to lubricate the hammer. This could possibly introduce contaminants to the borehole and aquifer.

7.11.1.5 Resonant Sonic

Resonant sonic drilling is a method that uses a sonic drill head to produce high-frequency, high-force vibrations in a steel drill pipe. The vibrations in the pipe create a cutting action at the bit face, which allows a continuous core of the formation to move into a core barrel. The method requires no drilling fluid, drills very fast (up to one ft/sec in certain formations), drills at any angle through all formations (rock, clay, sand, boulders, permafrost, glacial till), and yields virtually no cuttings in the drilling process. While there are numerous advantages to this process, the primary disadvantage is the cost of the method. This drilling method has been proven and used at various facilities.

7.11.1.6 Cryogenic

Cryogenic drilling is a technique that uses standard air rotary drilling methods but employs cold nitrogen gas as the circulating fluid instead of compressed air. The use of nitrogen gas as the circulation fluid freezes the borehole wall while drilling, which stabilizes unconsolidated sediments and prevents potential cross-contamination of different water-bearing zones. In addition, the method produces fewer cuttings than liquid-based drilling methods, requires minimal equipment modifications to existing drill rigs, and does not add contaminants to the borehole during the drilling process due to the benign nature of nitrogen gas. The method is especially applicable for drilling through alternating hard (competent) and soft (unconsolidated) formations.

7.11.2 Well Construction/Completion Methods

7.11.2.1 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 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 only

organic constituents, stainless steel should be used. However, if the monitoring program requires only inorganic constituent analyses, polyvinyl chloride (PVC) materials may be used. PVC (other than rigid PVC as provided below) should not be used for monitoring wells where organic constituents will be analyzed due to its potential for sorption and leaching of contaminants.

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 that will be sampled (e.g., carbon steel pipe used as surface casing).

7.11.2.2 Well Construction Techniques

7.11.2.2.i 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 over-drill 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 over-drilling shallow wells. Deep wells may require deeper over-drilling. The borehole can also be over-drilled to allow for an extra space for a well sump to be installed. If the borehole is over-drilled 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 using 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 ensure 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 placed in the well. 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 plumbed, the filter material shall be placed around the well screen 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).

7.11.2.2.ii 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 ft 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 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.

7.11.2.2.iii 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 tend 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 tends to shift or move when disturbed.

7.11.2.3 Well Screen and Filter Pack Design

Well screens and filter packs shall be designed to accurately sample the aquifer zone that the well is intended to sample, 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. Monitoring well screens 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 Permittees 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 Department.

The filter pack shall be installed in a manner that prevents bridging and particle-size segregation. 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-feet layer of chemically inert fine sand shall be placed over the filter pack to prevent the intrusion of annular sealants into the filter pack.

7.11.2.4 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 anticipated concentration of chemical constituents expected in the groundwater 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 solid (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 by pouring directly down the annulus. If the bentonite materials are poured directly down the annulus a tagging 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 solid (30 percent) bentonite grout, a neat cement grout, a cement/bentonite grout, or other suitable seal material that is approved by the Department. 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 10 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.

7.11.3 Well Development

All 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 near 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 monitoring wells shall not be developed for at least 48 hours after the annular seal and backfill are installed. 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:

1. Pumping and over-pumping;
2. Backwashing;
3. Surging (with a surge block);
4. Bailing;
5. Jetting; and
6. 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, over-pumping, 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 Department prior to introducing air, water, or other fluids into the well for 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, and the Permittees shall use their best efforts to avoid pumping wells dry during development activities. Well or piezometer development must be completed within 30 days of installation.

7.11.4 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 1 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 may 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.

7.11.5 Well Abandonment

All well abandonment must be conducted in accordance with 19.27.4 NMAC. Wells are usually abandoned when they are no longer required in the monitoring network or when they are damaged beyond repair. 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. The well abandonment procedure must also comply with current EPA well abandonment guidance.

For wells with small diameter casing, abandonment shall be accomplished by over drilling the well with a large diameter hollow-stem auger. After the well has been over drilled, 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 ensure 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.

7.11.6 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:

1. Well name/number;
2. Date/time of well construction;
3. Borehole diameter and well casing diameter;
4. Well depth;
5. Casing length;
6. Casing materials;
7. Casing and screen joint type;
8. Screened interval(s);
9. Screen materials;
10. Screen slot size and design;
11. Filter pack material and size;
12. Filter pack volume (calculated and actual);
13. Filter pack placement method;
14. Filter pack interval(s);
15. Annular sealant composition;
16. Annular sealant placement method;
17. Annular sealant volume (calculated and actual);
18. Annular sealant interval(s);
19. Surface sealant composition;
20. Surface seal placement method;
21. Surface sealant volume (calculated and actual);
22. Surface sealant interval;
23. Surface seal and well apron design and construction;
24. Well development procedure and turbidity measurements;
25. Well development purge volume(s) and stabilization parameter measurements;
26. Type and design and construction of protective casing;

27. Well cap and lock;
28. Ground surface elevation;
29. Survey reference point elevation on well casing;
30. Top of monitoring well casing elevation; and
31. Top of protective steel casing elevation; and
32. depth to groundwater and PSH, if applicable.

7.12 REPORTING REQUIREMENTS

7.12.1 General

The purpose of this Permit Section is to provide the reporting requirements and report formats for corrective action activities at all SWMUs, AOCs, and permitted units required under this Permit. This Permit Section 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, periodic monitoring reports, risk assessment reports, and corrective measures evaluations. The Permittees shall generally consider the reports to be the equivalents of RCRA Facility Investigation (RFI) work plans, RFI reports, periodic monitoring reports, risk assessments, and CMS reports, respectively, for the purposes of RCRA compliance. The Permittees shall include detailed, site-specific requirements in all SWMU, AOC, permitted unit and facility-wide investigation work plans, investigation reports, monitoring reports, and corrective measures evaluations. All plans and reports shall be prepared considering with technical and regulatory input from the NMED. All work plans, reports and other documents shall be submitted to the NMED in the form of two paper copies and two copies in electronic or other format acceptable to the NMED. The Permittees shall submit maps and figures in a format specified by the NMED (e.g., GIS data files).

The reporting requirements listed in this attachment do not include all sections that may be necessary to complete each type of report listed and may include sections that are not relevant for a specific site action. The Permittees 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. All reports submitted by the Permittees shall follow the general approach and limitations for data presentation described in this Permit Section (7.12).

7.12.2 Investigation Work Plan

The Permittees shall prepare work plans for site investigations 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 results, 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 described below.

7.12.2.1 Title Page

The title page shall include the type of document; Facility name; Area designation; SWMU or AOC name, site, and any other unit name; and the submittal date. A signature block providing spaces for the names and titles of the responsible representatives shall be provided on the title page in accordance with 40 CFR § 270.11(d)(1).

7.12.2.2 Executive Summary (Abstract)

The executive summary or abstract shall provide a summary of the purpose and scope of the investigation to be conducted at the subject site. The Facility, SWMU or AOC name, permitted unit reference, site name, any other unit name and location shall be included in the executive summary.

7.12.2.3 Table of Contents

The table of contents shall list all text sections, 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.

7.12.2.4 Introduction

The introduction shall include the Facility name, unit location, and unit status (e.g., closed, corrective action). General information on the current site use 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.

7.12.2.5 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 figure, if present or if formerly present as appropriate.

This section shall identify potential receptors, including groundwater, and include a summary of the type and characteristics of all waste and all contaminants managed or released at the site, 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, if conducted, 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.

7.12.2.6 Site Conditions

7.12.2.6.i Surface Conditions

A section on surface conditions shall provide a description of current site topography, features and structures including a description of topographic drainages, man-made drainages, vegetation, erosional features, and basins. It shall also include a detailed description of current site usage and any 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 run-off, or contaminant fate and transport shall be included in this section.

7.12.2.6.ii Subsurface Conditions

A section on subsurface conditions shall provide a description of the site conditions observed during previous subsurface investigations, including relevant soil horizons, stratigraphy, presence of 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 subsection, if no previous investigations have been conducted at the site.

7.12.2.7 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, remediation system pilot tests, and IDW storage and/or disposal and reporting.

7.12.2.8 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 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 tests, and

other proposed investigation and testing methods. This information may also be summarized in table format, if appropriate.

7.12.2.9 Monitoring and Sampling Program

A section on monitoring and sampling shall provide a description of the groundwater, ambient air, subsurface vapor, remediation system, engineering controls, and other monitoring and sampling programs currently being implemented at the site.

7.12.2.10 Schedule

A section shall set forth the anticipated schedule for completion of field investigation, pilot testing, and monitoring and sampling activities. In addition, this section shall set forth a schedule for submittal of reports and data to the NMED including a schedule for submitting all status reports and preliminary data.

7.12.2.11 Tables

The following summary tables may be included in the investigation work plans, if previous investigations have been conducted at the site:

1. Summaries of regulatory criteria, background, and applicable cleanup levels (may be included in the analytical data tables instead of as separate tables);
2. Summaries of historical field survey location data;
3. Summaries of historical field screening and field parameter measurements of soil, rock, sediments, groundwater, surface water, and air quality data;
4. 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;
5. 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;
6. 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;
7. 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;
8. 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; and

9. Summary of historical pilot or other test data, if applicable, including units of measurement and types of instruments used to obtain measurements.

Data presented in the tables shall include information on dates of data collection, analytical methods, detection limits, and significant data quality exceptions. The analytical data tables shall include only detected analytes and data quality exceptions that could potentially mask detections.

7.12.2.12 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. All maps shall contain a date of preparation.

1. A vicinity map showing topography and the general location of the site relative to surrounding features and properties;
2. 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, if appropriate. Additional site plans may be required to present the locations of relevant off-site well locations, structures, and features;
3. Figures showing historical and proposed soil boring or excavation locations and sampling locations;
4. Figures presenting historical soil sample field screening and laboratory analytical data if applicable;
5. Figures presenting the locations of all existing and proposed borings and vapor monitoring well locations;
6. Figures showing all existing and proposed wells and piezometers, presenting historical groundwater elevation data, and indicating groundwater flow directions;
7. Figures presenting historical groundwater 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;
8. Figures presenting historical and proposed surface water sample locations and field measurement data, if applicable;
9. Figures presenting historical surface water laboratory analytical data, if applicable;
10. Figures showing historical and proposed air or vapor sampling locations and presenting historical air quality data, if applicable;
11. Figures presenting historical pilot and other testing locations and data, where applicable, including site plans and graphic data presentation; and

12. Figures presenting geologic cross-sections, based on outcrop and borehole data acquired during previous investigations, if applicable.

7.12.2.13 Appendices

A description of IDW management shall be included as an appendix to the investigation work plan. The results of historical investigations shall be submitted with the investigation work plan as a separate document. Additional appendices may be necessary to present additional data or documentation not listed above.

7.12.3 Investigation Report

The Permittees 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 Permit Section (7.12.3) 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.

7.12.3.1 Title Page

The title page shall include the type of document; Facility name; SWMU or AOC name, site, and any other unit name; and the submittal date. A signature block providing spaces for the names and titles of the responsible representatives shall be provided on the title page in accordance with 40 CFR § 270.11(d)(1).

7.12.3.2 Executive Summary (Abstract)

The executive summary or abstract shall provide a summary of the purpose, scope, and results of the investigation; site names and location. In addition, this section shall include a summary of conclusions included in the report based on the investigation data collected and recommendations for future investigation, monitoring, remedial action or site closure.

7.12.3.3. 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.

7.12.3.4 Introduction

The introduction section shall include the Facility name, area designation, unit location, and unit status (e.g., 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.

7.12.3.5 Background

The background section shall describe relevant background information. This section shall briefly summarize historical site uses by the U.S. Government and any other entity, 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 any 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, as appropriate. In addition, this section shall include a summary of the possible sources of contamination, the history of releases or discharges of contamination, the known extent of contamination, and a general summary of 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.

7.12.3.6 Scope of Activities

A 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 tests, and IDW storage or disposal.

7.12.3.7 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 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. The following sections shall be included.

7.12.3.8 Site Conditions

7.12.3.8.i Surface Conditions

A section on surface conditions shall provide a description of current site topography, features and structures including a description of topographic drainages, man-made drainages, vegetation, erosional features, and basins. It shall also include a detailed description of current site usage and any 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 run-off, or contaminant fate and transport shall be included in this section.

7.12.3.8.ii General Subsurface Conditions

A section on subsurface conditions shall provide a description of the general site conditions observed during the subsurface investigations, including relevant soil horizons, stratigraphy, presence of groundwater, and other relevant information. A site plan showing the locations of all borings and excavations advanced during the investigation and, as applicable, previous investigations shall be included in the Figures section of the work plan. A brief description of the stratigraphic units that were observed during the investigation shall be included in this subsection if no previous investigations have been conducted at the site.

7.12.3.9 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.

7.12.3.10 Exploratory and Monitoring Well Boring Geophysical Logging

A section shall describe the methods, dates of measurement, depth intervals measured, and the results of geophysical logging. The relative merits and limitations of each geophysical logging method employed shall be discussed, along with any field conditions or instrument malfunctions that occurred that may have affected the results of the geophysical logging.

7.12.3.11 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 any 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.

7.12.3.12 Monitoring Well Construction and 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, well construction diagrams shall be included in an appendix or attachment with the associated boring logs for monitoring well borings. The Permittees may submit well abandonment reports as an appendix to the investigation report.

7.12.3.13 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 perched 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.

7.12.3.14 Surface Water Conditions

A section shall describe surface water conditions and include a description of surface water run-off, 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.

7.12.3.15 Surface Air and Subsurface Vapor Conditions

A section shall describe surface air and subsurface vapor 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 and vapor intrusion potential, if appropriate.

7.12.3.16 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.

7.12.3.17 Pilot Testing Results

A section shall discuss the results of any pilot tests. Pilot tests are typically conducted after initial subsurface investigations are completed and the need for additional investigation or remediation has been evaluated. Pilot tests, including aquifer tests and remediation system pilot tests, 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.

7.12.3.18 Regulatory Criteria

A section shall set forth the cleanup standards, risk-based 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 levels or inclusion of applicable cleanup standards or levels in the data tables shall be included as part of the document. The risk assessment, if conducted, shall be presented in a separate document or in an appendix to this report. If cleanup or screening levels calculated in the NMED-approved risk evaluation are employed, the risk evaluation document shall be referenced and shall include pertinent page numbers for referenced information.

7.12.3.19 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.

7.12.3.19.i 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.

7.12.3.19.ii Soil, Rock, and Sediment 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 section.

7.12.3.19.iii Soil, Rock, and Sediment Sampling Analytical Results

A section shall summarize the results of laboratory analysis for soil, rock, and sediment samples. It shall also describe the analytical methods used and provide a comparison of the analytical results to background levels, 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.

7.12.3.19.iv Groundwater Sampling

A section on groundwater sampling shall describe the dates, locations, depths, and methods of sample collection; methods for sample logging; and methods for screening and laboratory sample selection. A map showing all sites and surrounding area well locations shall be included in the Figures Section of the report.

7.12.3.19.v Groundwater General Chemistry

A section on the general groundwater chemistry shall describe the results of measurement of field purging parameters and field analytical measurements. Field parameter measurements and field analytical results also shall be presented in summary tables in the Tables Section of the document. The limitations of field measurement instrumentation and any conditions that may have influenced the results of field screening shall be discussed in this section. As determined by the Permittees and the NMED, relevant water chemistry concentrations shall be presented as data tables or as isoconcentration contours on a map included in the Figures Section of the report.

7.12.3.19.vi Groundwater Chemical Analytical Results

A section shall summarize the results of groundwater chemical analyses. It shall describe the groundwater chemical analytical methods and analytical results. It shall also provide a comparison of the data to cleanup standards or established cleanup levels for the site. The rationale or purpose for altering or modifying the groundwater sampling program outlined in the site investigation work plan shall also be provided in this section. Field conditions shall be described in this section that may have affected the analytical results during sample collection. Tables summarizing the groundwater laboratory, field, and field sample QA/QC chemical analytical data; applicable cleanup levels; and modifications to the groundwater sampling program shall be provided in the Tables Section of the report. Relevant contaminant concentrations shall be presented as individual analyte concentrations, data tables, or as isoconcentration contours on a map included in the Figures Section of the report.

7.12.3.19.vii Surface Water Sampling

A section shall describe the surface water sampling and shall include the dates, times, locations, depths, and methods of sample collection. It shall also describe methods for sample logging,

sample-screening methods, and laboratory sample selection methods. A map showing all surface-water sampling locations shall be included in the Figures Section of the report.

7.12.3.19.viii Surface Water General Chemistry

A section on the surface water general chemistry shall describe the results of measurement of field parameters and field analytical measurements. Field parameter measurements and field analytical results also shall be presented in summary tables in the Tables Section of the document. The limitations of field measurement instrumentation and any conditions that influenced the results of field screening shall be discussed in this Section. Relevant water chemistry concentrations shall be presented as data tables on a map included in the Figures Section of the report.

7.12.3.19.ix Surface Water Chemical Analytical Results

A section shall summarize the results of surface water chemical analyses. It shall describe the analytical methods and analytical results and provide a comparison of the data to the cleanup standards or established background or cleanup levels for the site. The rationale or purpose for altering or modifying the surface-water 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 surface water laboratory, field, and analytical field sample QA/QC analytical data; applicable cleanup levels; and modifications to the surface-water sampling program shall be provided in the Tables Section of the report. Relevant contaminant concentrations shall be presented as individual analyte concentrations or as data tables on a map included in the Figures Section of the report.

7.12.3.19.x Air and Subsurface Vapor Sampling

A section shall describe the air and subsurface vapor sampling. It shall describe the dates, locations, depths or elevations above ground surface, methods of sample collection, methods for sample logging, and methods for laboratory sample selection. A map showing all air sampling locations shall be provided in the Figures Section of the report.

7.12.3.19.xi Air and Subsurface Vapor Field Screening Results

A section shall describe the air and subsurface vapor field screening results. It shall describe the field screening methods used for ambient air and subsurface vapors during the investigation. 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.

7.12.3.19.xii Air and Subsurface Vapor Laboratory Analytical Results

A section shall describe the results of air and subsurface vapor laboratory analysis. It shall describe the air sampling laboratory analytical methods and analytical results and provide a comparison of the data to emissions standards or established cleanup or emissions levels for the site. The rationale or purpose for altering or modifying the air monitoring or 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 field sample QA/QC data; applicable cleanup levels or emissions standards; and modifications to the air sampling program shall be provided in the Tables Section of the report. Relevant contaminant concentrations shall be presented as individual analyte concentrations, data tables, or as isoconcentration contours on a map included in the Figures Section of the report.

7.12.3.20 Conclusions

A section shall provide a 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 or screening levels, and to relevant historical investigation results and analytical data. Potential receptors, including groundwater, shall be identified and discussed. An explanation shall be provided regarding data gaps. A risk assessment may be included as an appendix to the investigation report; however, the risk assessment shall be presented in the Risk Assessment format described in Permit Section 7.12.5. References to the risk assessment shall be presented only in the summary and conclusions sections of the Investigation Report.

7.12.3.21 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. No action recommendations may include the anticipated schedule for submittal of a petition for a permit modification.

7.12.3.22 Tables

A section shall provide the following summary tables as applicable:

1. 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);
2. 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 1 medium;

3. Tables summarizing field screening and field parameter measurements of soil, rock, sediments, groundwater, surface water, and air quality data;
4. A table summarizing soil, rock, and/or sediment laboratory analytical data. It shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data;
5. A table summarizing the groundwater elevations and depths to groundwater. The table shall include the monitoring well depths and the screened intervals in each well;
6. 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;
7. 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;
8. 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;
9. Tables summarizing the pilot test data, if applicable, including units of measurement and types of instruments used to obtain measurements; and
10. A table summarizing any materials test data.

With prior approval from the NMED, the Permittees may combine one or more of the tables. Data presented in the tables shall include the current data, dates of data collection, analytical methods, detection limits, and significant data quality exceptions. The summary analytical data tables shall include only detected analytes and data quality exceptions that could potentially mask detections.

7.12.3.23 Figures

A section shall provide the following figures as applicable:

1. A vicinity map showing topography and the general location of the subject site relative to surrounding features and properties;
2. A site plan that presents any pertinent site features and structures, underground utilities, well locations, and remediation system location(s) 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;
3. Figures showing boring or excavation locations and sampling locations;
4. Figures presenting soil sample field screening and laboratory analytical data;
5. Figures displaying the locations of all newly installed and existing wells and borings;

6. Figures presenting monitoring well and piezometer locations, groundwater elevation data, and groundwater flow directions;
7. Figures presenting groundwater laboratory analytical data, including any past data requested by the Department. The laboratory analytical data corresponding to each sampling location may be presented in table form on the figure or as an isoconcentration map;
8. Figures presenting surface water sample locations and field measurement data including any past data requested by the Department;
9. Figures presenting surface water laboratory analytical data including any past data requested by the Department. The laboratory analytical data corresponding to each sampling location may be presented in table form on the figure;
10. Figures showing air sampling locations and presenting air quality. The field screening or laboratory analytical data corresponding to each sampling location may be presented in table form on the figure or as an isoconcentration map;
11. Figures presenting geologic cross-sections based on outcrop and borehole data; and
12. Figures presenting pilot test locations and data, where applicable, including site plans or graphic data presentation.

All figures shall include an accurate bar scale and a north arrow. All symbols and text in the figures must be legible and an explanation shall be provided on each figure for all abbreviations, symbols, acronyms, and qualifiers. All figures and maps shall have a date.

7.12.3.24 Appendices

Each investigation report shall include the following appendices. Additional appendices may be necessary to present data or documentation not listed below.

7.12.3.24.i Field Methods

An appendix shall provide detailed descriptions of the methods used to acquire field measurements of each medium that was surveyed or tested during the investigation. This appendix shall include 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 tests shall be reported in this appendix, if applicable. Geophysical logging methods shall be discussed in a separate section of this appendix. Investigation derived waste (IDW) storage and disposal methods shall also be discussed in this appendix. Copies of IDW disposal documentation shall be provided in a separate appendix.

7.12.3.24.ii 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.

7.12.3.24.iii Analytical Program

An appendix shall discuss the analytical methods, a summary of data quality objectives, and the data quality review procedures. A summary of data quality exceptions and their effect on the acceptability of the field and laboratory analytical data about the investigation and the site status shall be included in this appendix along with references to the case narratives provided in the laboratory reports.

7.12.3.24.iv Analytical Reports

An appendix shall provide the contract laboratory final analytical data reports generated for the investigation. The reports shall include all chain-of-custody records and Level II QA/QC results provided by the laboratory. The final laboratory reports and data tables shall be provided electronically in a format approved by the NMED. Paper copies (or copies electronically scanned in PDF format) of all chain-of-custody records shall be provided with the reports.

7.12.3.24.v Other Appendices

Other appendices containing additional information shall be included as required by the Department or as otherwise appropriate.

7.12.4 Periodic Monitoring Report

The Permittees shall use the following guidance for preparing periodic monitoring reports under this Permit Part. The reports shall present the reporting of periodic groundwater, surface water, vapor, and remediation system monitoring at the Facility. The following sections provide a general outline for monitoring reports and provide the minimum requirements for reporting for specific Facility sites, areas, and regional monitoring. 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.

7.12.4.1 Title Page

The title page shall include the type of document; Facility name; SWMU or AOC name, site, , and any other unit name; and the submittal date. A signature block providing spaces for the

names and titles of the responsible representatives shall be provided on the title page in accordance with 40 CFR § 270.11(d)(1).

7.12.4.2 Executive Summary (Abstract)

The executive summary or abstract shall provide a summary of the purpose, scope, and results of the monitoring conducted at the subject site during the reporting period. The Facility SWMU, AOC and site name, and/or location, shall be included in the executive summary. In addition, this section shall include a summary of conclusions based on the monitoring data collected.

7.12.4.3 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.

7.12.4.4 Introduction

The introduction section shall include the Facility name, area designation physical area and/or, unit location, and unit status as applicable (e.g. 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.

7.12.4.5 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, remediation system monitoring, if applicable, and purge/decontamination water storage and disposal.

7.12.4.6 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 subject site. A table summarizing the applicable cleanup standards or, alternately, applicable cleanup standards listed in a column in the data tables may be substituted for this section. The appropriate cleanup or screening 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 or screening levels, must either be included as an attachment or referenced. The specific document and page numbers must be included for all referenced materials.

7.12.4.7 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 flow, field air and water quality measurements, contaminant surveys, 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 vapor-monitoring parameters, groundwater elevations, depths to groundwater measurements, and other field measurements can be substituted for this section. The tables shall include all information required in Permit Section 7.12.4.11.

7.12.4.8 Analytical Data Results

A section shall discuss the results of the chemical analyses. It shall provide the dates of sampling, the analytical methods, and the analytical results. It shall also provide a comparison of the data to previous results and to background levels, cleanup standards, or established cleanup levels for the site. The rationale or purpose for altering or modifying the monitoring and 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 can be substituted for this section. The tables shall include all information required in Permit Section 7.12.4.11.

7.12.4.9 Remediation System Monitoring

A section shall discuss the 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 Section 7.12.4.11.

7.12.4.10 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 laboratory 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. The rationale or purpose for altering or modifying the monitoring and sampling program shall be provided in this section. Recommendations and explanations regarding future monitoring, remedial actions, or site closure, if applicable, shall also be included in this section.

7.12.4.11 Tables

A section shall provide the following summary tables for the media sampled:

1. 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);
2. A table summarizing groundwater elevations and depths to groundwater data. The table shall include the monitoring well depths, the screened intervals in each well, and the dates and times of measurements;
3. A table summarizing field measurements of surface water quality data;
4. A table summarizing field measurements of vapor monitoring data (must include historical vapor monitoring data as described above);
5. A table summarizing field measurements of groundwater quality data (must include historical water quality data as described above);
6. A table summarizing vapor sample analytical data (must include historical vapor sample analytical data as described above);
7. A table summarizing surface water analytical data (must include historical surface water analytical data as described above);
8. A table summarizing groundwater analytical data (must include historical groundwater analytical data as described above); and
9. A table summarizing remediation system monitoring data, if applicable (must include historical remediation system monitoring data as described above).

With prior approval from the NMED, the Permittees 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.

7.12.4.12 Figures

The section shall include the following figures:

1. A vicinity map showing topography and the general location of the subject site relative to surrounding features or properties;
2. A site plan that presents pertinent site features and structures, well and piezometer 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;
3. Figures presenting the locations of piezometer, monitoring and other well locations, groundwater elevation data, and groundwater flow directions;

4. Figures presenting groundwater analytical data for the current monitoring event. The analytical data corresponding to each sampling location may be presented as individual concentrations or in table form on the figure or as an isoconcentration map;
5. Figures presenting surface water sampling locations and analytical data for the current monitoring period if applicable;
6. Figures presenting vapor sampling locations and analytical data for the current monitoring event if applicable. The analytical data corresponding to each sampling location may be presented as individual concentrations or in table form on the figure or as an isoconcentration map; and
7. Figures presenting geologic cross-sections based on outcrop and borehole data, if applicable.

All figures shall include an accurate bar scale and a north arrow. All symbols and text in the figures must be legible and an explanation shall be provided on each figure for all abbreviations, symbols, acronyms, and qualifiers. All figures shall have a date.

7.12.4.13 Appendices

Each monitoring report shall include the following appendices. Additional appendices may be necessary to present data or documentation not listed below.

7.12.4.13.i Field Methods

An appendix shall include the methods used to acquire field measurements of groundwater elevations, vapor and water quality data, and vapor, surface water and groundwater samples. It shall include the methods and types of instruments used to measure depths to water, air or headspace parameters, flow measurements, 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 appendix, 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, if applicable.

7.12.4.13.ii 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 about the monitoring event and the site status shall be included in this appendix along with references to case narratives provided in the laboratory reports.

7.12.4.13.iii Analytical Reports

An appendix shall provide the analytical reports and shall include the contract laboratory final chemical analytical data reports generated during this reporting period. The reports must include

all chain-of-custody records and Level II QA/QC results provided by the laboratory. The laboratory final reports and data tables shall be provided electronically in a format approved by the NMED. Paper copies (or electronically scanned in PDF format) of all chain-of-custody records shall be provided with the reports.

7.12.5 Risk Assessment Report

The Permittees shall prepare risk assessment reports for sites requiring corrective action at the Facility using the format listed below. This Permit Section (7.12.5) provides a general outline for risk assessments and lists 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. The general risk assessment outline, applicable to both human health and ecological risk assessments, is provided below.

7.12.5.1 Title Page

The title page shall include the type of document; Facility name; SWMU or AOC name, site, and any other unit name; and the submittal date. A signature block providing spaces for the names and titles of the responsible representatives shall be provided on the title page in accordance with 40 CFR § 270.11(d)(1).

7.12.5.2 Executive Summary (Abstract)

The executive summary or abstract section shall provide a 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, SWMU, AOC, and site names; location; and Area designation shall be included in the executive summary.

7.12.5.3 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.

7.12.5.4 Introduction

The introduction section shall include the Facility name, area designation, unit location, and unit status (e.g., closed, corrective action). General information on the current site usage and status shall be included in this section.

7.12.5.5 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.

7.12.5.6 Site Description

A section shall describe current site topography, features and structures including topographic drainages, man-made drainages, erosional features, current site uses, and other data relevant to assessing risk at the site. Depth to groundwater and direction of groundwater flow shall be included in this section. The presence and location of surface water bodies such as any springs or wetlands shall be noted in this section. Photographs of the site may be incorporated into this section. Ecological features of the site shall 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.

7.12.5.7 Sampling Results

A section shall discuss the results of the sampling at the site. It shall include a description of the history of releases of contaminants, the known and possible sources of contamination, and the vertical and lateral extent of contamination present in each medium. This section shall include summaries of sampling results of all investigations including site plans (included in the Figures Section of the report) 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 shall include for each constituent: the maximum value detected, the detection limit, and for constituents following normal or log-normal distributions with sample sizes greater than eight, the upper confidence level (UCL) of the mean calculated at a 95% confidence level. Background values used for comparison to inorganic constituents at the site shall be presented here. 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 (e.g. Facility-wide, UCL, upper tolerance level (UTL)). This section shall also include a discussion of how "non-detect" sample results were handled in the averaging of data.

7.12.5.8 Conceptual Site 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 the current and reasonably foreseeable future land use and residential land use for all risk assessments. 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 Permittees in the Site Description Section (see Permit Section 7.12.5.6).

7.12.5.9 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. The Department's SSLs for residential and industrial soil shall be used to screen soil for human health using EPA's Risk Assessment Guidance for Superfund (RAGS), Volume I, Part A, 1989 as updated. For those contaminants not appearing on the Department's SSL table, the EPA Region 6 soil screening value adjusted to meet the Department's risk goal of 10-5 for total risk for carcinogens shall be used to screen the site for human health risks. Screening for ecological risk shall be conducted using U.S. EPA's ECO-SSLs, or derive a screening level using the methodology in the NMED's Risk Assessment Guidance for Site Investigation and Remediation (2017, as updated). If no valid toxicological studies exist for a particular receptor or contaminant, the contaminant/receptor combination shall be addressed using qualitative methods. If a NMED-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 Maximum Contaminant Levels (MCLs), shall also be included in this section.

7.12.5.10 Risk Assessment Results

A section shall present all risk values, hazard quotients (HQ), and HIs for human health based on current and reasonably foreseeable future land use. Where the current or reasonably foreseeable future land use is not residential, risk values, HQs, and HIs for a residential land use scenario shall also be calculated and reported. The residential scenario shall be used for comparison purposes only, unless the land use becomes residential. This section shall also present the HQ and HI for each contaminant for each ecological receptor.

7.12.5.10.i Uncertainty analysis

A section shall include discussion of qualitative, semi-quantitative, and quantitative uncertainty in the risk assessment and estimate the potential impact of the various uncertainties.

7.12.5.11 Conclusions and Recommendations

A section shall include the 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 Permittees believe are relevant to the analysis of the site.

7.12.5.12 Tables

A section shall provide the following summary tables, as appropriate:

1. 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, UCL, UTL, or maximum);
2. A table summarizing sampling data shall include, for each constituent detected above background, the maximum value detected, the detection limit, and for constituents following normal or log-normal distributions with sample sizes greater than eight, the UCL of the mean calculated at a 95% confidence level;
3. A table of all screening values used and the sources of those values;
4. A table presenting all risk values, HQs, and HIs under current and reasonably foreseeable future land use for human health;
5. If residential use is not a current or reasonably foreseeable future land use, a table presenting all risk values, HQs, and HIs under a residential land use scenario for human health shall be included for comparison purposes;
6. A table presenting the HQ and HI for each contaminant for each ecological receptor; and
7. A table presenting values for exposure parameters and the source of the values.

With prior approval from the NMED, the Permittees may combine one or more of the tables. Data presented in the summary tables shall include information on detection limits and significant data quality exceptions. The analytical data tables shall include only detected analytes and data quality exceptions that could potentially mask detections.

7.12.5.13 Figures

A section shall present the following figures for each site, as appropriate:

1. A vicinity map showing topography and the general location of the subject site relative to surrounding features or properties;
2. For human health risk assessments, a site plan that presents pertinent site features and structures, underground utilities, well locations, and remediation system location(s) 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;

3. 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
4. Conceptual site model diagrams for both human health and ecological risk assessments.

With prior approval from the NMED, the Permittees may combine one or more of the figures. All figures shall include an accurate bar scale and a north arrow. All symbols and text in the figures must be legible and an explanation shall be provided on each figure for all abbreviations, symbols, acronyms, and qualifiers.

7.12.5.14 Appendices

Each risk assessment report shall include appendices containing supporting data. Appendices may include the results of statistical analyses of data sets and comparisons of data, full sets of results of all sampling investigations at the site, or other data as appropriate.

7.12.6 Corrective Measures Evaluation Report

The Permittees shall prepare corrective measures evaluations for sites requiring corrective measures using the format listed below. This Permit Section (7.12.6) provides a general outline for corrective measures evaluations and lists 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 and discussions of prior interim activities 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.

7.12.6.1 Title Page

The title page shall include the type of document; Facility name, SWMU or AOC name, site, and any other unit name; and the submittal date. A signature block providing spaces for the names and titles of the responsible Facility representatives shall be provided on the title page in accordance with 40 CFR § 270.11(d)(1).

7.12.6.2 Executive Summary (Abstract)

This executive summary or abstract shall provide a summary of the purpose and scope of the corrective measures evaluation to be conducted at the subject site. The executive summary or abstract shall also briefly summarize the conclusions of the evaluation. The SWMU, AOC, and site names, and location shall be included in the executive summary.

7.12.6.3 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.

7.12.6.4 Introduction

The Introduction Section shall include the Facility name, site location, and site status (e.g. 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.

7.12.6.5 Background

The Background Section shall describe the 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 any subsurface features such as pipelines, underground tanks, utility lines, and other subsurface structures shall be included in this Section and labeled on the site plan, as appropriate.

This Section shall include contaminant and waste characteristics, a 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.

7.12.6.6 Site Conditions

7.12.6.6.i 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 affect the subject site regarding sediment transport, surface water run-off 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.

7.12.6.6.ii. 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 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. A brief description of the stratigraphic units anticipated to be present beneath the site may be included in this section if stratigraphic information is not available from previous investigations conducted at the site.

7.12.6.7 Potential Receptors

7.12.6.7.i Sources

A section shall provide a list of all sources of contamination at the subject 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.

7.12.6.7.ii 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 relevant 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.

7.12.6.7.iii 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 features such as pathways that could divert or accelerate the transport of contamination to human receptors, ecological receptors, and groundwater.

7.12.6.8 Regulatory Criteria

A section shall set forth the applicable cleanup standards, risk-based 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 sites or units. A table summarizing the applicable cleanup standards or levels or alternately, listing of applicable cleanup standards or levels in the summary data tables, may be substituted for this section. The risk assessment shall be presented in a separate document. If cleanup or screening

levels calculated in a risk evaluation are employed, the risk evaluation document shall be referenced including pertinent page numbers for referenced information.

7.12.6.9 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 on-site remediation alternatives, complete removal, and any combination of alternatives that would potentially achieve cleanup goals.

7.12.6.10 Evaluation of Corrective Measures Options

A section shall provide an evaluation of the corrective measures options identified in Permit Section 7.12.6.9. 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 the document. The general basis for evaluation of corrective measures options is defined below.

7.12.6.10.i Applicability

Applicability addresses the overall suitability for the corrective action option for containment or remediation of the contaminants in the subject medium for protection of human health and the environment.

7.12.6.10.ii Technical Practicability

Technical practicability 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.

7.12.6.10.iii 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.

7.12.6.10.iv 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.

7.12.6.10.v 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.

7.12.6.10.vi Cost

This 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.

7.12.6.11 Selection of Preferred Corrective Measure

The Permittees shall propose the preferred corrective measure(s) 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 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 Section 7.12.6.10 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.

7.12.6.12 Design Criteria to Meet Cleanup Objectives

The Permittees 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 subject area. The preliminary design shall include a discussion of the

design life of the alternative and provide engineering calculations for proposed remediation systems.

7.12.6.13 Schedule

A section shall set forth a proposed schedule for completion of remedy-related activities such as bench tests, pilot tests, 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 Department, including a schedule for submitting all status reports and preliminary data.

7.12.6.14 Tables

A section shall present the following summary tables, as appropriate:

1. A table summarizing regulatory criteria, background, and/or the applicable cleanup standards;
2. A table summarizing historical field survey location data;
3. Tables summarizing historical field screening and field parameter measurements of soil, rock, sediments, groundwater, surface water, and air quality data;
4. 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;
5. A table summarizing historical groundwater elevation and depth to groundwater data. The table shall include the monitoring well depths and the screened intervals in each well;
6. Tables summarizing historical 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;
7. Tables summarizing historical surface water laboratory analytical data if applicable. The analytical data tables shall include the analytical methods, detection limits, and significant data quality exceptions that would influence interpretation of the data;
8. 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;
9. Tables summarizing historical pilot or other test data, if applicable, including units of measurement and types of instruments used to obtain measurements;
10. A table summarizing the corrective measures alternatives and evaluation criteria; and
11. A table presenting the schedule for installation, construction, implementation and reporting of selected corrective measures.

With prior approval of the NMED, the Permittees may combine one or more of the tables. Data presented in the summary tables shall include information on dates of sample collection, analytical methods, detection limits, and significant data quality exceptions. The analytical data tables shall include only detected analytes and data quality exceptions that could potentially mask detections.

7.12.6.15 Figures

A section shall present the following figures for each site, as appropriate:

1. A vicinity map showing topography and the general location of the subject site relative to surrounding features or properties;
2. 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;
3. Figures showing historical soil boring or excavation locations and sampling locations.
4. Figures presenting historical soil sample field screening and laboratory analytical data, if appropriate;
5. Figures showing all existing wells including vapor monitoring wells and piezometers. The figures shall present historical groundwater elevation data and indicate groundwater flow directions;
6. 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 iso-concentration map;
7. 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;
8. 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 iso-concentration map;
9. Figures presenting historical pilot or other test locations and data, where applicable, including site plans or graphic data presentation;
10. Figures presenting geologic cross-sections based on outcrop and borehole data, if applicable;
11. Figures presenting the locations of existing and proposed remediation systems;
12. Figures presenting existing remedial system design and construction details; and

13. Figures presenting preliminary design and construction details for preferred corrective measures.

All figures must include an accurate bar scale and a north arrow. All symbols and text in the figures must be legible and an explanation shall be provided on each figure for all abbreviations, symbols, acronyms, and qualifiers. All figures shall have a date.

7.12.6.16 Appendices

Each corrective measures evaluation shall include, as appropriate, as an appendix, 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.