

TABLE OF CONTENTS

Section I General Permit Conditions

A.	General.....	I-1
B.	Basis of Permit.....	I-1
C.	Incorporation by Reference.....	I-1
D.	Definitions.....	I-1
E.	Effect of Permit.....	I-4
F.	Permit Actions.....	I-5
G.	Severability.....	I-6
H.	Duties and Requirements.....	I-7
I.	Signatory Requirements.....	I-13
J.	Reports, Notifications and Submissions to DEQ.....	I-13
K.	Confidential Information.....	I-13
L.	Documents to be Maintained at the Facility.....	I-14

Section II General Facility Conditions

A.	Design and Operation of Facility.....	II-1
B.	Required Notices.....	II-1
C.	General Waste Analysis.....	II-1
D.	Security.....	II-2
E.	General Inspection Requirements.....	II-2
F.	Personnel Training.....	II-2
G.	Special Provisions for Ignitable, Reactive, or Incompatible Waste.....	II-2
H.	Preparedness and Prevention.....	II-2
I.	Contingency Plan.....	II-3
J.	Manifest System.....	II-4
K.	General Closure Requirements.....	II-4
L.	General Post-Closure Requirements.....	II-5
M.	Cost Estimate for Facility Closure and Post-Closure.....	II-6
N.	Financial Assurance for Facility Closure and Post-Closure.....	II-7
O.	Liability Requirements.....	II-7
P.	Incapacity of Owners or Operators, Guarantors or Financial Institutions.....	II-7
Q.	DEQ Oversight Authority.....	II-7

Section III Special Conditions Pursuant to the 1984 Hazardous and Solid Waste Amendments (HSWA)

A.	Preamble and General Comments to HSWA Conditions, Including Solid Waste Management Units and Their Status.....	III-1
B.	Required Ongoing and New RFI Activities.....	III-5
C.	Required Ongoing and New Corrective Measures Implementation.....	III-6
D.	Standard Conditions.....	III-8
E.	Specific Condition – Closure.....	III-13
F.	Specific Condition – Information Repository.....	III-13
G.	Specific Condition – Investigation of Area(s) of Concern.....	III-14
H.	Corrective Action.....	III-14
I.	Reporting Requirements.....	III-19
J.	Notification Requirements for and Assessment of Newly-Identified SWMUs and Potential AOCs.....	III-20
K.	Notification Requirements for Newly-Discovered Releases at SWMU(s) and AOC(s).....	III-21
L.	Interim Measures.....	III-21
M.	RCRA Facility Investigation Workplan.....	III-22
N.	RFI Implementation.....	III-24
O.	RFI Final Report and Summary.....	III-24

TABLE OF CONTENTS

P.	Determination of No Further Action.....	III-25
Q.	Corrective Measures Study (CMS) Plan.....	III-25
R.	CMS Implementation.....	III-26
S.	CMS Final Report and Summary.....	III-27
T.	Corrective Measure (Remedy) Selection and Implementation.....	III-28
U.	RFI Scope of Work.....	III-28
V.	Corrective Measures Study Scope of Work.....	III-43
Section III	RFI/CMS Submission Summary.....	III-55
Table 1		

Section IV Container Storage

A.	Section Highlights.....	IV-1
B.	Permitted and Prohibited Waste Identification.....	IV-2
C.	Condition of Containers.....	IV-4
D.	Compatibility of Waste with Containers.....	IV-4
E.	Management of Containers.....	IV-4
F.	Containment Systems.....	IV-4
G.	Inspection Schedules and Procedures.....	IV-5
H.	Recordkeeping.....	IV-5
I.	Closure.....	IV-5
J.	Special Container Provisions for Ignitable or Reactive Waste.....	IV-5
K.	Special Container Provisions for Incompatible Waste.....	IV-5
L.	Required Aisle Space.....	IV-6
M.	Air Emission Requirements for Containers.....	IV-6

Section V Land Treatment Operations

A.	Section Highlights.....	V-1
B.	Permitted and Prohibited Waste Identification.....	V-1
C.	Treatment Program.....	V-1
D.	Design, Construction and Operating Requirements.....	V-2
E.	Release Detection Monitoring.....	V-2
F.	Inspection Schedules and Procedures.....	V-4
G.	Recordkeeping and Reporting.....	V-4
H.	Closure and Post-Closure Care.....	V-4
I.	Special Requirements for Food-Chain Crop Protection.....	V-5
J.	Special Land Treatment Provisions for Ignitable or Reactive Wastes.....	V-5
K.	Special Land Treatment Provisions for Incompatible Wastes.....	V-5
L.	Special Requirements for Hazardous Wastes F020, F021, F022, F023, F026 and F027.....	V-5

Section VI Land Treatment Demonstration

A.	Section Highlights.....	VI-1
B.	Permitted and Prohibited Waste Identification.....	VI-1
C.	Duration of Demonstrations.....	VI-1
D.	Land Treatment Demonstration Requirements.....	VI-1
E.	Recordkeeping and Reporting.....	VI-1

Section VII Groundwater Monitoring and Corrective Action

A.	Section Highlights.....	VII-1
B.	Facility Groundwater Monitoring Programs.....	VII-1
C.	General Requirements.....	VII-4

TABLE OF CONTENTS

Section VIII Reserved

Section IX Closure

A.	Section Highlights.....	IX-1
B.	Unit Identification.....	IX-1
C.	Closure Procedures.....	IX-2
D.	Inspections.....	IX-3
E.	Notices and Certification.....	IX-3
F.	Financial Assurance.....	IX-4
G.	Closure Permit Modifications.....	IX-4

Section X Post-Closure Care

A.	Section Highlights.....	X-1
B.	Unit Identification.....	X-1
C.	Post-Closure Procedures and Use of Property.....	X-1
D.	Inspections.....	X-2
E.	Notices and Certification.....	X-2
F.	Financial Assurance.....	X-2
G.	Post-Closure Permit Modifications.....	X-2

Section XI Corrective Action Management Unit

A.	Background.....	XI-1
B.	Permitted and Prohibited Waste Management.....	XI-1
C.	Corrective Action Requirements.....	XI-1
D.	Monitoring of Operations.....	XI-1
E.	Closure and Long-Term Maintenance.....	XI-2
F.	Financial Assurance.....	XI-2

LIST OF ATTACHMENTS

Attachment 1.....	Waste Analysis Plan
Attachment 2.....	Facility Security and Inspection Plan and Inspection Schedule
Attachment 3.....	Training Requirements
Attachment 4.....	Preparedness and Prevention
Attachment 5.....	Contingency Plan
Attachment 6.....	Closure and Post-Closure Plans
Attachment 7.....	Financial Assurance
Attachment 8.....	Legal Description, Maps and Plates
Attachment 9.....	Manifesting, Recordkeeping and Reporting
Attachment 10.....	Procedures, Structures, Equipment for Prevention of Hazards
Attachment 11.....	Container Storage Areas
Attachment 12.....	Land Treatment Unit
Attachment 13.....	Groundwater Protection
Attachment 14.....	Sampling and Analysis Plan

TABLE OF CONTENTS

Attachment 15.....	Part A Permit Application
Attachment 16.....	CAMU Closure Document
Attachment 17.....	Solid Waste Management Units (SWMUs)
Attachment 18.....	CAMU Characterization Document

SECTION I – GENERAL PERMIT CONDITIONS

I.A. GENERAL

The Permittee shall operate the facility in compliance with the provisions of the Oklahoma Hazardous Waste Management Act (OHWMA), 27A O.S. § 2-7-101 *et seq.*; the rules promulgated thereunder at Oklahoma Administrative Code (OAC) 252:205 and 252:652; the Federal Hazardous Waste Management Regulations in 40 Code of Federal Regulations, (40 CFR) Parts 260-279; the Resource Conservation and Recovery Act (RCRA); the Hazardous and Solid Waste Amendments of 1984 (HSWA); and the approved permit application as further modified through permit conditions set herein.

I.B. BASIS OF PERMIT

This permit is granted based on the information submitted and the design criteria presented in the application. Any inaccuracies found in this information could provide cause for the termination or modification of this permit, and for enforcement action. The Permittee is to inform the Land Protection Division (LPD) of the Oklahoma Department of Environmental Quality (DEQ) of any deviation from or changes in the design or operation of the facility which could affect the Permittee's ability to comply with the applicable regulations or permit conditions.

The term of this permit is ten years (40 CFR 270.50). However, this permit shall be reviewed by DEQ five years after the date of permit issuance and shall be modified as necessary (40 CFR 270.41 and OHWMA § 2-7-127(B)). Except as provided in condition I.F.3 (40 CFR 270.51) the term of this permit shall not be extended by modification beyond the expiration date appearing on the face of this permit (40 CFR 270.50(b)).

I.C. INCORPORATION BY REFERENCE

All the referenced CFR Parts 124, 146, 260 through 270, 273 and 279 as specified in the permit are, unless otherwise stated, incorporated in their entirety by OAC 252:205-3-1 through OAC 252:205-3-6.

I.D. DEFINITIONS

For purposes of this permit, terms used herein shall have the same meaning as those in 40 CFR Parts 124, 146, 260, through 270, 273 and 279; and OAC 252:205-1-2 through OAC 252:205-3-6; unless this permit specifically provides otherwise. Where terms are not defined in the Oklahoma Administrative Code or the permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

"Action Levels" means health and environmental-based levels of constituent concentrations determined by DEQ to be indicators for protection of human health and the environment. The

calculation of action levels is specified in the EPA RFI Guidance Document (EPA 530/SW-89-031, May 1989).

"Area of Concern" (AOC) means any discernable unit or area which, in the opinion of DEQ, may have received solid or hazardous waste or waste containing hazardous constituents at any time. DEQ may require investigation of the unit as if it were a SWMU. If shown to be a SWMU by the investigation, the AOC must be reported by the Permittee as a newly-identified SWMU. If the AOC is shown not to be a SWMU by the investigation, DEQ may determine that no further action is necessary and notify the Permittee in writing.

"CAMU" means the Corrective Action Management Unit originally authorized by Permit 3536013, effective Nov. 4, 1988, as modified by the CAMU Designation Document last updated March 2003, and as authorized and described in Sections III and XI of this Permit, which was used only for managing remediation wastes for implementing corrective action or cleanup at the facility.

"Cleanup" means remedial activities at the facility that are not specifically required by the corrective action provisions of Section III of this Permit, but which generate waste or media that may be managed in the CAMU. Cleanup does not include the management of hazardous as-generated process wastes.

"CMS" means Corrective Measures Study.

"DEQ" means the Oklahoma Department of Environmental Quality.

"Director" means the Executive Director of the Oklahoma Department of Environmental Quality, or his/her proper designee or authorized representative.

"Division Director" means the Director of the Land Protection Division of the Oklahoma Department of Environmental Quality, or his/her proper designee or authorized representative.

"EPA" means the United States Environmental Protection Agency.

"Facility" means:

(1) All contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste.

(2) For the purpose of implementing corrective action under 264.101, all contiguous property under the control of the owner or operator seeking a permit under Subtitle C of RCRA. This definition also applies to facilities implementing corrective action under RCRA Section 3008(h). A legal description of the facility and deed restrictions are included in Attachment 8, .

(3) Notwithstanding paragraph (2) of this definition, a remediation waste management site is not a facility that is subject to 40 CFR 264.101, but is subject to corrective action requirements if the site is located within such a facility.

"HSWA" means the 1984 Hazardous and Solid Waste Amendments to RCRA.

"Hazardous constituent" means any constituent identified in Appendix VIII of 40 CFR Part 261, or any constituent identified in Appendix IX of 40 CFR Part 264.

"Hazardous waste" means a solid waste that meets the definition of hazardous waste specified by DEQ in the Oklahoma Hazardous Waste Management Act and at OAC § 252:205-3-2 incorporating the EPA definition found at 40 CFR Part 261.

"Land disposal" means placement in or on the land, except in a corrective action management unit or staging pile, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault, or bunker intended for disposal purposes.

"Land Protection Division" means the Land Protection of the Oklahoma Department of Environmental Quality.

"OHWMA" means Oklahoma Hazardous Waste Management Act, 27A O.S. § 2-7-101 *et seq.*, as amended.

"Permit" means this Permit, all Permit Attachments, and all provisions and documents that are incorporated herein.

"Permit Application" means the original application and related plans and specifications dated September 2014, submitted to DEQ by the Permittee and amended by applicant through February 16, 2017, and all subsequent submittals approved by DEQ for this Permit.

"Permittee" means Phillips 66, Ponca City Refinery, Ponca City, OK 74602, EPA ID #OKD007233836.

"RCRA" means the Resource Conservation and Recovery Act of 1980 as amended by HSWA in 1984. [42 U.S.C. §§ 6901 *et seq.*]

"RFA" means RCRA Facility Assessment.

"RFI" means RCRA Facility Investigation.

"Regional Administrator" means the Regional Administrator of EPA Region VI, or his/her designee or authorized representative.

"Release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes or hazardous constituents into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous constituents). RCRA Section 3004(u) corrective action authority does not routinely reevaluate permitted releases.

"Remediation Waste" means all solid and hazardous wastes, and all media (including groundwater, surface water, soils, and sediments) and debris that contain listed hazardous waste or that themselves exhibit a hazardous characteristic and are managed for implementing cleanup.

"Solid Waste Management" means the systematic administration of activities which provide for the collection, source separation, storage, transportation, transfer, processing, treatment, and disposal of solid waste.

"Solid Waste Management Unit" (SWMU) means any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released. The definition includes regulated units (i.e., landfills, surface impoundments, waste piles and land treatment units) but does not include passive leakage or one-time spills from production areas and units in which wastes have not been managed (e.g., product storage areas).

If, subsequent to the issuance of this permit, regulations are promulgated which redefine any of the above terms, DEQ may, at its discretion, apply the new definition to this permit by modifying the permit in accordance with 40 CFR Section 270.41.

I.E . EFFECT OF PERMIT

The Permittee is allowed to treat and store hazardous and non-hazardous waste in accordance with the conditions of this permit. Any treatment and/or storage of hazardous waste not authorized in this permit are prohibited, unless exempted from permit requirements or approved by the DEQ under a separate Administrative Order.

Compliance with a RCRA permit during its term constitutes compliance, for purposes of enforcement, with Subtitle C of RCRA except for those requirements not included in the permit which:

- (1) Become effective by statute;
- (2) Are promulgated under part 268 of Chapter 40, Code of Federal Regulations restricting the placement of hazardous wastes in or on the land;
- (3) Are promulgated under part 264 of this chapter regarding leak detection systems for new and replacement surface impoundment, waste pile, and landfill units, and lateral

expansions of surface impoundment, waste pile, and landfill units. The leak detection system requirements include double liners, CQA programs, monitoring, action leakage rates, and response action plans, and will be implemented through the procedures of §270.42 Class 1 permit modifications; or

(4) Are promulgated under subparts AA, BB, or CC of part 264 limiting air emissions.

The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege. The issuance of a permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

Compliance with the terms of this permit does not constitute a defense to orders issued or actions brought under the OHWMA to address an imminent and substantial endangerment, Sections 3008(a), 3008(h), 3013, or 7003 of RCRA; Sections 104, 106(a) or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA), or any other law providing for protection of public health or the environment from an imminent and substantial endangerment. [40 CFR 270.4, 270.30(d), and OAC 252:205]

I.F . PERMIT ACTIONS

1. Permit Modification, Revocation and Reissuance, and Termination

This permit may be modified, revoked and reissued, or terminated for cause, as specified in 40 CFR 270.30(f), 270.41, 270.42, and 270.43. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any Permit Condition. [40 CFR 270.4(a), 270.30(f)]

2. Permit Renewal

This permit may be renewed as specified in 40 CFR 270.30(b), OAC 252:205 and Permit Condition I.H.2. Review of any application for a permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations. [40 CFR 270.30(b), HSWA Sec. 212, OHWMA Sec. 2-7-127(B), and OAC 252:205]

3. Permit Review

This Permit may be reviewed by DEQ five (5) years after the date of permit issuance and may be modified as necessary, as provided in 40 CFR 270.41. As noted in Permit Section I(F), the term of this Permit shall not be extended by modification beyond the expiration date appearing on the face of this permit [(40 CFR 270.50(d)].

4. Permit Expiration

Pursuant to 40 CFR 270.50 and OAC 252:205-3-2(j), this permit shall be effective for a fixed term not to exceed ten (10) years. This permit and all conditions herein will remain in effect beyond the permit's expiration date, if the Permittee has submitted a timely, complete application (see 40 CFR 270.10, 270.13 through 270.29) and, through no fault of the Permittee, DEQ has not issued a new permit, as set forth in 40 CFR 270.51. Permits continued under this section remain fully effective and enforceable.

5. Permit Enforcement

When the Permittee is not in compliance with the conditions of the Continued Permit, DEQ may do any or all of the following:

- a. Pursuant to 27A O.S. § 2-7-126, §2-7-127, §2-7-129, §2-7-130, §2-7-131 and/or §2-7-134, issue an order with penalties; require corrective action; temporarily suspend the Continued Permit; revoke the Continued Permit and/or cause proceedings to be instituted in the district court for civil or criminal penalties, and;
- b. Issue a final denial of the new permit. If the permit is denied, the owner or operator shall cease the activities authorized by the Continued Permit or be subject to enforcement action for operating without a permit; or
- c. Take other actions authorized by 27A O.S. 2-1-101 *et seq.*, OAC 252:205-1-1 *et seq.* or other applicable laws or regulations.

6. Transfer of Permits

This permit is not transferable to any person, except after notice to DEQ. DEQ may require modification or revocation and reissuance of the permit pursuant to 40 CFR 270.41. Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270 and this permit. [40 CFR 270.30(l)(3), 264.12(c)]

I. G . SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. [40 CFR 124.16(a)]

I.H. DUTIES AND REQUIREMENTS

1. Duty to Comply

The Permittee shall comply with all conditions of this permit, except to the extent and for the duration that noncompliance is authorized by an emergency permit [40 CFR 270.61]. Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of OHWMA and RCRA and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. [40 CFR 270.30(a)]

2. Duty to Reapply

If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee shall submit a complete application for a new permit at least 180 days prior to permit expiration. [40 CFR 270.10(h), 270.30(b)]

3. Monthly Reports

The Permittee shall submit monthly reports as per OAC 252:205-9-2. The Permittee shall comply with the manifest discrepancy reporting requirements of 40 CFR 264.72 and the unmanifested waste reporting requirements of 40 CFR 264.76.

4. Biennial Report

The Permittee shall comply with the biennial reporting requirements of 40 CFR 264.75.

5. Permit Expiration

Refer to permit condition I.F.4.

6. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee, in an enforcement action, that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [40 CFR 270.30(c)]

7. Duty to Mitigate

In the event of noncompliance with this permit, the Permittee shall take all reasonable steps to minimize releases 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)]

8. Proper Operation and Maintenance

The Permittee 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 Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this permit. [40 CFR 270.30(e)]

9. Duty to Provide Information

The Permittee shall furnish to DEQ, within a reasonable time, any relevant information which DEQ may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to DEQ, upon request, copies of records required to be kept by this permit. [40 CFR 270.30(h)]

10. Inspection and Entry

Pursuant to 40 CFR 270.30(i), the Permittee shall allow DEQ, or an authorized representative, upon the presentation of credentials and other documents, as may be required by law, to:

- a . Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
- b . Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
- c . Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and
- d . Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substances or parameters at any location.

11. Monitoring and Records

- a . Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a

representative sample of the waste and/or contaminated media to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261 or an equivalent method approved by DEQ. Laboratory methods must be those specified in the most recent edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, Standard Methods of Wastewater Analysis, or an equivalent method approved by DEQ. [40 CFR 270.30(j)(1)]

- b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, the certification required by 40 CFR 264.73(b)(9), and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, record, certification, or application. These periods may be extended by request of DEQ at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility. The Permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations for the active life of the facility, and for the post-closure care period as well. [40 CFR 264.74(b)] and 40 CFR 270.30(j)(2)]
- c. Pursuant to 40 CFR 270.30(j)(3), records of monitoring information shall specify:
 - 1) The date(s), exact place, and times of sampling or measurements;
 - 2) The individual(s) who performed the sampling or measurements;
 - 3) The date(s) analyses were performed;
 - 4) The individual(s) who performed the analyses;
 - 5) The analytical techniques or methods used; and
 - 6) The results of such analyses.

12. Reporting Planned Changes

The Permittee shall give notice to DEQ, as soon as possible, of any planned physical alterations or additions to the permitted facility. [40 CFR 270.30(l)(1)]

13. Reporting Anticipated Noncompliance

The Permittee shall give advance notice to DEQ of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. [40 CFR 270.30(l)(2)]

14. Certification of Construction or Modification

The Permittee may not commence treatment or storage of hazardous waste in the modified portion of the facility until the Permittee has submitted to DEQ, by certified mail or hand delivery, a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

- a . DEQ has inspected the modified or newly constructed facility and finds it is in compliance with the conditions of the permit; or
- b . DEQ has either waived the inspection or has not within fifteen (15) days notified the Permittee of his intent to inspect. [40 CFR 270.30(1)(2)]

15. Transfer of Permits

Refer to permit condition I.F.6.

16. Monitoring and Other Periodic Reports

Monitoring results and the other Periodic Reports required by this Permit shall be reported at the end of the month specified in the table below:

BIENNIAL REPORTING	
Biennial Hazardous Waste Report	March 1 of even years
Biennial Private Water Well Inventory Report	December of even years
ANNUAL REPORTING	
Land Treatment Unit (LTU) Annual Monitoring Report	April 30
RCRA Financial Assurance	March 31
Non-Remediation SWMU Excavation & Tracking Report	January 31
Annual Spring Sampling and Assessment Report	August 31
Annual Certified Statement of Waste Minimization Program	December 1, for the previous year ending September 30
SEMI-ANNUAL REPORTING	
Groundwater Report	March 31, September 30
SWMU 12C,13B,15 and 35 Clay Cover Inspection Report	March 31, September 30
QUARTERLY REPORTING	
CMI Report	January, April, July, and October
DEQ Large Quantity Generators of Hazardous Waste Report	Feb, May, Aug, Nov (60 days after end of the previous quarter)
Post-Closure Report	January, April, July, October
RFI Report	January, April, July, October
MONTHLY REPORTING	
RCRA DEQ Hazardous Waste TSDf Report	End of month (30 days after end of month)

[40 CFR 270.30 (l)(4)] [OAC 252:205-5-3, 252:205-9-2]

17. Compliance Schedules

Reports of compliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than fourteen (14) days following each schedule date. [40 CFR 270.30 (1)(5)]

18. Twenty-Four-Hour Reporting [40 CFR 270.30(1)(6)]

- a . The Permittee shall report to DEQ any noncompliance which may endanger health or the environment. Any such information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances. The report shall include the following:
 - 1) Information concerning release of any hazardous waste that may cause an endangerment to public drinking water supplies.
 - 2) Any information of a release or discharge of hazardous waste, or of a fire or explosion from the hazardous waste management facility which could threaten the environment or human health outside the facility.

- b . The description of the occurrence and its cause shall include:
 - 1) Name, address, and telephone number of the owner or operator;
 - 2) Name, address, and telephone number of the facility;
 - 3) Date, time, and type of incident;
 - 4) Name and quantity of materials involved;
 - 5) The extent of injuries, if any;
 - 6) An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and
 - 7) Estimated quantity and disposition of recovered material that resulted from the incident.

- c . A written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and, if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. DEQ may waive the five-day written notice requirement in favor of a written report within fifteen (15) days.

19. Other Noncompliance

The Permittee shall report all other instances of known noncompliance with this Permit not otherwise required to be reported above, Permit Conditions I.H.12. - 18, at the time monitoring reports related to that activity are submitted. The reports shall contain the information listed in Permit Condition I.H.18. [40 CFR 270.30(l)(10)]

20. Other Information

Whenever the Permittee becomes aware that it failed to submit any relevant facts in the permit application, or submitted incorrect information in a permit application or in any report to DEQ, the Permittee shall promptly submit such facts or information. [40 CFR 270.30(l)(11)]

I.I. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to or requested by the Executive Director, his designee, or authorized representative, shall be signed and certified in accordance with 40 CFR 270.11 and 270.30(k).

I.J. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO DEQ

One (1) hard copy and one (1) digital storage device [e.g. DVD, CD, Flash Drive, etc.), each of these plans, reports, notifications or other submissions shall be submitted to DEQ by Certified Mail or hand delivered to:

Chief Engineer
Land Protection Division
Oklahoma Department of Environmental Quality
PO Box 1677
707 North Robinson
Oklahoma City, Oklahoma 73101-1677
Phone Number (405) 702-5100.

I.K. CONFIDENTIAL INFORMATION

In accordance with 40 CFR 270.12, 40 CFR Part 2, and OAC 252:4-1-5(d), the Permittee may claim confidential any information required to be submitted by this permit. Any such claim must be asserted at the time of submission in the manner prescribed on the application form or instructions, or in the case of other submissions, by stamping the words "confidential business information" on each page containing such information. If no claim is made at the time of the submission, EPA and DEQ 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 OAC 252:205 which incorporates 40 CFR Part 2 (Public Information) and the Oklahoma Open Records Act. Claims of confidentiality for the name and address of any permit applicant or Permittee will be denied. All claims of confidentiality and records submitted by the Permittee are subject to 51 O.S. § 24A.1 *et. seq.*

II. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility, until closure is completed and certified by an independent, registered professional engineer, the following documents and all amendments, revisions and modifications to these documents:

1. Waste Analysis Plan, as required by 40 CFR 264.13 and this permit (See Permit Attachment 1).
2. Inspection schedules, as required by 40 CFR 264.15(b)(2) and this permit (See Permit Attachment 2).
3. Personnel training documents and records, as required by 40 CFR 264.16(d) and this permit (See Permit Attachment 3).
4. Contingency Plan, as required by 40 CFR 264.53(a) and this permit (See Permit Attachment 5).
5. Operating record, as required by 40 CFR 264.73(a) and this permit.
6. Closure Plan, as required by 40 CFR 264.112(a) and 264.142(d), and this permit (See Permit Attachment 6).
7. Post-Closure Plan, as required by 40 CFR 264.112(c), 40 CFR 264.118(a) and this permit (See Permit Attachment 6).
8. Annually adjusted cost estimate for facility closure and post-closure, as required by 40 CFR 264.142(d) and 264.144(d) and this permit (See Permit Attachment 7).
9. Manifesting, Reporting and Recordkeeping, as required by 40 CFR 264.70 and this permit (see Permit Attachment 9).
10. Procedures, Structures, Equipment for Prevention of Hazards, as required by 40 CFR 270.14(b)(8) and (9) and this permit (see Permit Attachment 10).
11. Waste Container Storage Areas as required by 40 CFR 270.15(a) and 40 CFR 264 Subpart I and this permit (see Permit Attachment 11).

12. Land Treatment Unit Operations, as required by 40 CFR 270.20 and 40 CFR 264 Subpart M and this permit (see Permit Attachment 12).
13. Land Treatment Demonstrations as required by 40 CFR 264.272 and this permit (see Permit Attachment 12, Exhibit 3).
14. Groundwater Protection as required by 40 CFR 264.92 and this permit (see Permit Attachment 13).
15. Sampling and Analysis Plan as required by 40 CFR 264.13 and 40 CFR 270.14(b)(2-3) and this permit (see Permit Attachment 14)
16. Corrective Action Management Unit Closure Document as required by 40 CFR 264.550 and this permit (see Permit Attachment 16).
17. RCRA Solid Waste Management Unit History as required by 40 CFR 264.90 and this permit (see Permit Attachment 17).
18. CAMU Characterization Document (see Permit Attachment 18).

END OF SECTION I.

SECTION II – GENERAL FACILITY CONDITIONS

II.A. DESIGN AND OPERATION OF FACILITY

The Permittee shall construct, maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, groundwater, or surface water which could threaten human health or the environment, as required by 40 CFR 264.31 and OAC 252:205-9-1.

II.B. REQUIRED NOTICES

1. Hazardous Waste Imports

The Permittee may not receive hazardous waste from a foreign source.

2. Hazardous Waste from Off-Site Non-Corporate Sources

The Permittee may not receive hazardous waste from off-site non-corporately owned facilities.

II.C. GENERAL WASTE ANALYSIS

The Permittee shall meet the waste analysis requirements of 40 CFR 264.13 by following the procedures set forth in the attached Waste Analysis Plan, Permit Attachment 1.

The Permittee shall verify the analysis of each waste stream in accordance with the Waste Re-evaluation Frequencies outlined in the Waste Analysis Plan. At a minimum, the Permittee shall maintain proper functional instruments, use approved sampling and analytical methods, verify the validity of sampling and analytical procedures, and perform correct calculations.

The Permittee shall repeat the analysis when it is notified or has reason to believe that the process or operation generating the waste has changed.

II.D. SECURITY

The Permittee shall comply with the security provisions of 40 CFR 264.14(b)(1) and (c) and the Facility Security Plan, Permit Attachment 2.

II.E. GENERAL INSPECTION REQUIREMENTS

The Permittee shall comply with 40 CFR 264.15 and follow the inspection schedule set out in Permit Attachment 2. The Permittee shall remedy any deterioration or malfunction discovered by an inspection, as required by 40 CFR 264.15(c). Records of inspections shall be kept, as required by 40 CFR 264.15(d).

1. If requested, the Permittee shall submit a revised Inspection Schedule to DEQ.
2. If requested, the Permittee shall provide to DEQ a copy of daily, weekly, and monthly inspection logs which address all items on the Inspection Schedule from Permit Attachment 2, as referenced in Permit Condition II.D above.

II.F. PERSONNEL TRAINING

The Permittee shall conduct personnel training, as required by 40 CFR 264.16. This training program shall follow Permit Attachment 3. The Permittee shall maintain training documents and records, as required by 40 CFR 264.16(d) and (e).

II.G. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of 40 CFR 264.17(a). The Permittee shall follow the procedures for handling ignitable, reactive, and incompatible wastes set forth in Permit Attachments 10 (Section 3.7.2) and 11 (Section 6.0) and Attachment 1 (Section 3.3.2).

II.H. PREPAREDNESS AND PREVENTION

1. Required Equipment

As required by 40 CFR 264.32, at a minimum, the Permittee shall maintain at the facility the equipment set forth in the Preparedness and Prevention Plan, Permit Attachment 4 and the Site Security and Inspection Plan, Permit Attachment 2.

2. Testing and Maintenance of Equipment

As required by 40 CFR 264.33, the Permittee shall test and maintain the equipment specified in Permit Condition II.I.1, as necessary, to assure its proper operation in time of emergency, as set forth in Permit Attachment 2.

3. Access to Communications or Alarm System

As required by 40 CFR 264.34, the Permittee shall maintain access to the communications or alarm system, as set forth in Permit Attachment 2.

4. Required Aisle Space

As required by 40 CFR 264.35, at a minimum, the Permittee shall maintain aisle space, as set forth in Permit Attachment 11.

5. Arrangements with Local Authorities

As required by 40 CFR 264.37, the Permittee shall maintain arrangements with state and local authorities as specified in the Integrated Contingency Plan found in Permit Attachment 5. If state or local officials refuse to enter into preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

II.I. CONTINGENCY PLAN

1. Implementation of Plan

As required by 40 CFR 264.51(b) and OAC 252:205-13-1, the Permittee shall immediately carry out the provisions of the Contingency Plan, Permit Attachment 5, whenever there is a fire, explosion, or release of hazardous waste or constituents which could threaten human health or the environment.

2. Copies of Plan

The Permittee shall comply with the requirements of 40 CFR 264.53.

3. Amendments to Plan

The Permittee shall review and immediately amend, if necessary, the Contingency Plan, as required by 40 CFR 264.54 and OAC 252:205-11(1)(a). Such amendment may require permit modification in accordance with 40 CFR 270.42. Copies of the amended plan shall be distributed as required by 40 CFR 264.53.

4. Emergency Coordinator

A trained emergency coordinator shall be available at all times in case of an emergency, as required by 40 CFR 264.55, OAC 252:205-11(1), Permit Attachment 5 (Section 3.5.2) and Permit Attachment 5 Integrated Contingency Plan. The list of Emergency Coordinators can be found in Table 3-12 of Attachment 5.

II.J. MANIFEST SYSTEM

1. The Permittee shall comply with the manifest requirements of OAC 252:205-9-7 and 40 CFR Part 262, Subpart B, and Part 264, Subpart E, in the manner set forth in Permit Attachment 9.
2. The Permittee shall follow the procedures for using the manifest system and identifying and resolving manifest discrepancies in accordance with 40 CFR 264.71, 264.72, and 270.30(1)(7), the Manifesting, Reporting, and Recordkeeping found in Permit Attachment 9, and the Waste Analysis Plan found in the Permit Attachment 1.
3. The Permittee shall submit an unmanifested waste report to DEQ, in accordance with 40 CFR 264.76 and 270.30(1)(8) within 15 calendar days of receipt of unmanifested waste.

II.K. GENERAL CLOSURE REQUIREMENTS

1. Performance Standard

As required by OAC 252:205-9-5 and 40 CFR 264.111, the Permittee shall conduct all required closure activities for hazardous waste management units in accordance with the Closure Plan, Permit Attachment 6.

2. Amendment to Closure Plan

The Permittee shall amend the Closure Plan, in accordance with 40 CFR 264.112(c), whenever necessary, pursuant to Permit Attachment 6. Such amendment may require permit modification in accordance with 40 CFR 270.42.

3. Notification of Closure

The Permittee shall notify DEQ in writing at least sixty (60) days prior to the date on which he expects to begin closure of the permitted units or final closure of the regulated units, as required by 40 CFR 264.112(d).

4. Time Allowed For Closure

After receiving the final volume of hazardous waste, the Permittee shall treat, remove from the unit, or properly dispose of all hazardous waste and shall complete closure activities, in accordance with 40 CFR 264.113 and the schedules specified in the Closure Plan, Permit Attachment 6.

5. Disposal or Decontamination of Equipment, Structures, and Soils

The Permittee shall decontaminate or dispose of all impacted equipment, structures, and soils, as required by 40 CFR 264.114 and the Closure Plan, Permit Attachment 6.

6. Certification of Closure

The Permittee shall certify that the regulated unit has been closed in accordance with the specifications in the Closure Plan, Permit Attachment 6, as required by 40 CFR 264.115.

7. Survey Plat

The Permittee shall submit a survey plat no later than the submission of certification of closure of each hazardous waste disposal unit, in accordance with 40 CFR 264.116, as outlined Permit Attachment 6.

II.L. GENERAL POST-CLOSURE REQUIREMENTS

1. Post-Closure Care Period

Unless clean closure is achieved, the Permittee shall begin post-closure care for each regulated unit after completion of closure of the unit. Until the time that a post-closure permit or other authorization is issued, the facility shall be maintained in accordance with 40 CFR 264.117 and the Post-Closure Plan, Permit Attachment 6.

2. Post-Closure Security

The Permittee shall maintain security at the regulated unit during the post-closure care period, in accordance with 40 CFR 264.117(b) and the Post-Closure Plan, Permit Attachment 6.

3. Amendment to Post-Closure Plan

The Permittee shall amend the Post-Closure Plan in accordance with 40 CFR 264.118(d) and Permit Attachment 6 whenever necessary.

4. Post-Closure Notices

- a. In accordance with 40 CFR 264.119(a), and Permit Attachment 6 no later than sixty (60) days after certification of closure of each hazardous waste disposal unit, the Permittee shall submit records of the type, location, and quantity of hazardous waste disposed within each cell or disposal unit,.

- b. Within sixty (60) days of certification of closure of the first hazardous waste disposal unit and the last hazardous waste disposal unit, the Permittee shall do the following:
 - 1) Record a notation on the deed to the facility property, in accordance with 40 CFR 264.119(b)(1).
 - 2) Submit a certification that a notation, in accordance with 40 CFR 264.119(b)(2), has been recorded.

II.M. COST ESTIMATE FOR FACILITY CLOSURE AND POST-CLOSURE

1. The Permittee's most recent closure and post-closure cost estimates, prepared in accordance with 40 CFR 264.142, 264.144, 264.197(c)(3) and (5), 264.228(c)(2), and 264.258(c)(2), are specified in Permit Attachment 7.
2. The Permittee will comply with 40 CFR 264.143 and 264.145 and Permit Condition II.N by following the provisions set forth in the Closure and Post-Closure Cost Estimates and Financial Assurance, Permit Attachment 7.
3. The Permittee must adjust the closure cost estimate for inflation within sixty (60) days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with 40 CFR 264.143, 264.145, and Permit Condition II.P, or when using an approved state-required mechanism, upon such date as required by the state [40 CFR 264.142(b)].
4. The Permittee must revise the closure cost estimate and post-closure cost estimate whenever there is a change in the facility's Closure Plan and Post-Closure Plan, as required by 40 CFR 264.142(c) and 264.144(c).
5. The Permittee must keep at the Facility the latest closure and post-closure cost estimate as required by 40 CFR 264.142(d), and 264.144(d).

II.N. FINANCIAL ASSURANCE FOR FACILITY CLOSURE AND POST-CLOSURE

The Permittee shall demonstrate continuous compliance with 40 CFR 264.143, 264.145, and 264.146 by providing documentation of financial assurance, as required by 40 CFR 264.151 or 264.149, in at least the amount of the cost estimates required by Permit Condition II.M. Changes in financial assurance mechanisms must be approved by DEQ pursuant to 40 CFR 264.143, 264.145, or 264.149.

II.O. LIABILITY REQUIREMENTS

The Permittee shall demonstrate continuous compliance with the requirement of 40 CFR 264.147(a) to have and maintain liability coverage for sudden accidental occurrences in the amount of at least \$1 million per occurrence, with an annual aggregate of at least \$2 million, exclusive of legal defense costs.

The Permittee also shall demonstrate continuous compliance with the 40 CFR 264.147(b) requirements to have and maintain liability coverage for non-sudden accidental occurrences in the amount of at least \$3 million per occurrence, with an annual aggregate of at least \$6 million, exclusive of legal defense costs.

II.P. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS

The Permittee shall comply with 40 CFR 264.148, whenever necessary.

II.Q DEQ Oversight Authority

DEQ reserves regulatory oversight authority to inspect and observe all activities and facilities that are or may be related to waste storage at the Facility regardless of whether or not the activities or facilities are permitted by DEQ. Accordingly, no storage or structures which are or may be related to waste storage shall be added or used without notice to DEQ and appropriate Permit modifications as required. [40 CFR 270.30(i)]

END OF SECTION II.

SECTION III - SPECIAL CONDITIONS PURSUANT TO THE 1984 HAZARDOUS AND SOLID WASTE AMENDMENTS (HSA)

III.A. PREAMBLE AND GENERAL COMMENTS TO HSWA CONDITIONS, INCLUDING SOLID WASTE MANAGEMENT UNITS AND THEIR STATUS.

Two areas of the facility are affected by HSWA, Solid Waste Management Units (SWMUs) and Groundwater.

1. SWMUs

The Permittee has identified several SWMUs at the facility. Since the issuance of the first RCRA Permit in 1988, the 2003 Permit renewal, the 2007 Permit modification, and the current Permit, the number and regulatory status of the various SWMUs has changed. Permit Attachment 17, Table 5-1 contains a list that describes the current status of the SWMUs, their history (including approvals and modifications granted prior to the issuance of this Permit), and a cross-reference to the various number systems used to identify the SWMUs over time. SMUs 17-24, 26 and 52 are under the OPDES Permit OKD000256.

A. SWMUs RCRA Regulatory Changes, RFA Phase.

During the RFA phase, the status of several SWMUs changed. SWMUs to which Corrective Action provisions no longer apply, and a brief explanation of why the provisions were determined to no longer apply, are listed below; additional information can be found in Attachment 17:

	<u>SWMU Number and Name</u>	<u>Rationale</u>
3	Refinery Landfarm Retention Basin	Part of the Land Treatment Unit (LTU)
(5)*	Land Treatment Unit	Part of the LTU
(7)*	Experimental Landfill	Part of the LTU
(10)*	Spent Phenolic Caustic Storage Tank T-909	Product Storage Tank
(11)*	Spent Phenolic Caustic Storage Tank D-5292	Product Storage Tank
(12)*	Spent Phenolic Caustic Storage Tank T-6601	Product Storage Tank
(13)*	Spent Sulfidic Caustic Storage Tank T-973	Product Storage Tank
(14)*	Spent Sulfidic Caustic Storage Tank T-16E	Certification of Closure 7/21/95.

6	Acid Soluble Oil Incinerator	NFA Approved by EPA circa 1986
(25)*	Solid Waste Transfer Station	NFA Approved by EPA circa 1986
(27)*	Rail Care Flare	NFA Approved by EPA circa 1986
(28)*	R&D Drum Storage	NFA Approved by EPA circa 1986
(30)*	Thermal Treatment Area	NFA Approved by EPA circa 1986
(36)*	Thermal Division API Separator	Regulated as a wastewater tank
23	South Plant API Separator	Regulated as a wastewater tank
(38)*	Light Oil API Separator	Regulated as a wastewater tank
(39)*	East Plant API Separator	Regulated as a wastewater tank
(40)*	Lube Oil API Separator	Regulated as a wastewater tank
24	Additional Lube Oil Separator	Regulated as a wastewater tank
(44)*	East Plant Clarifier	NFA Approved by EPA circa 1986
(45)*	East Plant Sludge Thickener	NFA Approved by EPA circa 1986

* RFA SWMU Number in Brackets; -- No current SWMU number assigned

B. SWMU Regulatory Changes, RFI Phase

Since the November 4, 1988 permit, the Permittee has completed RFIs, as described in Section X of the 1988 permit and Section III of the 2003 Permit, and received the approval of DEQ for the completed RFI reports for the SWMUs listed below. Included in the RFIs were specific recommendations for either “No Further Action” or the completion of a Corrective Measures Study (CMS), as summarized below:

<u>SWMU Number and Name</u>	<u>Approved RFI Recommendation</u>
1 East Plant Activated Sludge Unit	Complete CMS
2 South Plant Biopond	No further action
4 Slop Oil Solids Landfarm A	No further action
5 Slop Oil Solids Landfarm B	No further action
7 Calcium Fluoride Landfill	Complete CMS
8 Asbestos Landfill	No further action
9 East Plant Landfill	Complete CMS
10 Tetraethyl Lead Landfill	No further action
11 Lime Solids Landfill	No further action
12A Alky. Unit Acid Sludge Landfill A	No further action
12B Alky. Unit Acid Sludge Landfill B	No further action
12C Alky. Unit Acid Sludge Landfill C	Complete CMS
13A Non-lead Tank Bottom Landfill A	No further action
13B Non-lead Tank Bottom Landfill B	Complete CMS
13C Non-lead Tank Bottom Landfill C	No further action
13D Flare Blowdown	No further action

14	Caustic Landfill	No further action
15	Solvent Landfill	Entered Post-Closure, 2002
16	Underground Tank	No further action, OPDES Permit
17	Wastewater Treatment Lagoons	No further action, OPDES Permit
18	West Bay Phipps Trap	Complete CMS, OPDES Permit
19	East Bay Phipps Trap	Complete CMS, OPDES Permit
20	West Plant Stormwater Basin	Complete CMS, OPDES Permit
21	Storage Pond 3	Complete CMS, OPDES Permit
22	Storage Pond 4	Complete CMS, OPDES Permit
25	East Plant Stormwater Basin	No further action, OPDES Permit
26	East Plant Subsidence Basin	Complete CMS, OPDES Permit
27	T-904 Slop Oil Sump	Complete CMS
28	T-905 Slop Oil Sump	Complete CMS
29	T-947 Slop Oil Sump	Complete CMS
30	Misc. Slop Oil Recovery Tank (CAMU Staging)	Complete CMS
31	Coker Blowdown Pond	Regulate as a wastewater tank. Demolished and backfilled in 1994. Clean closure 1996.
32	East Plant Nonprocess Water Ditch	Complete CMS, OPDES Permit
33	Calcium Fluoride Landfill	Complete CMS
34	Calcium Fluoride Landfill	No further action
35	Clay Pond	Complete CMS
36	Omaha Pond	No further action
37	Omaha Slop Oil Trap	No further action 2003
38	Past Landfill	No further action
39A	Tank 650	No further action
39B	Tank 651	No further action
39C	Tank 652	No further action
40	East Plant Salvage Yard landfill	No further action 2003
--	E-34 Lagoon	Sludge removed. Closed under RCRA Pond Closure Program.
--	Former Alkalization Neutralization Pit	Impacted material removed. Backfilled with clean soil. NFA 2001
--	R&D West, Pilot Bay 5, Chemical Sewer	Impacted material removed. Backfilled with clean soil. NFA 2002

C. SWMU RCRA Regulatory Changes Under CMSs

The Permittee has completed, and DEQ has approved, the CMSs and corrective measure implementation and completion for the SWMUs listed below. The Permittee made specific recommendations within the various CMSs which are also summarized below and which have been approved by DEQ and implemented by the Permittee.

<u>SWMU Number and Name</u>		<u>Approved CMS Recommendation</u>
1	East Plant Activated Sludge Unit	Sludge removed. Closed under RCRA Pond Closure Program
7	Calcium Fluoride Landfill	No further action
9	East Plant Landfill	No further action
12C	Alky. Unit Acid Sludge Landfill C	Re-grade and cover unit – Completed in 1999 Entered RCRA Post-Closure in 2000
13B	Non-Leaded Tank Bottoms Landfill B	Closed in accordance with CMS, Entered RCRA Post-Closure in 2003
15	Solvent Landfill	Cover unit – Completed in 2002 Entered RCRA Post-Closure in 2002
18	West Bay Phipps Trap	Sludge removed. Closed under RCRA Pond Closure Program
19	East Bay Phipps Trap	No further action
20	West Plant Stormwater Basin	Complete CMS/CMI per RCRA Pond Closure Work Plan, Operated as a wastewater unit with OPDES permit
21	Storage Pond 3	Sludge removed. Closed under RCRA Pond Closure Program
22	Storage Pond 4	Sludge removed. Closed under RCRA Pond Closure Program
26	East Plant Subsidence Basin	Complete sludge/sediment removal completed in 2003, Operated as a wastewater unit with OPDES permit
27	T-904 Slop Oil Sump	Removed sludge and replaced sump – 1995
28	T-905 Slop Oil Sump	Removed sludge and replaced sump – 1995
29	T-947 Slop Oil Sump	Removed sludge and replaced sump – 1995

30	Misc. Slop Oil Recovery Tank (CAMU Staging)	Close Under CMS prior to CAMU Closure, June 2005 NFA
32	East Plant Non-Process Water Drainage Ditch	Demonstrate no further action necessary or close in accordance with CMS, Operated as a wastewater unit with OPDES permit
33	Calcium Fluoride Landfill	Waste material removed and pit backfilled. NFA 1997.
35	Clay Pond CAMU	Corrective Action Management Unit – Upon completion of CMS, conduct closure and post-closure care in accordance with the requirements of this Permit and the Corrective Measures Implementation Workplan. Entered RCRA Post-Closure in 2005

D. SWMUs Currently Regulated Under RCRA

As set forth in Sections III. B and III. C below, ongoing monitoring is required for the following SWMUs.

<u>SWMU Number and Name</u>	<u>Current Status</u>
3 LTU	RCRA LTU (See Section V)
12C Alky. Unit Acid Sludge Landfill C	Entered RCRA Post-Closure in 2000
13B Non-Leaded Tank Bottoms Landfill B	Entered Post-Closure in 2003
15 Solvent Landfill	Entered Post-Closure in 2002
35 Clay Pond CAMU	Entered Post-Closure in 2005

2. Groundwater

There are several areas of groundwater contamination around the facility that have been required to implement corrective measures under RCRA and HSWA. Ongoing corrective measures approved by DEQ are discussed in greater detail in Section III.C(3), and Section VII.

III.B. REQUIRED ONGOING AND NEW RFI ACTIVITIES

1. The Permittee shall submit RFI reports on the Land Treatment Unit, SWMU 12C, 13B, 15, and 35 (the CAMU), as required by I.H.16 of this permit.

2. The Permittee shall conduct an RFI in accordance with the provisions of Permit Section III.M for any newly discovered SWMUs after the issuance of this Permit.

III.C. REQUIRED ONGOING AND NEW CORRECTIVE MEASURES IMPLEMENTATION

1. The CAMU Characterization Document for the Clay Pond (SWMU 35) is included herein as Permit Attachment 18. The Permittee operated the CAMU for the management of remediation waste. SWMU No. 30 was operated as a staging area for the CAMU, as requested in the May, 27, 1998, letter to DEQ. Prior to the December 2005 final closure of the CAMU, the Permittee closed SWMU No. 30 on June 30, 2005.
2. The Permittee shall continue conducting post-closure, financial assurance and CMI reports for SWMUs 12C, 13B, 15, and 35 (the CAMU) as required by I.H.16 of this Permit.
3. (a) Permittee has previously operated a groundwater remediation program in accordance with Consent Order No. 00-132. This Permit addresses the matters described in Consent Order No. 00-132 and provides for the continued implementation of those corrective measures. This Permit continues the implementation of those procedures after the Consent Order was terminated in 2008.

The Permittee shall continue to implement the groundwater and spring remediation program described in Permit Section VII and Permit Attachment 13 and in accordance with subsequent changes to the program that have been approved by DEQ, including DEQ approval of program changes resulting from information included in the semi-annual groundwater reports, as well as with the additional requirements set forth below.

Permittee shall describe in the semi-annual report all changes or proposed changes to the groundwater remediation program that are of a type that require DEQ approval, including any changes approved by DEQ during periods between reports. As a part of these groundwater corrective action requirements, the Permittee shall address the criteria in Permit Provision No. III.C.3(b) below, and submit any necessary applications to modify the terms of this Permit.

- (b) The groundwater remediation program shall be evaluated, configured, operated, modified as necessary, and maintained to address the following objectives:

- (i) Control current human exposures to contamination in concentrations in excess of appropriate risk-based levels that can be reasonably expected under current land-and-groundwater-use conditions;
 - (ii) Control migration of contaminated groundwater so that contaminated groundwater has stabilized, and that monitoring will be conducted to confirm contaminated groundwater remains within the original area of contaminated groundwater;
 - (iii) Remove free product to address objectives (i) and (ii); and
 - (iv) Continue to demonstrate monitored natural attenuation of existing plumes and springs evaluate possible methods of enhancing biodegradation.
- (c) The Permittee shall, as per Section I.H.16, submit in the first and third quarters of each year, two semiannual status reports on the groundwater remediation. The semiannual report shall contain the following sections:
- (i) Subsurface Assessment Activities;
 - (ii) Quarterly Fluid Level Monitoring, for applicable wells, to include potentiometric surface and aerial extent of product;
 - (iii) Groundwater Sampling in the first and third quarters of each year, to include RCRA/Perimeter Monitoring, routine monitoring, and monitoring relating to the corrective action program;
 - (iv) Remedial System Status (changes in system configuration);
 - (v) Significant Developments (if any);
 - (vi) Progress Assessment; and
 - (vii) Path Forward.
- (d) The Permittee shall, as per Section I.H.16, submit annually in the third quarter a spring sampling and assessment report that complies with Permit Attachments 13 and 14. The report shall include:
- (i) Background and General Summaries;
 - (ii) Current Sampling Results;

- (iii) Summary of Annual Key Conclusions; and
 - (iv) Recommendations for the Next Annual Sampling.
4. (a) As defined in Current Human Exposures (RCRIS Code CA725) and Migration of Contaminated Groundwater (RCRIS Code CA750) for the facility, Permittee shall control current human exposures and the migration of contaminated groundwater. At the time of issuance of this Permit, the Permittee has submitted data to DEQ to address the provisions of CA 725/750. The Permittee is continuing to develop and evaluate data related to these environmental indicators for submission to DEQ. If in the future, DEQ determines that the Permittee does not meet these environmental indicators, within two years of DEQ notifying the Permittee of the deficiency, Permittee shall implement measures to achieve these indicators.

III.D. STANDARD CONDITIONS

1. Waste Minimization

Annually, by December 1, for the previous year ending September 30, the Permittee shall enter into the operating record as required by 40 CFR 264.73(b)(9), a statement certified according to 40 CFR 270.11(d) specifying that the Permittee has a program in place to reduce the volume and toxicity of hazardous wastes generated by the facility's operation to the degree determined by the Permittee to be economically practicable; and the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment. A current description of the program shall be maintained in the operating record and a copy of the annual certified statement shall be submitted to DEQ. The following are suggested criteria for the program:

- a. Any written policy or statement that outlines goals, objectives, and/or methods for source reduction and recycling of hazardous waste at the facility;
- b. Any employee training or incentive programs designed to identify and implement source reduction and recycling opportunities;
- c. Any source reduction and/or recycling measures implemented in the last five years or planned for the near future;
- d. An itemized list of the dollar amounts of capital expenditures (plant and equipment) and operating costs devoted to source reduction and recycling of hazardous waste;

- e. Factors that have prevented implementation of source reduction and/or recycling;
- f. Sources of information on source reduction and/or recycling received at the facility (e.g., local government, trade associations, suppliers, etc.);
- g. An investigation of additional waste minimization efforts that could be implemented at the facility. This investigation would analyze the potential for reducing the quantity and toxicity of each waste stream through production reformulation, recycling, and all other appropriate means. The analysis would include an assessment of the technical feasibility, cost, and potential waste reduction for each option;
- h. A flow chart or matrix detailing all hazardous wastes it produces by quantity, type, and building/area;
- i. A demonstration of the need to use those processes which produce a particular hazardous waste due to a lack of alternative processes or available technology that would produce less hazardous waste.
- j. A description of the waste minimization methodology employed for each related process at the facility. The description should show whether source reduction or recycling is being employed.
- k. A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years.

2. Dust Suppression

- a. Pursuant to 40 CFR 266.23(b), and the Toxic Substances Control Act, the Permittee shall not use waste or used oil or any other material which is contaminated with dioxin, polychlorinated biphenyls (PCBs), or any other hazardous waste (other than a waste identified solely on the basis of ignitability), for dust suppression or road treatment.

3. Permit Modification

- a. DEQ Initiated Modifications

If at any time for any of the reasons specified in 40 CFR 270.41, DEQ determines that modification of this Permit is necessary, the Agency may

initiate permit modification proceedings in accordance with the regulations set forth at 40 CFR 270.41.

b. Permittee Initiated Modifications

The Permittee may, where appropriate, initiate permit modifications in accordance with the regulations set forth at 40 CFR 270.42. All applicable requirements and procedures as specified in 40 CFR 270.42 shall be followed by Permittee in initiating such proceedings.

c. Modification of Corrective Action Schedules of Compliance (CASC)

- 1) The Permittee shall adhere to CASCs developed for newly identified and previously identified SWMUs covered by this Permit. If at any time the Permittee determines that such schedules cannot be met, the Permittee shall notify DEQ and submit a request for an extension of time with a justification as to why the current CACS cannot be met. Such extension is only effective if approved in writing by DEQ or otherwise approved in accordance with the provisions of this Permit. If DEQ determines that a permit modification is necessary, either DEQ or the Permittee, as appropriate, shall initiate a permit modification under either Permit Provision No. III. D(3)(a), or III. D(3)(b) above.

4. Permit Review

This Permit may be reviewed by DEQ five years after the date of permit issuance and may be modified as necessary as provided for in Permit Condition III.D.3.a. Nothing in this section shall preclude DEQ from reviewing and modifying the Permit at any time during its term.

5. Compliance with Permit

See Provision I.E.

6. Specific Waste Ban

- a. The Permittee shall not place in any land disposal unit the wastes specified in 40 CFR 268 after the effective date of the prohibition unless the Administrator has established disposal or treatment standards for the hazardous waste and the Permittee meets such standards and other applicable conditions of this Permit.

- b. The Permittee may store wastes restricted under 40 CFR 268 solely for the purpose of accumulating quantities necessary to facilitate proper recovery, treatment, or disposal provided that it meets the requirements of 40 CFR 268.50(a)(2) including, but not limited to, clearly marking each tank or container.
- c. The Permittee is required to comply with all requirements of 40 CFR 268.7 as amended. Changes to the waste analysis plan will be considered permit modifications at the request of the Permittee, pursuant to 40 CFR 270.42.
- d. For hazardous wastes that have been de-characterized that are managed in the Land Treatment Unit authorized by this Permit, the Permittee shall perform a waste analysis at least annually or when a process changes, to determine whether the waste meets applicable treatment standards. Results shall be maintained in the operating record.
- e. The Permittee must comply with requirements restricting placement of hazardous wastes in or on land which become effective by statute or promulgated under Part 268, regardless of requirements in the Permit. Failure to comply with the regulations may subject the Permittee to enforcement action under the OHWMA, this permit, and Section 3008 of RCRA.

7. Information Submittal

Failure to comply with any condition of the Permit, including information submittal, constitutes a violation of the Permit and is grounds for enforcement action, permit amendment, termination, revocation, suspension, or denial of permit renewal application. Falsification of any submitted information is grounds for termination of this Permit [40 CFR 270.43].

The Permittee shall ensure that all plans, reports, notifications, and other submissions to DEQ required in this Permit are signed and certified in accordance with 40 CFR 270.11. A summary of the planned reporting requirements pursuant to this Permit is found in Table 1 of this Section (page III-55). One (1) hardcopy and one (1) electronic copy in Windows Compatible format, CD or Flash Drive, for each of these plans, reports, notifications or other submissions shall be submitted to DEQ by Certified Mail or hand delivered to:

Chief Engineer
Oklahoma Department of Environmental Quality
Land Protection Division
707 N. Robinson Avenue
P. O. Box 1677
Oklahoma City, Oklahoma 73101-1677

8. Plans and Schedules Incorporated Into Permit

All plans, schedules and documents incorporated by reference required by this Permit are, upon approval by DEQ, incorporated into this Permit by reference and become an enforceable part of this Permit. Since required items are essential elements of this Permit, failure to submit any of the required items or submission of inadequate or insufficient information may subject the Permittee to enforcement action under the OHWMA, and Section 3008 of RCRA, which may include fines, suspension, or revocation of the Permit.

Any noncompliance with approved plans and schedules shall be termed noncompliance with this Permit. Written requests for extensions of due dates for submittals may be granted by DEQ in accordance with Permit Condition III.D.3.

If DEQ determines that actions beyond those provided for, or changes to what is stated herein, are warranted, DEQ may modify this Permit according to procedures in Permit Condition III.D.3.

9. Data Retention

All raw data relating to corrective action, 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 shall be maintained at the facility during the specified term of this Permit or for three years after DEQ approves final closure of all monitoring activities at the Facility.

10. Management of Wastes

- a. All solid wastes which are managed pursuant to a remedial measure taken under the corrective action process or as an interim measure addressing a release or the threat of a release from a solid waste management unit shall be managed in a manner protective of human health and the environment and in compliance with all applicable Federal, State and local requirements. 40 CFR 264, Subpart S shall be applicable as guidance for managing these

wastes. Approval of units for managing wastes and conditions for operating the units, if approved, shall be granted through the permitting process.

III.E. SPECIFIC CONDITION - CLOSURE

1. Permittee shall close the Land Treatment Unit (LTU), Container Storage Building and the Solid Waste Staging Area in accordance with the Closure Plans found in Attachment 6 (Section 3.9, Attachment 11 (Section 6.9) and Attachment 12 (Section 7.14). [Section 3005(j)(1) of HSWA, 40 CFR Subpart G and 264.280]
2. The Permittee shall notify DEQ in writing at least sixty (60) days prior to commencement of closure.

III.F. SPECIFIC CONDITION - INFORMATION REPOSITORY

1. Within thirty (30) days of effective date of this Permit, the Permittee shall mail a notice to all individuals on the Facility-specific mailing list maintained by DEQ, including all individuals that submitted oral or written comments on the Permittee's draft permit during the public comment period. The Permittee shall amend this mailing list as necessary to include those individuals that submit a written request to DEQ or the Permittee for inclusion in this list.
2. This notice shall state the location, purpose, and content of the repository. A copy of this notice shall be provided to DEQ, for approval, prior to mailing to the public.
3. The Permittee shall state in the notice that written comments concerning each submittal (excluding progress reports and correspondence) required by this Permit shall be forwarded to DEQ at the following address within fifteen (15) calendar days of the date due to DEQ:

Chief Engineer
Land Protection Division
Oklahoma Department of Environmental Quality
PO Box 1677
707 North Robinson
Oklahoma City, Oklahoma 73101-1677
Phone Number (405) 702-5100.

4. The Permittee shall continue to maintain an information repository at the local public library or other similar facility accessible to the public. The Permittee shall continue to send a copy of the semi-annual groundwater report required under Permit Provision III. C. 3 to the information repository.
5. Additionally, the Permittee shall place in the information repository all Permit renewal, amendment, or modification applications and supporting documentation, which shall be determined through consultation with DEQ, during the pendency of such renewal, amendment, or modification proceeding for this Permit.
6. The Permittee shall continue to provide information covering remedial activities to the Community Advisory Council.

III.G. SPECIFIC CONDITION - INVESTIGATION OF AREA(s) OF CONCERN

Within 180 days of the identification of newly identified Areas of Concern (AOCs), the Permittee shall submit a plan to determine if the AOCs are SWMUs. The workplan shall describe the objectives of the investigation and the overall technical and analytical approach to completing all actions necessary to determine if activity at the AOC resulted in solid waste management at any time. If such determination is made, the AOC shall be designated as a newly-identified SWMU. If hazardous wastes or hazardous constituents are determined to have been or are currently being managed at the SWMU and if DEQ determines that further investigation is necessary, a plan for the investigation shall be prepared according to Permit Condition III.J.2.

III.H. CORRECTIVE ACTION

1. Corrective Action for Releases: The Permittee must address corrective action for releases of hazardous waste or hazardous constituents from any SWMU at the facility, regardless of when the waste was placed in the unit. [40 CFR 264.101]
2. Action Levels
 - a. Applicability - The concept of action levels, described in the RFI guidance document referenced in Permit Condition III.M.1.c. shall be used by the Permittee to determine the need for further corrective actions under this Permit. As specified in Permit Condition III.Q, the Permittee shall conduct a Corrective Measures Study (CMS) whenever concentrations of hazardous constituents associated with releases from SWMUs in ground water, surface water, soils or air exceed action levels for any environmental medium; or when DEQ determines that concentrations of contaminants, even if below

action levels, present a threat to human health or the environment. The concept of action levels is not the same as cleanup levels, although in some cases a final cleanup level may be set to equal the action level.

- b. Calculation - The Permittee shall adhere to RFI guidance in the calculation of action levels for all the environmental media. These action levels shall be updated as new toxicity data and promulgated standards (e.g., maximum contaminant levels) are derived. The most recent reference doses, reference concentrations, and cancer slope factors (e.g., data found in EPA's Integrated Risk Information System) shall be utilized in the calculation of action levels. The toxicity data available at the time that a determination for further action is made (i.e., requirement to conduct a CMS), including interim measures, shall be utilized in the calculations. If used as final cleanup levels, action levels shall be calculated using the most recent toxicity data and promulgated standards existing at the time of implementation of corrective measures.

3. Risk Assessment

- a. The Permittee shall conduct human health and ecological risk assessments as necessary for the protection of human health and the environment. These risk assessments shall be used to establish baseline risk at a site and/or to derive final or interim cleanup levels at the site, SWMU, or area, as appropriate. These risk assessments, if necessary, shall be performed concurrently with the corrective action activities specified in this Permit, including any activities undertaken during implementation of the activities proposed in the RFI Workplan. These risk assessments may also be performed concurrently with the RFI Final Report and Summary and the CMS Phase of this permit, as specified in Permit Condition III.H.3 and III.V, respectively, but only after the Permittee has determined the full vertical and horizontal extent of contamination at the SWMU(s) to which the risk assessment applies.
- b. The Permittee shall utilize as guidance, but not be limited to, the following EPA documents and publications: "Compendium of ORD and OSWER Documents Relevant to RCRA Corrective Action" (EPA530-B-92-003, April 1992); "Ecological Assessments of Hazardous Waste Sites, A Field and Laboratory Reference Document" (EPA/600/3-89/013, March 1989); "ECO Update, Ecological Assessment of Superfund Sites: An Overview" (Publication 9345.0-05I, Vol. 1, No. 2, December 1991); and "ECO Update, Developing A Work Scope for Ecological Assessments" (Publication 9345.0-05I, Vol. 1, No. 4, May 1992); including any subsequent revisions.

- 1) Baseline Risk Assessments - Baseline risk assessments, if required, shall be used to evaluate the risks posed by contaminants at a site prior to the beginning of any corrective actions. This type of risk assessment shall be used in certain circumstances (specified in Permit Condition III.H.3.b.2) instead of action levels (described in Permit Condition III.H.2) to determine the need for remedial action.
 - 2) Although the action level concept shall serve as a trigger for a CMS (as specified in Permit Condition III.O) certain exceptions will apply, but not be limited to the following circumstances:
 - a) In cases where the applicable action levels are not protective enough of sensitive environmental systems; such as wetlands, estuaries, and habitats of endangered or threatened species, the Permittee shall conduct a baseline environmental risk assessment;
 - b) In cases where there are confirmed releases to ground water, surface water, air, or sediments, a baseline risk assessment shall be required to determine the need for stabilization/interim measures, especially where health advisories have been issued by local/state governments;
 - c) Action levels may be inappropriate at a site where there are multiple contaminants or where leaching from contaminated soils into ground water poses greater risk than ingestion of the soils.
 - 3) If an action level has been exceeded, for any of the environmental media of concern, at any time during the corrective action activities required by this Permit, the Permittee may be required to conduct a risk assessment to determine risks to human health and the environment and the necessity to perform interim measures, as specified in Permit Condition III.L. Risk assessments to determine final cleanup levels or to be used in justifying no further action determinations shall be conducted only after the Permittee has determined the full vertical and horizontal extent of contamination from the SWMU(s) in question.
- c. Risk Assessments for Deriving Cleanup Levels - Risk assessments, if required, may also be used as a starting point for cleanup goals, in addition to the final cleanup level. Risk assessments may be required as specified in Permit Condition III.H.3.b.2). In addition, where cleanup levels fail to incorporate significant routes of exposure at a particular site, or where remedies cannot meet the 10^{-4} to 10^{-6} risk range for carcinogens or meet

action levels if chosen as final cleanup levels, a risk assessment may also be required.

DEQ intends to review risk assessments as part of the CMS Phase of the corrective action activities specified in this Permit in deriving final cleanup goals, but only after the Permittee has determined the full vertical and horizontal extent of contamination from each SWMU(s) in question.

- d. Use of Risk Assessments in Justifying No Further Action - The Permittee may submit a risk assessment(s) justifying no further action at a SWMU(s) concurrently with submittal of the RFI Final Report and Summary specified in Permit Condition III.0., only if the Permittee has determined the full vertical and horizontal extent of contamination from each SWMU(s) in question.
- e. Corrective Action for Releases Beyond Facility Boundary:
 - 1) The Permittee shall notify DEQ verbally, within 24 hour of discovery, of any release of hazardous waste or hazardous constituents that has the potential to migrate off-site.
 - 2) State and Federal regulations promulgated as 40 CFR 264.101(c), require corrective actions beyond the facility property boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates that, despite the Permittee's best efforts, the Permittee was unable to obtain the necessary permission to undertake such actions. The Permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where offsite access is denied; instead the Permittee must propose alternative actions.
- f. Financial Responsibility: Assurances of financial responsibility for corrective action shall be provided as specified in the Permit following major modification for remedy selection.

4. Dispute Resolution

- a. The parties shall use their best efforts to informally and in good faith resolve all disputes or differences of opinion. If, however, disputes arise concerning the corrective action which the parties are unable to resolve informally, the following procedures shall apply. If Permittee's dispute concerns its inability to meet a specified deadline, then Permittee is

obligated to advise DEQ of the issue at least 30 days in advance of the deadline.

- b. DEQ shall provide Permittee written notice of its disapproval or modification of any interim submission under Section III of this Permit, including, but not limited to, implementation of workplans, approval of documents, scheduling of any work, or selection, performance, or completion of any corrective action. The written notice of disapproval or modification shall set forth the reasons for the disapproval or modification. If the Permittee disagrees, in whole or in part, with any such written notice, the Permittee shall notify DEQ, in writing, within 30 days of receipt of the written notice. The Permittee and DEQ permits staff shall use their best efforts to informally and in good faith resolve the dispute. The Permittee is entitled to meet with RCRA permits staff in person at DEQ's office or by teleconference, if it so desires, in order to resolve the dispute.
- c. If Permittee and the RCRA permits staff are unable to resolve the dispute, the Permittee may request a final decision by DEQ or an official having been delegated final permit approval authority, or other delegate. Within 45 days of receipt of DEQ's written notice, the Permittee shall submit to the permit approval authority, a written statement of its arguments and explanations of its position. The written statement should include, at a minimum, the specific points of dispute, the position the Permittee maintains should be adopted as consistent with the Permit requirements and the basis therefore, any matters which it considers necessary for proper determination of the dispute, and whether the Permittee requests a conference in front of the permit approval authority. The Permittee's failure to follow the procedures set forth in this paragraph will constitute a waiver of its right to further consideration of the dispute.
- d. DEQ's duly appointed official having final permit approval authority, at his/her discretion, will determine whether a conference, if requested by the Permittee, will be held.
- e. DEQ shall consider the written position of the Permittee and the oral arguments, if a conference is convened, and shall provide a written order of its decision based on the record, though the decision and order need not be a formal order of DEQ. The written order shall respond to the Permittee's arguments and shall set forth the reasons for DEQ's final decision and make all revisions that are necessary to implement the decisions of DEQ. Such decision shall be the final order of DEQ and shall be implemented immediately by the Permittee according to the schedule contained therein. Nothing in this Section limits the Permittee's right to seek and obtain any

judicial review and/or judicial relief authorized by law, including a stay of requirements pending judicial resolution.

- f. The requirements of this Permit that are the subject of the dispute are stayed pending the decision of DEQ. Notwithstanding the invocation of this dispute resolution procedure, the Permittee shall proceed to take any action required by those portions of the submission and of the permit that are not substantially affected by the dispute.
- g. The Permittee shall invoke the Dispute Resolution provisions of this Permit in good faith and not for purposes of delay.

III.I. REPORTING REQUIREMENTS

- 1. The Permittee shall submit signed quarterly progress reports of RFI activities, CMS/CMI Activities, and CMI and CAMU Inspection and Maintenance activities conducted pursuant to the provisions of this Permit within thirty days of the end of each quarter if an alternative schedule was not specified in submittals or otherwise approved by DEQ. These reports shall contain:
 - a. A description of the work completed and an estimate of the percentage of work completed;
 - b. Summaries of all findings, including summaries of laboratory data;
 - c. Summaries of all problems or potential problems encountered during the reporting period and actions taken to rectify problems;
 - d. Projected work for the next reporting period;
 - e. Summaries of contacts pertaining to corrective action or environmental matters with representatives of the local community, public interest groups or State government during the reporting period;
 - f. Changes in key project personnel during the reporting period; and
 - g. Summaries of all changes made in implementation during the reporting period.
- 2. Copies of other reports relating to or having bearing upon the corrective action work, (e.g., inspection reports), drilling logs and laboratory data shall be made available to DEQ upon request.

3. In addition to the written reports as required in Permit Condition III.I.1 and 2 above, at the request of DEQ, the Permittee shall provide status review through semi-annual briefings with DEQ.

III.J. NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY-IDENTIFIED SWMUs AND POTENTIAL AOCs

1. The Permittee shall notify DEQ, in writing, of any newly-identified SWMU(s) and potential AOCs (i.e., a unit or area not specifically identified during the RFA), discovered in the course of ground water monitoring, field investigations, environmental audits, or other means, no later than thirty (30) calendar days after discovery. The Permittee shall also notify DEQ of any newly-constructed land-based SWMUs (including but not limited to, surface impoundments, waste piles, landfills, land treatment units) and newly-constructed SWMUs where any release of hazardous constituents may be difficult to identify (e.g., underground storage tanks) no later than thirty (30) days after construction. The notification shall include the following items, to the extent available:
 - a. The location of the newly-identified SWMU or potential AOC on the topographic map required in 40 CFR 270.14(b)(19). Indicate all existing units (in relation to other SWMUs);
 - b. The type and function of the unit;
 - c. The general dimensions, capacities, and structural description of the unit (supply any available drawings);
 - d. The period during which the unit was operated;
 - e. The specifics, to the extent available, on all wastes that have been or are being managed at the SWMU or potential AOC; and
 - f. Results of any sampling and analysis required for the purpose of determining whether releases of hazardous waste including hazardous constituents have occurred, are occurring, or are likely to occur from the SWMU or whether the AOC should be considered a SWMU.
2. Based on the results of this Notification DEQ will designate the newly-identified AOC(s). Based on the results of this notification or investigation conducted according to Permit Condition III.G, DEQ will determine the need for further investigations or corrective measures at any newly-identified SWMU(s) or AOC(s).

If DEQ determines that such investigations are needed, DEQ may require the Permittee to prepare a plan for such investigations. The plan for investigation of SWMU(s) or AOC(s) will be reviewed for approval as part of the RFI Workplan or a new RFI Workplan under Permit Condition III.M.3. DEQ may require the Permit to be modified at that time in accordance with Permit Condition III.D to incorporate the investigation requirements for the newly-identified AOC(s) identified pursuant to Permit Condition III. J.1 or SWMU(s) identified pursuant to Permit Condition III.G. DEQ may also allow this modification as part of subsequently required permit/corrective action permit modification actions.

III.K. NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES AT SWMU(s) AND AOC(s)

The Permittee shall notify DEQ in writing, no later than fifteen (15) calendar days after discovery, of any release(s) from a SWMU or AOC of hazardous waste or hazardous constituents discovered during the course of ground water monitoring, field investigation, environmental auditing, or other means. Such newly-discovered releases may be from newly-identified SWMUs or AOCs, newly-constructed SWMUs, or from SWMUs or AOCs for which, based on the findings of the RFA, completed RFI, or investigation of an AOC(s), DEQ had previously determined no further investigation was necessary. The notification shall include information concerning actual and/or potential impacts beyond the facility boundary and on human health and the environment, if available at the time of the notification. DEQ may require further investigation and/or interim measures for the newly-identified release(s), and may require the Permittee to prepare a plan for the investigation and/or interim measure. The plan will be reviewed for approval as part of the RFI Workplan or a new RFI Workplan under Permit Condition III.M.3. The Permit will be modified according to Permit Condition III.D.3 and III.J.2 to incorporate the SWMU, if required.

III.L. INTERIM MEASURES

1. If DEQ determines that a release or potential release of hazardous constituents poses a threat to human health and the environment, DEQ may require interim measures. DEQ shall determine the specific measure(s) or require the Permittee to propose a measure(s). The interim measure(s) may include a permit modification, a schedule for implementation, and a written plan. DEQ shall notify the Permittee in writing of the requirement to perform interim measures. DEQ may modify this Permit according to 40 CFR 270.41 to incorporate interim measures into the Permit. [27A O. S. §2-6-105; OAC 252:205-9-1 and 252:205-13-1]

2. The Permittee may propose interim measures at any time. The proposal shall include a written plan and a schedule for implementation. Depending upon the nature of the interim measure, a permit modification may not be required.
3. The following factors will be considered by DEQ in determining the need for interim measures and the need for permit modification:
 - a. Time required to develop and implement a final remedy;
 - b. Actual and potential exposure to human and environmental receptors;
 - c. Actual and potential contamination of drinking water supplies and sensitive ecosystems;
 - d. The potential for further degradation of the medium in the absence of interim measures;
 - e. Presence of hazardous wastes in containers that may pose a threat of release;
 - f. Presence and concentration of hazardous waste including hazardous constituents in soil that have the potential to migrate to ground water or surface water;
 - g. Weather conditions that may affect the current levels of contamination;
 - h. Risks of fire, explosion, or accident; and
 - i. Other situations that may pose threats to human health and the environment.

III.M. RCRA Facility Investigation (RFI) WORKPLAN

1. For any newly identified SWMU(s), the RFI Workplan as specified in Permit Condition III.U.3 shall be submitted to DEQ within 180 days of identification or DEQ decision under Section III.D. The RFI Workplan must address releases from SWMU(s) of hazardous waste or hazardous constituents to all media as specified below.
 - a. The Workplan shall describe the objectives of the investigation and the overall technical and analytical approach to completing all actions necessary to characterize the direction, rate, movement, and concentration of releases of hazardous waste or hazardous constituents from specific units or groups of units, and their actual or potential receptors. The RFI Workplan shall

detail all proposed activities and procedures to be conducted at the facility, the schedule for implementing and completing such investigations, the qualifications of personnel performing or directing the investigations, including contractor personnel, and the overall management of the RFI. The Scope of Work for a RCRA Facility Investigation (RFI) is in Permit Condition III.U.

- b. The RFI Workplan shall describe sampling, data collection quality assurance, and data management procedures, including formats for documenting and tracking data and other results of investigations, and health and safety procedures.
 - c. Development of the RFI Workplan and reporting of data shall be consistent with the following EPA guidance documents or the equivalent thereof:
 - 1) RCRA Facility Investigation Guidance Document (EPA 530/SW-89-031, May 1989);
 - 2) RCRA Ground-Water Monitoring: Draft Technical Guidance (EPA/530-R-93-001, November 1992);
 - 3) RCRA Groundwater Monitoring Technical Enforcement Guidance Document (OSWER 9950.1) September 1986; and
 - 4) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, November 1992, with revisions.
2. After the Permittee submits the Workplan, DEQ will either approve, disapprove, or modify the Workplan in writing.

If DEQ approves the Workplan, the Permittee shall implement the plan in accordance with its approved schedule contained in the plan. All approved workplans become incorporated into this Permit.

In the event of disapproval (in whole or in part) of the Workplan, DEQ shall specify deficiencies in writing. The Permittee shall modify the plan to correct these within the time frame specified in the notification of disapproval by DEQ. The modified Workplan shall be submitted in writing to DEQ for review.

3. DEQ shall review for approval as part of the RFI Workplan or as a new Workplan any plans developed pursuant to Permit Condition III.J. addressing further investigations of newly-identified SWMUs or AOCs, or Permit Condition III.K. addressing new releases from previously-identified SWMUs or AOCs.

III.N. RFI IMPLEMENTATION

Upon receipt of written approval from DEQ for the RFI Workplan, the Permittee shall implement the RFI according to the schedules and in accordance with the approved RFI Workplan and the following:

1. The Permittee shall notify DEQ at least 10 days prior to any field sampling, field testing, or field monitoring activity required by the Workplan to give Agency personnel the opportunity to observe investigation procedures and/or split samples.
2. Deviations from the approved RFI Workplan which are necessary during implementation of the investigations must be approved by DEQ and fully documented and described in the progress reports and in the RFI Final Report.

III.O. RFI FINAL REPORT AND SUMMARY

1. Within ninety (90) calendar days after the completion of the RFI, or in accordance with an alternative schedule approved by DEQ in the RFI Workplan, the Permittee shall submit an RFI Final Report and Summary. The RFI Final Report shall describe the procedures, methods, and results of all investigations as described in Permit Condition III.U.5. This includes SWMUs and their releases, the type and extent of contamination at the facility, sources and migration pathways, action levels, and actual or potential receptors. The RFI Final Report shall present all information gathered under the approved RFI Workplan. The RFI Final Report must contain adequate information to support further corrective action decisions at the facility. The Summary shall summarize the RFI Final Report.
2. After the Permittee submits the RFI Final Report and Summary, DEQ shall provide written notice of approval or disapproval.

If DEQ determines the RFI Final Report and Summary do not fully meet the objectives stated in Permit Condition III.U, DEQ may disapprove the RFI Final Report and Summary. If DEQ disapproves the Report, DEQ shall notify the Permittee in writing of the Report's deficiencies and specify a due date for submittal of a revised Final Report and Summary or DEQ shall modify the report before approval.

3. Action levels, as discussed in Permit Condition III.H.2, shall be used by the Permittee to determine the need for further corrective action under this Permit. Action levels are one criteria which can be used to determine if a CMS is required. The concept of action levels is not the same as cleanup levels, although in some cases a final cleanup level may be set to equal the action level.

III.P. DETERMINATION OF NO FURTHER ACTION

1. Based on the results of the RFI and/or other relevant information, the Permittee may submit an application to DEQ for a permit modification under 40 CFR 270.42 to terminate the RFI/CMS process for a specific unit. This permit modification application must contain information demonstrating that there are no releases of hazardous waste including hazardous constituents from a particular SWMU at the facility that pose threats to human health and/or the environment, as well as additional information required in 40 CFR 270.42. The proposal for no further action for specific units may be proposed as a permit modification accompanying a proposed permit modification in accordance with Permit Section III-T "Corrective Measures (Remedy) Selection and Implementation."

If, based upon review of the Permittee's request for a permit modification, the results of the RFI, and other information, DEQ determines that releases or suspected releases which were investigated either are non-existent or do not pose a threat to human health and/or the environment, DEQ may grant the requested modification.

2. If necessary to protect human health or the environment, a determination of no further action shall not preclude DEQ from requiring continued or periodic monitoring of air, soil, ground water, or surface water, when site-specific circumstances indicate that releases of hazardous waste or hazardous constituents are likely to occur.
3. A determination of no further action prior to completion of corrective action for all SWMUs specifically identified in this Permit, as determined by DEQ approval of the CMS Implementation Completion Report, shall not preclude DEQ from requiring further investigations, studies, or remediation at a later date, if new information indicates a release or likelihood of a release from a SWMU at the facility that is likely to pose a threat to human health or the environment. In such a case, DEQ shall initiate a modification to the Permit in accordance with 40 CFR 270.41.

III.Q. Corrective Measures Study (CMS) PLAN

1. If DEQ has reason to believe that a SWMU has released concentrations of hazardous constituents, or if DEQ determines that contaminants present a threat to human health or the environment given action levels or site-specific exposure conditions, DEQ may require a CMS and shall notify the Permittee in writing. The

notification may also specify remedial alternatives to be evaluated by the Permittee during the CMS.

2. The Permittee shall submit a CMS Plan to DEQ within ninety (90) calendar days from notification of the requirement to conduct a CMS. The Scope of Work for a CMS Plan is in Permit Condition III.V.

The CMS Plan shall provide the following information:

- a. A description of the general approach to the investigation, and potential remedies;
 - b. A definition of the overall objectives of the study;
 - c. Specific plans for evaluating remedies to ensure compliance with remedy standards;
 - d. Schedules for conducting the study; and
 - e. The proposed format for the presentation of information.
3. After the Permittee submits the CMS Plan, DEQ will either approve, disapprove, or modify the plan in writing.

If DEQ approves the CMS Plan, the Permittee shall implement the plan per Permit Condition III.R.

In the event of disapproval (in whole or in part) of the CMS Plan, DEQ shall specify deficiencies in writing. The Permittee shall modify the plan to correct these within the time frame specified in the notice of deficiency. The modified CMS Plan shall be submitted in writing to DEQ for review. Should the Permittee take exception to the disapproval, decision, or directive, the Permittee shall submit a written statement of the grounds for the exception in accordance with dispute resolution provisions of Permit Condition III.H.4.

III.R. CMS IMPLEMENTATION

After the Permittee has received written approval from DEQ for the CMS Plan, the Permittee shall begin implementation of the Corrective Measures Study and execute the plan according to the schedules therein. All approved plans become incorporated into this Permit.

III.S. CMS FINAL REPORT AND SUMMARY

1. Within sixty (60) calendar days after the completion of the CMS, the Permittee shall submit a CMS Final Report and Summary. The Summary shall summarize the Final Report. The CMS Final Report shall discuss the results of investigations of each remedy studied and of any bench-scale or pilot tests conducted. It must include an evaluation of each remedial alternative. The CMS Final Report shall present all information gathered during the CMS, and must contain adequate information to support the remedy selection process. In the CMS Final Report, the Permittee shall propose a corrective action program that shall:
 - a. Attain compliance with corrective action objectives for hazardous constituents in each medium, as established in Permit Condition III.V;
 - b. Control sources of releases;
 - c. Meet acceptable waste management requirements;
 - d. Protect human health and the environment; and
 - e. Provide for submission for approval of a CMS Implementation Completion Report describing implementation of the corrective measures and a schedule for submission of the Completion Report. If any post-implementation monitoring is required under an approved CMS Final Report and/or CMS Implementation and Completion Report, the CMS Implementation and Completion Report may be submitted after all required remedial actions have been taken notwithstanding any future monitoring requirements. Permittee may also submit Partial Completion Reports upon completion of particular corrective/remedial measures or milestones.

2. After the Permittee submits the CMS Final Report and Summary, DEQ will either approve or disapprove them in writing. Should the Permittee take exception to the disapproval, decision, or directive, the Permittee shall notify DEQ according to Permit Condition III.H.4.

If DEQ determines the CMS Final Report and Summary do not fully meet the objectives stated in Permit Condition III.V., DEQ may disapprove the CMS Final Report and Summary. If DEQ disapproves the Report, DEQ shall notify the Permittee in writing of the Report's deficiencies and specify a due date for submittal of a revised Final Report and Summary.

3. Based on preliminary results and the CMS Final Report, DEQ may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

III.T. CORRECTIVE MEASURE (REMEDY) SELECTION AND IMPLEMENTATION

Within thirty (30) calendar days after approval of CMS Final Report and Summary, the Permittee shall initiate modification of the Permit in accordance with 40 CFR 270.42, for corrective measure (remedy) selection, based on the approved CMS Final Report. The resultant modified permit will include schedules for remedy implementation. Upon completion, a CMS Implementation Completion Report shall be submitted in accordance with the approved schedule in the CMS Final Report. Partial Completion Report(s) may be submitted upon completion of particular corrective/remedial measures or milestones.

III.U. RFI SCOPE OF WORK

1. Purpose

The purpose of the RFI is to determine the nature and extent of releases of hazardous wastes or hazardous constituents from solid waste management units. The required information shall include each item specified under Tasks I-III, below. The Permittee shall furnish all personnel, materials, and services necessary for, or incidental to, performing the RFI.

If the Permittee believes that certain requirements of the Scope of Work are not applicable, the specific requirements shall be identified and a detailed rationale for inapplicability shall be provided.

2. Scope

The RFI consists of three tasks:

Task I: RFI Workplan

- a. Introduction
- b. Environmental Setting
- c. Source Characterization
- d. Contamination Characterization
- e. Potential Receptor Identification
- f. Data Collection Quality Assurance Plan
- g. Data Management Plan

- h. Health and Safety Plan
- i. Community Relations Plan
- j. Project Management Plan

Task II: RCRA Facility Investigation

Task III: RFI Final Report and Summary

Each Task is expanded in III.U.3 through 5 below.

3. Task I: RFI Workplan

The Permittee shall prepare a RFI Workplan as specified in Permit Condition III.M. Unless otherwise authorized by DEQ based on previously submitted information or lack of need, the RFI Workplan shall provide for and address the following information needs:

a. Introduction

1) Facility Description

The introduction shall summarize the regional location, pertinent boundary features, general facility physiography, hydrogeology, and historical use of the facility for the treatment, storage, or disposal of solid and hazardous waste. Information from existing reports and studies is acceptable, as long as the source of this information is documented, pertinent, and reflective of current conditions. This section shall include:

- a) Map(s) depicting the information specified below. All maps shall be consistent with requirements set forth in 40 CFR 270.14 and shall be of sufficient detail and accuracy to locate all current and future work performed at the site.
 - i. general geographic location;
 - ii. property lines, with the owners of all adjacent property clearly indicated, and all land previously owned and/or used by the Permittee around the facility;
 - iii. topography, waterways, wetlands, floodplains, water features, and drainage patterns;

- iv. all tanks, buildings, utilities, paved areas, rights-of-way, and other features;
 - v. all solid waste management units;
 - vi. all known past solid or hazardous waste treatment, storage and disposal areas or units regardless of whether they were active on November 19, 1980;
 - vii. surrounding land uses (residential, commercial, agricultural, recreational); and
 - viii. the location of all production and ground water monitoring wells. These wells shall be clearly labeled and ground and top of casing elevations included (these elevations may be included as an attachment).
- b) A history and description of ownership and operation, solid and hazardous waste generation, treatment, storage and disposal activities at the facility.
 - c) A summary of approximate dates or periods of past waste releases, identification of the materials released, the amount released, the location released, and a description of the response actions conducted (local, state, or Federal response units, or private parties), including any inspection reports or technical reports generated as a result of the response.
 - d) A reference to all environmental, geologic, and hydrogeologic studies performed by all parties, at or near the facility, with a short summary of the purpose, scope, and significant findings thereof.
 - e) A reference to all environmental permits, applied for and/or received, the purpose thereof, and a short summary of requirements.

2) Nature and Extent of Contamination

- a) The Introduction shall summarize all possible source areas of contamination. This, at a minimum, should include all SWMUs listed in Part A of Section III. For each area, the Permittee shall identify the following:
- i. Location of unit/area on a facility map;
 - ii. quantities of solid, hazardous, and radiochemical wastes;
 - iii. quantities of radiochemical and hazardous constituents, to the extent known; and
 - iv. identification of areas where additional information is necessary.
- b) The Permittee shall prepare an assessment and description of the existing degree and extent of contamination. This should include:
- i Available monitoring data and qualitative information on locations and levels of contamination at the facility;
 - ii all potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality; and
 - iii the potential impact(s) on human health or the environment, including demography, ground water and surface water use, and land use.

3) Implementation of Interim Measures

The Permittee shall document and report on all interim measures, which have been or are being undertaken at the facility, including under state or Federal compliance orders, other than those specified in the Permit. The report shall include, as applicable:

- a) Objectives of the interim measures: how the measure is mitigating a potential threat to human health or the environment and/or is consistent with and integrated into requirements for a long term solution;
- b) schedules for design, construction and monitoring;
- c) schedule for progress reports;
- d) stabilization that has occurred at the site;
- e) proposed further investigation and/or action; and
- f) justification for limiting the scope of the RFI.

b. Environmental Setting

The Workplan shall provide for collection of information to supplement and verify existing information on the environmental setting at the facility. The Workplan shall provide for characterization of the following:

1) Hydrogeology

The Workplan shall describe in detail a program to evaluate hydrogeologic conditions at the facility. This program shall provide for least the following information needs:

- a) A description of the regional, local, facility-wide, and SWMU-specific geologic and hydrogeologic characteristics affecting ground water flow beneath the facility.
- b) An analysis of any topographic features including surface water bodies that might influence the ground water flow system.
- c) A representative and accurate classification and description of the hydrogeologic units which may be part of migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units) based on field data, tests (e.g., gamma and neutron logging of existing and new wells, piezometers and borings), and cores.

- d) The extent (depth, thickness, lateral extent) of hydrogeologic units which may be part of migration pathways based on field studies and cores, structural geology, and hydrogeologic cross sections, including:
 - i. Unconsolidated sand and gravel deposits;
 - ii. zones of fracturing or channeling in consolidated or unconsolidated deposits; and
 - iii. zones of high permeability or low permeability that might direct and restrict the flow of contaminants.
- e) A description of representative water level or fluid pressure based on data obtained from ground water monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source. Information needs include: potentiometric surface maps; hydrologic cross sections showing vertical gradients; vertical and horizontal components of flow; and temporal changes in hydraulic gradients.
- f) A description of man-made influences that may affect site hydrogeology such as active and inactive local water-supply and production wells, pipelines, french drains, and ditches.

2) Soils

The Permittee shall describe in detail a program designed to characterize soil and rock units above the water table. Such characterization may include, but is not limited to, the following information: surface soil distribution; soil profile, including ASTM and USCS classifications of soils; transects of soil stratigraphy; saturated hydraulic conductivity; porosity; cation exchange capacity (CEC); soil pH; particle size distribution; depth to water table; moisture content; effect of stratification on unsaturated flow; infiltration; evapotranspiration; residual concentration of contaminants in soil; total natural organic carbon content; and mineral and metal content.

c. Source Characterization

The Permittee shall describe in detail a program designed to completely characterize the wastes and the areas where wastes have been placed, including: type, quantity, physical form, composition, disposition (containment and nature of wastes), and the facility characteristics affecting releases (e.g., facility security, engineered barriers). This shall include quantification of the following specific characteristics, at each source area:

- 1) Unit/disposal area characteristics, including but not limited to: location of unit/disposal area; type of unit/disposal area; design features; operating practices (past and present); period of operation; age of unit/disposal area; general physical conditions; and method used to close the unit/disposal area.
- 2) Waste characteristics, including but not limited to: type of waste placed in unit (hazardous classification, quantity, chemical composition); physical and chemical characteristics (physical form, physical description, pH, general chemical class, density, boiling point, viscosity, cohesiveness, and vapor pressure).

d. Contamination Characteristics

The Permittee shall describe in detail a program to collect analytical data on ground water, soils, surface water, sediment, and subsurface gas contamination when necessary to characterize contamination from a SWMU. The data shall be sufficient to define the extent, origin, direction, and rate of movement of contaminant plumes. Data required shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individual(s) performing the sampling and analysis. All media (ground water, surface water and sediments, soil, air, and gas) must be investigated. If the Permittee believes certain media could not be affected by a release from a specific unit, a detailed justification for not investigating those media must be provided. The Permittee shall address the following types of contamination at the facility as appropriate:

- 1) Ground Water Contamination

The Workplan shall describe in detail a program of ground water investigation to characterize any ground water plumes of contamination at the facility that are not subject to corrective action requirements of 40 CFR Section 264.100 or that are not already

being addressed through implementation of the Permittee's Groundwater Remediation Program described in Provision III.C.4 and Permit Section VII. The program shall at a minimum provide for the following information needs:

- a) A description of the horizontal and vertical extent of any immiscible or dissolved plume(s) originating from the facility;
- b) the horizontal and vertical direction of contamination movement;
- c) the velocity of contaminant movement;
- d) the horizontal and vertical concentrations of any 40 CFR 264 Appendix IX constituents, or more focused constituent list approved by DEQ;
- e) an evaluation of factors influencing the plume movement; and
- f) an extrapolation of future contaminant movement.

2) Soil Contamination

The Permittee shall, if necessary, describe in detail a program to characterize contamination of soil and rock units above the water table in the vicinity of the contaminant release. The program shall provide for the following information needs:

- a) A description of the vertical and horizontal extent of contamination;
- b) a description of contaminant and soil chemical properties within the contaminant source area. This may include contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation, natural total organic carbon content, and other factors that might affect contaminant migration and transformation; and
- c) plume migration and transformation specific contaminant concentrations; the velocity and direction of contaminant

movement; and an extrapolation to future contaminant movement.

3) Surface Water and Sediment Contamination

The Permittee shall, if necessary, describe in detail a program to characterize contamination in surface water bodies and sediment resulting from contaminant releases at the facility. The investigation shall at minimum include the following:

- a) A description of the surface water body including location, elevation, flow, velocity, depth, width, seasonal fluctuations, flooding tendencies and drainage patterns.
- b) A description of sediment characteristics including depositional area, thickness, mineralogy, grain size, density, ion exchange capacity, and total natural organic carbon content.
- c) Maps for all areas included in surface water and sediment investigations which meet requirements in 40 CFR 270.14 and which are sufficiently detailed and accurate to depict all the information required.
- d) A description of the horizontal and vertical extent of any immiscible or dissolved plumes originating from the facility, and the extent of contamination in the underlying sediments;
- e) the horizontal and vertical direction and velocity of contaminant movement;
- f) an evaluation of the physical, biological, chemical, and radiochemical factors influencing contaminant movement;
- g) an extrapolation to future contaminant movement;
- h) a description of the chemistry of the contaminated surface waters and sediments. This includes pH, temperature, total dissolved solids, total suspended solids, biochemical oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients, chemical oxygen demand, total organic carbon, and specific contaminant concentrations.

4) Air Contamination

The Permittee shall, if necessary, describe in detail a program to characterize particulate and gaseous contaminants potentially released into the atmosphere as a result of corrective action activities on SWMUs.

5) Subsurface Gas

The Permittee shall, if necessary, describe in detail a program to characterize the nature, rate and extent of potential releases of reactive gases from the SWMU as a result of corrective action activities on a SWMU. Such a program may include, but is not limited to: provisions for monitoring subsurface gases released from the unit, and an assessment of the potential for threat to human health and/or the environment.

e. Potential Receptors

The Permittee shall describe in detail a program to collect data to describe human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical and radiochemical analysis of biological samples may be needed. Data on observable effects in ecosystems may also be required. The following characteristics shall be identified:

- 1) Local uses and possible future uses of ground water, including:
 - a) Type of use (i.e., potable, domestic, agricultural, residential, industrial, municipal); and
 - b) location of all ground water wells, names of owners or tenants at those locations, USGS/DODT well designations, and current use of those wells within a 1 mile radius of facility.
- 2) Local uses and possible future uses of surface waters within a 1.5 mile radius of the facility, including domestic and municipal, recreational, agricultural, industrial, and environmental.
- 3) Human use of or access to the facility and adjacent lands, including but not limited to recreation, hunting, residential, commercial, and industrial.

- 4) A description of the local ecology, including biota in surface water bodies on, adjacent to, or affected by the facility, and a description of any endangered or threatened species near the facility.

f. Data Collection Quality Assurance Plan

The Permittee shall prepare a plan to document all monitoring procedures: sampling, field measurements, and sample analysis performed at the facility during the investigation to characterize the environmental setting, source, and contamination, so as to ensure that all information, data, and resulting decisions are technically sound, statistically valid, and properly documented.

- 1) The strategy section of the Data Collection Quality Assurance Plan shall include but not be limited to the following:
 - a) Description of the intended uses for the data, and the necessary level of precision and accuracy for those intended uses;
 - b) description of methods and procedures to be used to assess the precision, accuracy and completeness of the measurement data; and
 - c) schedule and information to be provided in quality assurance reports, including at least:
 - i. periodic assessment of measurement data accuracy, precision, and completeness;
 - ii. results of performance audits;
 - iii. results of systems audits; and
 - iv. significant quality assurance problems and resolutions.
- 2) The Sampling and Field Measurements Section of the Data Collection Quality Assurance Plan shall at least discuss:
 - a) Selecting appropriate sampling and field measurements locations, depths, etc.;

- b) providing a statistically sufficient number of sampling and field measurement sites;
 - c) determining conditions under which sampling or field measurements shall be conducted;
 - d) determining which parameters are to be measured and where;
 - e) selecting the frequency of sampling and length of sampling period, including quality control samples (duplicate samples);
 - f) selecting the types of sample (e.g., composites vs. grabs) and number of samples to be collected, including field, equipment and trip blanks;
 - g) delineating procedures designed to prevent contamination of sampling or field measurements equipment and cross contamination between sampling points;
 - h) documenting field sampling operations and procedures;
 - i) selecting appropriate sample containers;
 - j) preserving samples;
 - k) controlling chain-of-custody; and
 - l) disposing of all contaminated materials generated by activities in a manner compliant with all state and Federal regulations.
- 3) The Sample Analysis shall include:
- a) Chain-of-custody procedures;
 - b) sample storage procedures and holding times;
 - c) sample preparation methods;
 - d) analytical procedures;

- e) calibration procedures and frequency;
- f) data reduction, validation and reporting; and
- g) frequency of internal quality control checks and laboratory performance audits.

g. Data Management Plan

If specifically requested by DEQ, the Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures (data record), project file requirements, and project-related progress reporting procedures and documents.

- 1) The data record shall include at least the following for all sample and field measurements: unique measurement code; measurement location; measurement type; laboratory ID number; property or component analyzed; and results of analysis.
- 2) The Data Management Plan shall provide the format to be used to present the data and conclusions of the investigation, etc.
 - a) The following shall be presented in tables: raw data; data sorted by significant features such as location, media, constituent; data reduction for statistical analysis; and summary data.
 - b) The following shall be presented in graphical formats (e.g., bar graphs, line graphs, plan maps, isopleth plots, cross-sections, three-dimensional displays, etc.): sampling location and grid; levels of contamination at each sampling location; geographical extent of contamination; and changes in concentration relative to source, time, depth, and other parameters.

h. Health and Safety Plan

- 1) The Permittee shall prepare a facility Health and Safety Plan, which shall include:

- a) A description of the facility including availability of resources such as roads, water supply, electricity and telephone service;
 - b) a description of the known hazards and evaluation of the risks associated with each activity conducted, including but not limited to on and off-site exposure to contaminants during implementation of interim measures;
 - c) a list of key personnel and alternatives responsible for site safety, response operations, and for protection of public health;
 - d) a delineation of the work area;
 - e) a description of levels of protection to be worn by personnel in the work area;
 - f) procedures established to control site access;
 - g) decontamination procedures for personnel and equipment;
 - h) site emergency procedures;
 - i) emergency medical care procedures for injuries and toxicological problems;
 - j) requirements for an environmental field monitoring program;
 - k) routine and special training requirements for responders; and
 - l) procedures for protecting workers from weather-related problems.
- 2) The Facility Health and Safety Plan shall be consistent with:
- a) NIOSH Occupation Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);
 - b) EPA Order 1440.1 - Respiratory Protection;
 - c) EPA Order 1440.3 - Health and Safety Requirements for Employees engaged in Field Activities;

- d) Approved Facility Contingency Plan;
- e) EPA Operating Safety Guide (1984);
- f) OSHA regulations, particularly 29 CFR 1910 and 1926;
- g) State and local regulations; and
- h) Other EPA guidance as provided.

i) Community Relations Plan

If specifically requested by DEQ, the Permittee shall prepare a plan for dissemination of information to the public regarding investigation activities and results.

j. Project Management Plan

If specifically requested by DEQ, the Permittee shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, budget, and key project personnel. The project management plan will also include a description of qualifications of key project personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RFI.

4. Task II: RCRA Facility Investigation (RFI)

The facility investigation activities shall follow the RFI Workplan. All sampling and analyses shall be conducted in accordance with the Data Collection Quality Assurance Plan, III.U.3.f. All sampling locations shall be documented in a log and identified on a detailed site map. During the RFI, it may be necessary to revise the RFI Workplan to increase or decrease the detail of information collected to accommodate the facility specific situation. All changes to the RFI Workplan must be approved by DEQ and may require a modification of the permit as required by 40 CFR 270.42.

The Permittee shall conduct investigations of SWMUs previously identified with known or suspected releases of contamination to characterize the facility (Environmental Setting, III.U.3.b), define the source (Source Characterization, III.U.3.c), define the degree and extent of contamination (Contamination Characterization, III.U.3.d), and identify actual or potential receptors (Potential Receptor Identification, III.U.3.e).

The investigations should result in data of adequate technical quality to develop and evaluate corrective measures alternatives during the Corrective Measures Study, when necessary.

5. Task III: RFI Final Report and Summary

The Permittee shall analyze all facility investigation data collected during the RFI process and prepare a detailed report on the type and extent of contamination at the facility including sources and migration pathways. All information generated during the investigation shall be presented and analyzed. All evidence and procedures used for making any determinations (e.g., velocity of groundwater, extent of contamination) shall be fully documented. The report shall describe extent of contamination (qualitative/quantitative) in relation to background levels indicative for the area. The report shall contain the results of all tests, calculations, inspections, record searches, and observations. It shall contain soil and ground water contamination profiles, statistical comparisons, and the results of all sampling events conducted as part of the investigation. It shall display results in tables, graphs, maps, and cross sections as discussed in the Data Management Plan and Permit Condition III.U.3.g.2, if applicable.

The Permittee shall identify all relevant and applicable standards for the protection of human health or the environment (e.g., National Ambient Air Quality Standards, Federally-approved State water quality standards, ground water protection standards, etc.)

Data shall be evaluated to ensure it is sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, to evaluate the potential threat to human health or the environment, and to support a CMS, if required. The report shall present all data in an Appendix.

III.V. Corrective Measures Study (CMS) SCOPE OF WORK

1. Purpose

The purpose of the CMS, if required, is to develop and evaluate corrective measures alternatives and to recommend the corrective measure or measures to be taken. The required information shall include each item specified under CMS Tasks IV-VI, below. The Permittee will furnish the personnel, materials, and services necessary to prepare the CMS, except as otherwise specified.

If the Permittee believes that certain requirements of the Scope of Work are not applicable, the specific requirements shall be identified and the rationale for inapplicability shall be provided.

2. Scope

The Corrective Measure Study consists of three tasks:

Task IV: CMS Plan

- a. Description of Current Situation
- b. Establishment of Corrective Action Objectives
- c. Description of Approach to CMS
- d. Schedule for CMS

Task V: Corrective Measures Study

- a. Identification of Corrective Measures Alternatives(s)
- b. Screening of Corrective Measures Alternatives(s)
- c. Development of Corrective Measures Alternative(s)
- d. Evaluation of Corrective Measures Alternative(s)
- e. Selection of Corrective Measures Alternative(s)

Task VI: CMS Final Report and Summary

Each Task is expanded in III.V.3 through 5 below.

3. Task IV: CMS Plan

a. Description of Current Conditions

The Permittee shall briefly describe current conditions at the facility to update information provided in the RFI Final Report and Summary. This shall include previous and/or ongoing remedial activity or interim measures.

b. Establishment of Corrective Action Objectives

The Permittee shall propose to DEQ for review and approval, facility-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RFI, EPA guidance, and the requirements of any applicable Federal statutes and regulations.

c. Description of Approach to CMS

The Permittee shall describe the general approach to the corrective measures study. The approach shall include identification, development, screening,

and evaluation of the corrective measures alternatives, as discussed in detail in Permit Condition III.V0.4. The Permittee shall describe specific plans for laboratory and bench-scale studies, or field studies, if needed. Specific plans for evaluating remedy effectiveness shall also be developed. The approach shall specify formats to be used for data presentation, including raw data, maps, charts, graphs, engineering schematics, construction design, etc.

d. Schedule

The Permittee shall develop a schedule for implementing the corrective measures study, and a schedule for submitting quarterly progress reports on the study implementation.

4. Task V: Corrective Measures Study

The CMS consists of five parts: identification, screening, development, evaluation, and selection of the corrective measures alternative(s).

a. Identification of Preliminary Corrective Measures Alternative(s)

Based on the results of the RFI and the CMS Plan objectives, the Permittee shall identify all possible alternatives for removal, containment, treatment and/or other remediation of the contamination.

b. Screening of Preliminary Corrective Measures Alternatives

The Permittee shall screen the identified preliminary corrective measures alternatives to eliminate those that may not prove feasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective action objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technological limitations.

Site, waste, and technological characteristics which are used to screen inapplicable technologies are described in more detail below:

- 1) Site Characteristics. Site data should be reviewed to identify conditions which may limit or promote the use of certain technologies. Technologies whose use is clearly

precluded by site characteristics should be eliminated from further consideration;

- 2) **Waste Characteristics.** Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by waste characteristics should be eliminated from consideration.
- 3) **Technological Limitations.** The level of technology development, performance record, and operation and maintenance problems shall be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process.

c. Development of Corrective Measures Alternatives

The Permittee shall develop corrective measures alternatives based on corrective measures objectives, and identification and screening of preliminary alternatives. The Permittee shall rely on engineering practice to determine which of the previously identified and screened technologies appear most suitable for the site. Technologies can be combined to form the overall corrective measures alternatives. The alternatives developed should represent a workable number of options that each appears to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Permittee shall document the reasons for excluding technologies.

When a new technology is proposed or similar waste streams have not routinely been treated or disposed of using the technology, the Permittee shall conduct laboratory and/or bench-scale studies to determine the applicability to facility conditions. The Permittee shall analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements.

- 1) The Permittee shall develop a testing plan identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.
- 2) Upon completion of testing, the Permittee shall evaluate the testing results to assess the technology or technologies with

respect to the site-specific questions identified in the test plan.

- 3) The Permittee shall prepare a report summarizing the testing program and its results, both positive and negative.

d. Evaluation of Corrective Measures Alternative(s)

The Permittee shall evaluate each corrective measures alternative developed in Permit Condition III.V.4.c. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates for each corrective measure.

- 1) Technical, Environmental, Human Health, and Institutional Concerns

The Permittee shall provide a description of each corrective measures alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

- a) Technical

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

- i. The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

- (a) Effectiveness shall be evaluated in terms of the ability to perform intended functions such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should

also consider the effectiveness of combinations of technologies.

- (b) Useful life is defined as the length of time the level of effectiveness can be maintained. Each corrective measure shall be evaluated in terms of the projected service lives of its component technologies. Resource availability in the future life of the technology, as well as appropriateness of the technologies, must be considered in estimating the useful life of the project.
- ii. The Permittee shall provide information on the reliability of each corrective measure including operation and maintenance requirements and demonstrated reliability:
 - (a) Operation and maintenance requirements include the frequency and complexity of operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered.
 - (b) Demonstrated and expected reliability is a way of measuring risk and effect of failure. The Permittee should evaluate whether technologies have been used effectively under analogous conditions; whether the combination of technologies have been used together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.
- iii. The Permittee shall describe the implementability of each corrective measure including relative ease of

installation (constructibility) and total time required to achieve a given level of response:

(a) Constructibility is determined by conditions both internal and external to facility conditions and includes such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of facility (i.e., remote location vs. congested urban area). The Permittee shall evaluate what measures can be taken to facilitate construction under site specific conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities.

(b) Time has two components to be addressed: the time it takes to implement a corrective measure and the time it takes to see beneficial results. Beneficial results are defined as the reduction of contaminants to acceptable levels as established in the corrective measures objectives.

iv. The Permittee shall evaluate each corrective measures alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider include fire, explosion, and exposure to hazardous substances.

b) Environmental

The Permittee shall perform an Environmental Assessment for each alternative. The assessment shall focus on facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include at a minimum, an evaluation of the short- and long-term beneficial and adverse effects of the response alternative, evaluation of any adverse effects on

environmentally sensitive areas, and an analysis of measures to mitigate adverse impacts.

c) Human Health

The Permittee shall assess each alternative in terms of the extent to which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation of the corrective measure. The assessment will describe the levels and characterizations of contaminants on-site, potential exposure routes, and potentially affected populations. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or regulations acceptable to DEQ.

d) Institutional

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, State, and Local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative shall be considered.

2) Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measures alternative and for each phase or segment of the alternative. The cost estimate shall include capital, and operation and maintenance costs.

a) Capital costs consist of direct and indirect costs.

i. Direct capital costs include:

- (a) Construction costs: Cost of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measures alternative;

- (b) Equipment costs: Costs of treatment, containment, disposal and/or servicing of equipment used to implement the action;
 - (c) Land and site development costs: Expenses associated with purchase of land and development of existing property; and
 - (d) Building and services costs: Costs of process and non-process buildings, utility connections, purchased services, and disposal costs.
- ii. Indirect capital costs include:
- (a) Engineering expenses: Costs of administration, design, construction, supervision, drafting, and testing of corrective measures alternatives;
 - (b) Legal fees and license or permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;
 - (c) Start-up and shakedown costs: Costs incurred during corrective measure start-up; and
 - (d) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances such as adverse weather conditions, strikes, and inadequate facility characterization.
- b) Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components:
- i. Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operation;

- ii. Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;
- iii. Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;
- iv. Purchased services: Sampling costs, laboratory fees, and professional fees which can be predicted;
- v. Disposal and treatment: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operation;
- vi. Administrative costs: Costs associated with administration of corrective measures operation and maintenance not included under other categories;
- vii. Insurance, taxes, and licensing costs: Costs of such items as liability and accident insurance; real estate taxes on purchased land or rights-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;
- viii. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover costs of anticipated replacement or rebuilding of equipment, and any large unanticipated operation and maintenance costs; and
- ix. Other costs: Items that do not fit any of the above categories.

e. Selection of Corrective Measures Alternative(s)

The Permittee shall select a corrective measures alternative using technical, human health, and environmental criteria. At a minimum, the following criteria shall be used to select the final corrective measure or measures.

1) Technical

- a) Performance. Corrective measure or measures which are most effective at performing their intended functions and maintaining performance over extended periods of time will be given preference;
- b) Reliability. Corrective measure or measures which do not require frequent or complex operation and maintenance activities and have proven effective under conditions similar to those anticipated will be given preference;
- c) Implementability. Corrective measure or measures which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and
- d) Safety. Corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

2) Human Health

The corrective measure or measures must comply with existing EPA criteria, standards, or regulations for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

3) Environmental

The corrective measure or measures imposing the least adverse impact or greatest improvement on the environment over the shortest period of time will be preferred.

5. Task VI: CMS Final Report and Summary

The Permittee shall prepare a CMS Final Report and Summary presenting the results of the CMS and recommending a corrective action program. The Permittee may also submit a Partial CMS Final Report(s) for particular CMS activities or milestones. The Report shall at a minimum include:

- a. A summary of all the corrective measures alternatives originally identified, and the screening rationale employed. The results of development of each alternative shall be described, and the evaluation of those developed shall be presented in detail. The report will describe the rationale for selection of a corrective measures alternative, including performance expectations, preliminary design criteria and rationale, general operation and maintenance requirements, and long-term monitoring requirements. The report shall include summary tables which allow the alternative or alternatives to be easily understood. Trade-offs among health risks, environmental effects, and other pertinent factors shall be highlighted.
- b. A proposed corrective action program that will attain compliance with concentration level objectives, control sources of releases, meet acceptable waste management requirements, and protect human health and the environment.
- c. Design and implementation precautions, including special technical problems, additional engineering data required, permits and regulatory requirements, access, easements, and right-of-way, health and safety requirements, and community relations activities.
- d. Cost estimates and schedules including capital cost estimate, operation and maintenance cost estimate, and project schedule (design, construction, operation).
- e. A schedule for corrective measure (remedy) implementation.

Section III Table 1: RFI/CMS SUBMISSION SUMMARY

Below is an example summary of the planned reporting requirements pursuant to this Permit, which may be required by DEQ for new corrective action activities whose schedule has not already been established:

<u>Actions</u>	<u>Due Date</u> (examples)
Progress reports on all activities	Quarterly; no later than ninety (90) calendar days after effective date of Permit
RFI Workplan	One hundred twenty (120) calendar days after the effective date of the Permit if required
Revised RFI Workplan	As determined by DEQ, not less than thirty (30) calendar days of receipt of NOD
RFI Report and Summary	Sixty (60) calendar days after completion of RFI
Revised RFI Report and Summary	As determined by DEQ, not less than thirty (30) calendar days of receipt of NOD
Notification of newly identified SWMUs	Thirty (30) calendar days after discovery
Notification of newly discovered releases	Fifteen (15) calendar days after discovery
Interim Measures Plan	As determined by DEQ
Revised Interim Measure Plan	As determined by DEQ
CMS Plan (If required)	Forty five (45) calendar days after notification of requirement to perform CMS
Revised CMS Plan (If required)	As determined by DEQ, not less than thirty (30) calendar days of receipt of NOD
CMS Final Report and Summary (If required)	Sixty (60) calendar days after completion of CMS
Revised CMS Final Report (If required)	As determined by DEQ, not less than (30) calendar days after receipt of NOD
CMS Implementation Completion Report or Partial Completion Report(s)	Sixty (60) days after completion of corrective measures (excluding monitoring) or completion of particular corrective/remedial measures or milestones.
Demonstration of Financial Assurance at Facility	One hundred twenty (120) calendar days after permit modification to implement corrective measures unless Permittee is utilizing an annual Financial Test or Corporate Guarantee as demonstration of financial responsibility.

END OF SECTION III.

SECTION IV – CONTAINER STORAGE

IV.A. SECTION HIGHLIGHTS

This section discusses the storage of hazardous waste in containers at the Phillips 66 Ponca City Refinery. Information such as container area dimensions, types and waste capacities, container descriptions, secondary containment descriptions and capacities, and special activity features are provided in Permit Attachment 11.

The Container Storage Area, an uncovered area located outdoors encompassing 2,400 square feet, was closed as per the closure standards of Part IV.I of this section in 2015, with notification of closure submitted July 6, 2015, and Completion of Closure recorded by DEQ July 6, 2016.

The Solid Waste Staging Area can only be used to manage RCRA exempt waste as outlined in Attachment 11 (Section 6.2.2). Due to potential historical leaks of hazardous waste, the Solid Waste Staging Area is required to maintain Financial Assurance as outlined in Attachment 7 (Section 3.10.3).

A description of the permitted hazardous waste Container Storage Building and its maximum allowable capacity is set forth in the following table:

PERMITTED UNIT	UNIT DESCRIPTION	MAXIMUM CAPACITY	ALLOWABLE
Container Storage Building	Consists of a sloped concrete pad, with secondary containment, covered by a permanent canopy. The building is divided into three separately contained storage bays.	Bay 1	750 drums; 41,250 gal
		Bay 2	750 drums; 41,250 gal
		Bay 3	3500 drums; 192,500 gal

A description of the Solid Waste Staging Area and its maximum allowable capacity is set forth below:

UNIT	UNIT DESCRIPTION	MAXIMUM CAPACITY	ALLOWABLE
Solid Waste Staging Area	The area consists of canopy covered, curbed and sloped reinforced concrete slab areas. The unit is divided into five separate compartments, the dewatering slab and bays 1 through 4.	Dewatering Slab	40,000 gal
		Bay 1	40,000 gal
		Bay 2	40,000 gal
		Bay 3	40,000 gal
		Bay 4	40,000 gal
		Total	200,000 gal

Locations of the permitted Container Storage Building and the Solid Waste Staging Area are shown on Plate 1, which is included in Permit Attachment 8. Additional authorized oil recovery, non-hazardous waste management, recycling, and waste staging activities are described in The Waste/Compatibility section of Permit Attachment 11.

IV.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

The Permittee is prohibited from storing hazardous wastes that are not identified in the Permit or that are not generated by corporately-owned facilities. Permittee typically manages the following types of listed and characteristic hazardous wastes, as noted on page 3 of their RCRA Subtitle C Site Identification Form, found in Permit Attachment 15:

D-Listed Wastes

D001 through D043

F-Listed Wastes

- F002 The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2, trichloroethane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F001, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F003 The following spent non-halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/ blends containing, before use, only the above spent nonhalogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above nonhalogenated solvents, and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F004 The following spent nonhalogenated solvents: cresols, cresylic acid, and nitrobenzene; and the still bottoms from the recovery of these solvents; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
- F005 The following spent nonhalogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above nonhalogenated

solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F037 Petroleum refinery primary oil/water/solids separation sludge - Any sludge generated from the gravitational separation of oil/water/solids during the storage or treatment of process wastewaters and oily cooling wastewaters from petroleum refineries. Such sludges include, but are not limited to, those generated in oil/water/solids separators; tanks and impoundments; ditches and other conveyances; sumps; and storm water units receiving dry weather flow. Sludges generated in storm water units that do not receive dry weather flow, sludges generated in aggressive biological treatment units as defined in Section 261.31(b)(2)(including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units), and K051 wastes are exempted from this listing.

F038 Petroleum refinery secondary (emulsified) oil/water/solids separation sludge – Any sludge and/or float generated from the physical and/or chemical separation of oil/water/solids in process wastewaters and oily cooling wastewaters from petroleum refineries. Such wastes include, but are not limited to, all sludges and floats generated in induced air flotation (IAF) units, tanks and impoundments, and all sludges generated in DAF units. Sludges generated in stormwater units that do not receive dry weather flow, sludges generated in aggressive biological treatment units as defined in Section 261.31(b)(2) (including sludges generated in one or more additional units after wastewaters have been treated in aggressive biological treatment units), and F037, K048, and K051 wastes are exempted from this listing.

K-Listed Wastes:

- K048 Dissolved air flotation (DAF) float from the petroleum refining industry.
- K049 Slop oil emulsion solids from the petroleum refining industry.
- K050 Heat exchanger bundle cleaning sludge from the petroleum refining industry.
- K051 API separator sludge from the petroleum refining industry.
- K052 Tank bottoms (leaded) from the petroleum refining industry.
- K169 Crude oil storage tank sediment from petroleum refining operations.
- K170 Clarified slurry oil tank sediment and/or in-line filter/separation solids from petroleum refining operations.
- K171 Spent Hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media).
- K172 Petroleum Refining Process Wastes; Spent Hydrorefining Catalyst.

P-Listed Waste:

P01 through P205

U-Listed Waste:

U001- U411

1. The Permittee may store wastes in containers at the facility, subject to the terms of this Permit as provided in Permit Attachment 11.
2. Results of additional waste analyses performed after the analyses submitted for the Part B application and incorporated by reference in this permit must be incorporated in the facility operating record.

IV.C. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall transfer the hazardous waste from such container to a container that is in good condition or otherwise manage the waste in compliance with the conditions of this permit. [40 CFR 264.171 and Permit Attachment 11]

IV.D. COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee shall use containers made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste being stored, so that the ability of the container to contain the waste is not impaired, as required. [40 CFR 264.172 and Permit Attachment 11]

IV.E. MANAGEMENT OF CONTAINERS

The Permittee shall keep all containers closed during storage, except when it is necessary to add or remove waste, and shall not open, handle, or store containers in a manner which may rupture the container or cause it to leak. [40 CFR 264.173 and Permit Attachment 11]

IV.F. CONTAINMENT SYSTEMS

The Permittee shall maintain the containment system in accordance with the plans and specifications contained in Attachment 11. [40 CFR 264.175]

IV.G. INSPECTION SCHEDULES AND PROCEDURES

The Permittee shall inspect the container areas weekly, in accordance with the Inspection Schedule, Permit Attachment 11, to detect leaking containers and deterioration of containers and the containment system caused by corrosion and other factors. [40 CFR 264.174]

IV.H. RECORDKEEPING

The Permittee shall place the results of all storage and containment system inspections and waste analyses and any other documentation showing compliance with the requirements of Permit Conditions IV. G, K.1 and K.2 and 40 CFR 264.15(d), 264.17(b), 264.174 and 264.177 in the facility operating record. [40 CFR 264.73 and Permit Attachment 11]

IV.I. CLOSURE

At closure of the container areas, the Permittee shall remove all hazardous waste and hazardous waste residues from the containment systems, in accordance with the procedures in the Permit Attachment 11, and the Closure Plan in Permit Attachment 6. [40 CFR 264.178]

IV.J. SPECIAL CONTAINER PROVISIONS FOR IGNITABLE OR REACTIVE WASTE

1. The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility's property line. [40 CFR 264.176]
2. The Permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste and follow the procedures specified in Permit Attachment Permit Attachment 11. [40 CFR 264.17(a) and 264.176]

IV.K. SPECIAL CONTAINER PROVISIONS FOR INCOMPATIBLE WASTE

1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container, Permit Attachments 1 and 11. [40 CFR 264.177(a)]
2. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material, Permit Attachments 1 and 11. [40 CFR 264.177(b)]
3. The Permittee shall separate containers of incompatible wastes, Attachments 1 and 11. [40 CFR 264.177(c)]

IV.L. REQUIRED AISLE SPACE

The Permittee shall maintain aisle space in container storage areas sufficient to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any portion of the container storage areas. [40 CFR 264.35]

IV.M. AIR EMISSION REQUIREMENTS FOR CONTAINERS

1. The Permittee shall comply with 40 CFR Subpart CC as it applies to the hazardous waste management unit identified in Permit Attachment, 11the Container Storage Building.
2. For each container that is exempted from using air emissions controls, a written report shall be submitted to DEQ within fifteen (15) days of each occurrence when hazardous waste is placed in the waste management unit in noncompliance with the conditions of 40 CFR 264.1082 (c)(1) or (c)(2), as applicable. The written report shall contain the EPA identification number, facility name and address, a description of the noncompliance event and cause, the dates of the noncompliance, and the actions taken to correct the noncompliance and prevent reoccurrence of the noncompliance.

END OF SECTION IV.

SECTION V – LAND TREATMENT OPERATIONS

V.A. SECTION HIGHLIGHTS

The activities covered by this section include: a description of the Land Treatment Unit (LTU), wind control devices, description of wastes handled, any unique or special features associated with the LTU, and a reference to any special permit conditions. The LTU authorized by this Permit consists of 10 plots, 22.17 acres in total size, located at the southern side of the Facility complex, and is described more in Permit Attachment 12 and the Plates in Permit Attachment 8.

V.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

The Permittee must treat the wastes in the land treatment program, subject to the terms of this permit and in accordance with the provisions of Permit Attachment 12. [40 CFR 264.271(a)(1); 264.271(b); and 264.273(a)(1)]

V.C. TREATMENT PROGRAM

The Permittee may implement a land treatment program that is designed to ensure that hazardous constituents placed in or on the treatment zone are degraded, transformed or immobilized within the treatment zone in accordance with Permit Attachment 12. [40 CFR 264.271(a)]

The treatment program will include the following elements:

1. Specification of wastes that are capable of being treated via land treatment practices, Permit Attachment 12.
2. List of principle hazardous constituents that are expected to be in, or derived from, the wastes to be land treated based on waste analysis. The principal hazardous constituents on the LTU are arsenic, chromium, lead, selenium, benzene, toluene, ethylbenzene, total xylenes, anthracene, naphthalene, phenanthrene, and phenol, Permit Attachment 12 (Table 7-4).
3. Description of the theory behind the type of treatment (e.g., biodegradation) and the expected by-products, Permit Attachment 12.
4. Release detection monitoring provisions meeting the requirements of 40 CFR 264.278, Permit Attachment 12 and Permit Attachment 13.

5. Vertical and horizontal dimensions of the treatment zone. The maximum depth of the treatment zone must not be more than five feet from the initial soil surface and more than three feet above the seasonal high water table, Permit Attachment 12.
6. Description of the soil between the initial soil surface and the seasonal high water table, Permit Attachment 12.

V.D. DESIGN, CONSTRUCTION AND OPERATING REQUIREMENTS

The Permittee shall operate the land treatment system according to the following requirements:

1. The Permittee shall operate and maintain the treatment unit in accordance with the plans and specifications contained in Permit Attachment 12 (Table 7-2), which include the rate and method of waste application to the treatment zone, method of introducing oxygen, measures to control soil pH, measures to enhance microbial or chemical reactions, and measures to control moisture and nutrient content. [40 CFR 264.273(a)]
2. The Permittee shall operate and maintain the treatment zone to minimize run-off of hazardous constituents during the active life of the land treatment unit, in accordance with the plans and specifications contained in Permit Attachment 12 (Figure 7-1). [40 CFR 264.273(b)]
3. The Permittee shall operate and maintain the run-on/run-off control system, in accordance with the plans and specifications contained in Permit Attachment 12 (Figure 7-1). [40 CFR 264.273(c),(d),(e)].
4. The Permittee shall manage the treatment zone to control wind dispersal of particulate matter, in accordance with the methods specified in Permit Attachment 12. [40 CFR 264.273(f)]

V.E. RELEASE DETECTION MONITORING

The Permittee shall continue an unsaturated zone monitoring program that meets the following conditions:

1. The Permittee shall monitor the unsaturated zone soil to determine if any of the hazardous constituents specified in Permit Condition V.C.2. migrate out of the treatment zone, Permit Attachment 12. [40 CFR 264.278(a)]
2. The Permittee shall operate and maintain a release detection monitoring system, in accordance with the plans and specifications contained in Permit Attachment 12. [40 CFR 264.278(b)]

3. The Permittee shall specify or establish a background value for each principle hazardous constituent (identified in Permit Condition V.C.2 and found in Permit Attachment 12 (Table 7-5 and 7-6)) to be monitored. [40 CFR 264.278(c)]
4. The Permittee shall conduct unsaturated zone soil monitoring and soil-pore liquid monitoring immediately below the treatment zone, in accordance with the procedures contained in Permit Attachment 12. [40 CFR 264.278(d)]
5. The Permittee shall follow the sampling and analysis procedures set forth in the plans and procedures contained in Permit Attachment 12. [40 CFR 264.278(e)]
6. The Permittee shall determine whether there is a statistically significant change over background values for any principal hazardous constituent monitored in the unsaturated zone under Permit Condition V.E.1. and V.E.4 each time the monitoring required by Permit Condition V.E.4. is conducted. [40 CFR 264.278(f)] This determination shall be made using the statistical procedures contained in Permit Attachment 12. [40 CFR 264.278(f)(1) and (3)] The Permittee shall make this determination within 21 days after receiving results of sampling analysis, or 21 days after receipt of verification sampling analysis results conducted in accordance with the Statistical Review of Release Detection Monitoring data protocol specified in Permit Attachment 12. [40 CFR 264.278(f)(2)]
7. If the Permittee determines, pursuant to Permit Condition V.E.6., that there is a statistically significant increase of hazardous constituents below the treatment zone, he shall notify DEQ of this finding in writing within seven days, indicating which constituents have shown statistically significant increases, and apply for a permit modification within ninety (90) days to modify the operating practices at the facility to maximize the success of degradation, transformation, or immobilization processes in the treatment zone, Permit Attachment 12. [40 CFR 264.278(g)]
8. The Permittee need not submit the permit modification required by Permit Condition V.E.7., if it successfully demonstrates in writing to DEQ within ninety (90) days, that a source other than the regulated unit caused the increase or that the increase resulted from an error in sampling, analysis or evaluation, Permit Attachment 12. The Permittee shall apply for a permit modification within ninety (90) days to modify the unsaturated zone monitoring program at the facility. [40 CFR 264.278(h)]
9. Ground water monitoring for the LTU will be conducted semi-annually, as outlined in Permit Attachment 12 (LTU) and 13 (Groundwater Protection).

V.F. INSPECTION SCHEDULES AND PROCEDURES

The Permittee shall inspect the land treatment unit weekly, after storms, and in accordance with the inspection schedule in Permit Attachment 12 to detect evidence of deterioration, malfunctions, or improper operation of the run-on and run-off control system. [40 CFR 264.273(g)]

V.G. RECORDKEEPING AND REPORTING

The Permittee shall include waste application dates and rates in the operating record, Permit Attachment 12. [40 CFR 264.279]

V.H. CLOSURE AND POST-CLOSURE CARE

1. The Permittee shall close the land treatment unit, in accordance with the procedures in Permit Attachment 6 (Closure Plan), and Permit Attachment 12 (LTU), and shall perform the following as part of the closure: [40 CFR 264.280]
 - a. The Permittee shall continue all operations (including pH control) that are necessary to maximize degradation, transformation, or immobilization of hazardous constituents within the treatment zone, in accordance with Permit Conditions V.D.1. during the closure period.
 - b. The Permittee shall continue all operations in the treatment zone to minimize run-off of hazardous constituents, in accordance with Permit Condition V.D.2., during the closure period.
 - c. The Permittee shall maintain the run-on/run-off control system, in accordance with Permit Condition V.D.3., during the closure period.
 - d. The Permittee shall control wind dispersal of dust, in accordance with Permit Condition V.D.4., during the closure period.
 - e. The Permittee shall continue to comply with any prohibition or condition concerning growth of food-chain crops, in accordance with Permit Condition V.I., during the closure period.
 - f. The Permittee shall continue unsaturated zone monitoring, in accordance with Permit Condition V.E., except that soil-pore liquid monitoring may

be terminated 90 days after the last application of waste to the treatment zone, during the closure period.

- g. The Permittee shall establish a vegetative cover on the portion of the unit being closed, at such time that the cover will not substantially impede degradation, transformation, or immobilization of hazardous constituents in the treatment zone.
2. When closure is completed, the Permittee should submit to the Agency a certification by an independent Professional Engineer that the unit has been closed in accordance with the specifications in the Permit Attachments 12 (LTU) and 6 (Closure and Post-Closure Requirements).
3. After final closure, the Permittee shall follow the plans and procedures in the approved Post-Closure Plan contained in Permit Attachment 12 (LTU) and 6 (Closure and Post-Closure Requirements). [40 CFR 264.280]

V.I. SPECIAL REQUIREMENTS FOR FOOD-CHAIN CROP PROTECTION

Food-chain crops shall not be grown in the land treatment unit.

V.J. SPECIAL LAND TREATMENT PROVISIONS FOR IGNITABLE OR REACTIVE WASTES

No ignitable or reactive wastes will be applied to the LTU, Permit Attachment 12. [40 CFR 264.281]

V.K. SPECIAL LAND TREATMENT PROVISIONS FOR INCOMPATIBLE WASTES

The Permittee will follow the procedure for incompatible wastes, set forth in Permit Attachment 12, for the land treatment unit. [40 CFR 264.282 and 264.17(b)]

V.L. SPECIAL REQUIREMENTS FOR HAZARDOUS WASTES F020, F021, F022, F023, F026 and F027

The Permittee will not apply hazardous wastes F020, F021, F022, F023, F026 and F027 in the land treatment unit unless the facility operates in accordance with a management plan for these wastes that is approved by DEQ that adheres to the standards of 40 CFR 264.283(a)(1).

END OF SECTION V

SECTION VI – LAND TREATMENT DEMONSTRATION

VI.A. SECTION HIGHLIGHTS

The Land Treatment Demonstration (LTD) was conducted as described in Permit Attachment 12, Exhibit 3.

VI.B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

The Permittee may treat wastes in accordance with provisions outlined in Permit Attachment 12.

VI.C. DURATION OF DEMONSTRATIONS

Field tests and laboratory analyses are complete and the land treatment demonstration report was submitted in July 1998 and can be found in Permit Attachment 12, Exhibit 3.

VI.D. LAND TREATMENT DEMONSTRATION REQUIREMENTS

The Permittee conducted the demonstrations in accordance with the plans and specifications contained in the approved LTD Work Plan as amended by the January 9, 1998 letter to DEQ. [40 CFR 264.272] The results and conclusions of this study are presented in the LTD Final Report (July 1998), and are included in Attachment 12, Exhibit 3. The LTD is a part of the permit renewal application.

VI.E. RECORDKEEPING AND REPORTING

1. The Permittee will maintain an operating record in accordance with the provisions set forth in the Manifesting, Recordkeeping, and Reporting Plan, Permit Attachment 9.
2. The Permittee shall submit a certification, signed by a person authorized to sign a permit application or report under 40 CFR 270.11, that the field tests and laboratory analyses have been carried out in accordance with the conditions specified in the Permit Application LTD Work Plan, as amended by the January 9, 1998 letter to DEQ for conducting such tests and analyses.

END OF SECTION VI.

SECTION VII – GROUNDWATER MONITORING AND CORRECTIVE ACTION

VII.A SECTION HIGHLIGHTS

This section outlines the requirements for the Permittee's facility groundwater monitoring, groundwater monitoring for the LTU and CAMU, and corrective action including LNAPL recovery and spring remediation, as required under 40 CFR 264.97-100. Groundwater corrective action is also discussed in Permit Section III.C(4).

VII.B FACILITY GROUNDWATER MONITORING PROGRAMS

1. Corrective Action- LNAPL Recovery
 - a. General Requirements
The Permittee shall maintain and continue to operate the Light Non-Aqueous Phase Liquid (LNAPL) recovery and containment systems in place as described by Permit Attachment 13. [40 CFR 264.100-101]
 - b. Additional Measures and Modifications of Existing Measures
DEQ may require the Permittee to implement additional remediation measures, on an emergency basis or otherwise, to address any LNAPL contaminant deemed to present an on-going, significant, and/or immediate threat to human health or the environment. Such requirements may be imposed by a DEQ-ordered Permit Modification [40 CFR 270.41]; Emergency Permit [40 CFR 270.61], Temporary Authorization of a Permit Modification [40 CFR 270.42(e)]; Administrative Compliance Order [OAC 252:4-9-2]; or such other means as are authorized by law.
 - c. Recordkeeping and Reporting
 - i. The Permittee shall record the volumes of LNAPL recovered from all recovery and containment systems, and any relevant data. This data, along with all monitoring, testing, and maintenance records shall be entered into the operating record.
 - ii. The Permittee shall prepare a report on the effectiveness of the recovery and containment systems at least semi-annually, and shall submit said report concurrently with the groundwater analytical reports as per Permit Attachment 13.

2. Corrective Action- Groundwater Monitoring

a. General Requirements

The corrective action groundwater monitoring is composed of a series of wells monitoring both LNAPL and dissolved phase petroleum around the four LNAPL remediation sites at the facility (East Plant, West Tank Farm, South West Tank Farm, and the Ponca City 66-inch stormwater line that empties into Hoover Ditch onsite).

The corrective action groundwater monitoring system has been and shall continue to be designed, constructed, operated, and maintained to enable evaluation of groundwater quality within the four LNAPL remediation sites at the facility. The monitoring system consists of the network discussed in Permit Attachment 13.

The Permittee is required to determine the elevation of the groundwater beneath the facility and LNAPL presence and thickness identified in Permit Attachment 13 (2.6.6.3) and the Sampling and Analysis plan in Permit Attachment 14, and determine the LNAPL extent as per Permit Attachment 13 (2.6.6.4.6), at least semi-annually. These values are to be regularly reported to DEQ along with the analytical results from semi-annual sampling of the elevation and quality of the groundwater at the monitoring wells identified in Permit Attachment 13 (2.6.7).

b. Well Locations, Installation and Construction [40 CFR 264.97 (a-c)]

i. The Permittee shall maintain a groundwater monitoring system as specified in Permit Attachment 13, Appendix 2.6.2, and Appendix 8 plates 1 and 2.

c. Sampling Parameters, Frequency, and Location [40 CFR 264.97 (a) and (b)]

i. The Permittee shall obtain and analyze samples from all groundwater wells listed in Permit Attachment 13 (2.6.2). Samples shall be obtained using the schedule found in Permit Attachment 13 (2.6 and 2.6.6.3), and analyzed for the parameters indicated in Permit Attachment 13 (2.6.6.1).

d. Sampling and Analysis Procedures [40 CFR 264.97 (d) and (e)]

Sampling and analysis shall be conducted as outlined in Permit Attachment 14.

3. Impacted Spring Remediation Monitoring

a. General Requirements

The Permittee is required to determine the quality of water in the springs as discussed in Permit Attachment 13 at least semi-annually. These values are to be reported to DEQ annually.

b. Sample Locations [40 CFR 264.97 (a-c)]

The Permittee will sample springs at the locations outlined in Permit Attachment 13 (2.6.1.4) and Permit Attachment 8 (plates 3 and 4).

c. Sampling Parameters, Frequency, and Location [40 CFR 264.97 (a) and (b)]

The Permittee shall obtain and analyze samples from all springs listed in Permit Attachment 13 (2.6.1.4). Samples shall be obtained in the first quarter and second quarter of the year as per Permit Attachment 13 (2.5), and analyzed for the parameters indicated in Permit Attachment 13 (2.6.1.4).

d. Sampling and Analysis Procedures [40 CFR 264.97 (d) and (e)]

The Permittee shall follow the sampling and analysis procedures found in Permit Attachments 13 (2.6.4) and 14 (3.6).

4. Groundwater Detection Monitoring

a. General Requirements

The groundwater monitoring system shall continue to be designed, constructed, operated, and maintained to enable evaluation of groundwater resources at the facility's point(s) of compliance. The monitoring system shall be maintained in accordance with Permit Attachment 13 (2.6.3).

b. Groundwater Monitoring Well Locations [40 CFR 264.97 (a-c)]

i. The Permittee shall maintain a groundwater monitoring system as specified in Permit Attachment 13 (2.6.2). Well locations may be added as directed by DEQ, or at the discretion of the Permittee, using installation methods as per Permit Attachment 13 (2.6.3). Wells may only be deleted or changed following the approval of DEQ.

- ii. All wells deleted from the groundwater monitoring system shall be plugged and abandoned in accordance with procedures approved by the Oklahoma Water Resources Board (OWRB), unless the well(s) is retained for use in the groundwater elevation monitoring network. Well plugging and certification shall be submitted to DEQ within ninety (90) days from the date the wells are removed from the monitoring program.

- c. Sampling Parameters, Frequency and Location [40 CFR 264.97 (a) and (b)]

The Permittee shall obtain and analyze samples from all groundwater wells listed in Permit Attachment 13 (2.6.2). Samples shall be obtained using the schedule found in Permit Attachment 13 (2.5 and 2.6.6.3), and analyzed for the parameters found in Permit Attachment 13 (2.6.6.1).

- d. Sampling and Analysis Procedures [40 CFR 264.97 (d) and (e)]

The Permittee shall perform sampling and analysis as per Permit Attachments 13 (2.6.4) and 14 (3.0).

- 5. Groundwater Monitoring for the Land Treatment Unit (LTU) and the Corrective Action Management Unit (CAMU). [40 CFR 264.98]

- a. Well Locations, Installation and Construction [40 CFR 264.97 (a-c)]

The Permittee shall maintain a groundwater monitoring system as specified in Permit Attachment 13 (2.6.2). Well locations may be added as directed by DEQ, or at the discretion of the Permittee, using installation methods found in Permit Attachment 13 (2.6.3). Wells may only be deleted or changed following the approval of DEQ.

- b. Sampling Parameters, Frequency and Location [40 CFR 264.97 (a) and (b)]

The Permittee shall obtain and analyze samples from all groundwater wells for the LTU/CAMU listed in Permit Attachment 13 (2.6.2 and Tables 2-1 and 2-2). Samples shall be obtained using the schedule found in Permit Attachment 13 (2.5) and analyzed for the parameters listed in Permit Attachment 13 (2.6.6.2.3).

- c. Sampling and Analysis Procedures [40 CFR 264.97 (d) and (e)]

The Permittee shall perform sampling and analysis as specified by Permit Attachments 13 (2.6.4) and 14 (3.0).

VII.C General Requirements

1. Sampling and Analysis [40 CFR 264.97 (d) and (e)]

The Permittee shall use the following techniques and procedures when obtaining and analyzing samples required by permit section VII.B.

- i. Samples shall be collected using the techniques described in Permit Attachments 13 (2.6.4) and 14. All groundwater monitoring wells shall be sampled in a single, contiguous time period unless otherwise approved by DEQ.
- ii. Samples shall be preserved and shipped in accordance with the procedures specified in Permit Attachment 14 (3.7).
- iii. Samples shall be analyzed in accordance with the procedures specified in Permit Attachments 13 (2.6.6) and 14 (3.10).
- iv. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Permit Attachment 14 (3.8).

2. Elevation of Groundwater Surface and Presence of Separate Phase Liquid [40 CFR 264.97(f) and 40 CFR 270.14(c)(4)]

- i. The Permittee shall determine LNAPL elevation, thickness, extent, and the groundwater surface elevation at each groundwater monitoring well and at each LNAPL gauging well as identified in Permit Attachment 13 (2.4) and Permit Attachment 8 (plates 1 and 2), at least semi-annually, in conjunction with groundwater sampling in accordance with Permit Condition VII.B(4)(c) as specified by Permit Attachment 13 (2.5 and 2.6.6.3).
- ii. The Permittee shall record the surveyed elevation of all monitoring wells when installed with as-built drawings. The total depth of wells and the elevation of the following should be recorded: top of casing, ground surface and/or apron elevation, and the top of the protective casing.
- iii. At least every five (5) years following issuance of this permit, the Permittee shall re-survey the well locations and elevations of each of the 63 (sixty-three) well identified as a Point of Compliance (POC) wells in Permit Attachment 13 (2.6.1), Plate One.

- A. If siltation or infiltration has occurred such that the total effective depth of any POC water quality monitoring well has been reduced by more than twelve (12) inches, or a water-level monitor well by more than 50% of the screen length, the Permittee shall promptly redevelop all affected wells to remove the solids and re-establish well depth.
3. Monitoring Program and Data Evaluation [264.97(g) and (h)]
- i. The Permittee shall collect, preserve, and analyze groundwater samples from the wells in Permit Attachment 13 (2.6.2), pursuant to Permit Condition VII.B.
 - ii. The Permittee shall determine the concentration of hazardous constituents specified in Permit Condition VII.B (2)(c), (3)(c), 4(c), and 5(c) in groundwater at each sampling point as identified in Permit Attachment 13 (2.6.6.1). These determinations shall be made at least semi-annually, during the months specified in Permit Attachment 13 (2.5 and 2.6.6.3).
 - iii. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer semi-annually as per Permit Condition VII.B(2)(a) and Permit Attachment 13 (2.6.5).
4. Reporting and Recordkeeping
- i. The Permittee shall enter all monitoring, testing, and analytical data obtained pursuant to Permit Conditions VII.B(1-5) in the operating record. The data must also include computations, calculated means, variances and results of statistical tests.
 - ii. The Permittee shall submit the analytical, measurement, and evaluation results required by Permit Conditions VII.B(2)(d), (3)(d), (4)(d) and (5)(d) in accordance with the schedule found in Permit Attachment 13 (2.5 and 2.6.6.3).
 - iii. Should any compound found in the analysis from Permit Condition VII.C(3)(ii) above have a statistically significant increase above the background values the Permittee shall:
 - A. Notify DEQ in writing within seven days. The notification must indicate which parameters or constituents have shown statistically significant increases. [40 C.F.R. 264.98(g)(1)]

- B. Immediately sample the groundwater in all adjacent wells and determine the concentration of all constituents identified in Appendix IX of 40 CFR 264 unless the Permittee and DEQ agree to sampling for a site-specific subset of constituents from Appendix IX. [40 CFR 264.98(g)(2)]
- C. For any Appendix IX compounds found, the Permittee may resample within one month and repeat the analysis for those compounds detected. If the results from this second analysis confirm the initial results, then these constituents will form the basis for Compliance Monitoring [40 CFR 264.99]. If the Permittee does not resample, the hazardous constituents found during the initial Appendix IX analysis will form the basis for Compliance Monitoring [40 CFR 264.98(g)(3)]
- D. Within ninety (90) days, submit to DEQ an application for a permit modification to establish a Compliance Monitoring program. [40 CFR 264.98(g)(4). The application must include:
 - 1. An identification of the concentration of each Appendix IX constituent found in the ground water at each monitoring well at the compliance point. [40 CFR 264.8(g)(4)(i)]
 - 2. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of Compliance Monitoring as described in 40 CFR 264.99. [40 CFR 264.98(g)(4)(ii)]
 - 3. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of Compliance Monitoring in 40 CFR 264.99. [40 CFR 264.98(g)(4)(iii)]
 - 4. For each hazardous constituent found at the compliance point, a proposed concentration limit, or notice of intent to seek an alternate concentration limit for the hazardous constituent. [40 CFR 264.98(g)(4)(iv)]
- E. Within 180 days, submit to DEQ the following items: [40 CFR 264.98(g)(5)]

1. All of the data necessary to justify an alternate concentration limit (ACL) and;
 2. An engineering feasibility plan for a Corrective Action program necessary to meet the requirements of 40 CFR 264.100
- iv. The Permittee may make a demonstration that the results are due in whole or in part to sources other than those under the control of the Permittee, or errors in sampling, analysis or evaluation as discussed in Permit Attachment 13 (2.6.6.4.2).
5. **Additional Assessments and Corrective Action**
If, after applying the methods for comparing the results under Condition VII.C(4)(iii) the evaluation finds an exceedance for two consecutive sampling periods, the Permittee shall undertake an assessment, and within ninety (90) days after submittal of the second consecutive report of an exceedance, the Permittee shall submit a report identifying additional investigations that should be conducted, changes to the methods of comparison, validation or confirmation that should be made to begin Compliance Monitoring [40 C.F.R. 264.99], and/or Corrective Action that should be undertaken [40 C.F.R. 264.100-101].

END OF SECTION VII.

SECTION VIII – Reserved

SECTION IX – CLOSURE

IX.A. SECTION HIGHLIGHTS

The activities covered by this section include the following for each unit: types of wastes managed in the unit; anticipated date of closure and the closure activities for each unit; planned monitoring and maintenance activities; any special features associated with the closure operation; and a reference to any special permit conditions. Within Permit Attachment 6, closure is discussed in sections 3.9, descriptions of wastes and maximum waste inventories are discussed in section 3.9.3 – 3.9.5 and in Permit Attachment 11 section 6.1 and tables 1 and 2.

IX.B. UNIT IDENTIFICATION

The Permittee shall close the following hazardous waste management units, in accordance with the terms and conditions of this Permit.

Type of Waste Unit	Unit No. Or other Designation	Maximum Waste Inventory	Description of Wastes Contained	Hazardous Waste No.
Land Treatment Unit	Plots 1 through 10	Refer to Attachment 6 (Section 3.9.4) and Attachment 11 Tables 6-1 and 6-2	Slop Oil Emulsions; API Separator Sludge; Leaded Tank Bottoms; Misc. Oily Sludge; Biological Solids	K049 K051 K052 D001 D0018
Container Storage Areas	Container Storage Building Solid Waste Staging Area	Refer to Attachment 6 (Section 3.9.4 and 3.9.5), and Attachment 11 (tables 6-1 and 6-2)	Refer to Attachment 11	Refer to Attachment 11
Corrective Action Management Unit (CAMU)	CAMU Closure is addressed in Permit Section XI and Permit Attachment 16.			

Since issuance of the 1988 Permit, the Permittee has submitted documentation concerning closure of the following units:

- 1) Thermal Treatment Unit;
- 2) Tank 16-E; and
- 3) Tank T-973 (never utilized for hazardous waste management).
- 4) Container Storage Area (notice of closure received July 6, 2015 and final certification of closure received May 20, 2016) closed according to Section IX of the 2003 Permit and Attachment 11 of the 2003 Permit Application.

DEQ has approved closure of the units listed above, none of which require post-closure care or further closure activities.

IX.C. CLOSURE PROCEDURES

1. The Permittee shall close each hazardous waste management unit listed in Permit Condition IX.B. above. The Permittee will close each unit in a manner that [40 CFR 264.111]:
 - a. minimizes the need for further maintenance
 - b. controls, minimizes or eliminates, to the extent necessary to prevent threats to human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, impacted runoff, or waste decomposition products to the ground or surface waters or to the atmosphere.
2. The Permittee shall maintain and monitor the groundwater monitoring system in accordance with the provisions outlined in Permit Attachments 6, and 13.
3. The Permittee shall comply with the requirements for land treatment units as specified in the Land Treatment Unit Information Plan, Permit Attachment 6 and 12.
4. The Permittee shall not allow any use of the units designated in Permit Condition IX.B, which will disturb the integrity of the final cover, liners, any components of the containment system, or the function of the facility's monitoring systems during the closure period [40 CFR 264.117(c)].
5. When closure is required or undertaken, the Permittee shall implement the Closure Plan set forth in Permit Attachments 6, 11, and 13. All closure activities must be conducted in accordance with the provisions of the Closure Plan [40 CFR 264.112].

IX.D. INSPECTIONS

The Permittee shall inspect the components, structures, and equipment at the site in accordance with the Inspection Schedule, Permit Attachment 2.

IX.E. NOTICES AND CERTIFICATION

1. No later than 60 days after certification of closure of each permitted hazardous waste disposal unit, the Permittee shall submit to the local zoning authority, or the authority with jurisdiction over local land use, and to DEQ a record of the type, location, and quantity of hazardous wastes disposed of within each cell or other disposal unit of the facility. For hazardous wastes disposed of before January 12, 1981, the Permittee shall identify the type, location, and quantity of the hazardous wastes to the best of his knowledge and in accordance with any records he has kept [40 CFR 264.119(a)].
2. Within 60 days of certification of closure of the first and the last hazardous waste disposal unit, the Permittee shall:
 - a. Record, in accordance with Oklahoma law, a notation on the deed to the facility property – or on some other instrument that is normally examined during the title search – that will in perpetuity notify any potential purchaser of the property that:
 - 1) The land has been used to manage hazardous wastes;
 - 2) Its use is restricted under 40 CFR Part 264 Subpart G regulations; and
 - 3) The survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or other hazardous waste disposal unit of the facility have been filed with the Agency and Kay County Oklahoma.
 - b. Submit a certification to DEQ, signed by the Permittee, that he has recorded the notation specified in Permit Condition IX.E.2.a., including a copy of the document in which the notation has been placed [40 CFR 264.119(b)(2)].
3. If the Permittee or any subsequent owner or operator of the land upon which the hazardous waste disposal unit is located, wishes to remove hazardous wastes and hazardous waste residues, the liner, if any; or impacted soils, then he shall request a modification to the post-closure provisions of this Permit in accordance with the applicable requirements in 40 CFR Parts 124 and 270. The Permittee or any

subsequent owner or operator of the land shall demonstrate that the removal of hazardous wastes will satisfy the criteria of 40 CFR 264.117(c) [40 CFR 264.119(c)].

IX.F. FINANCIAL ASSURANCE

- a. The Permittee shall maintain financial assurance in accordance with Permit Attachment 7 (Section 3.10 and tables 3-16 and 3-17).
- b. The Permittee shall demonstrate continuous compliance with the liability requirement of 40 CFR 264.147(a) to have and maintain liability coverage for sudden accidental occurrences in the amount of at least \$1 million per occurrence, with an annual aggregate of at least \$2 million, exclusive of legal defense costs.

IX.G. CLOSURE PERMIT MODIFICATIONS

The Permittee must request a permit modification to authorize a change in the approved Closure Plan. This request must be in accordance with applicable requirements of 40 CFR Parts 124 and 270, and must include a copy of the proposed amended Closure Plan for approval by the Agency. The Permittee shall request a permit modification whenever changes in operating plans or facility design affect the approved Closure Plan, there is a change in the expected year of final closure, or other events occur during the active life of the facility that affect the approved Closure Plan. The Permittee must submit a written request for a permit modification at least 60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred which has affected the Closure Plan [40 CFR 264.112].

END OF SECTION IX.

SECTION X – POST-CLOSURE CARE

X.A. SECTION HIGHLIGHTS

The activities covered by this section include the following for each unit: types of wastes disposed in the unit; anticipated date of closure and the length of post-closure care for each unit; planned monitoring and maintenance activities; any special features associated with the post-closure care operation; and a reference to any special permit conditions.

X.B. UNIT IDENTIFICATION

The Permittee shall provide post-closure care for the following hazardous waste management units in accordance with the terms and conditions of this Permit in the manner set forth below:

Type of Waste Unit	Unit No. or other Designation	Maximum Waste Inventory	Description of Wastes Contained	Hazardous Waste No.
Land Treatment Unit	Plots 1 through 10	Refer to Permit Attachment 6	Slop Oil Emulsions; API Separator Sludge; Leaded Tank Bottoms; Misc. Oily Sludge; Biological Solids	K049 K051 K052 D001 D0018
Corrective Action Management Unit (CAMU)	CAMU Post-Closure is addressed in Permit Section XI and Permit Attachment 16.			

X.C. POST-CLOSURE PROCEDURES AND USE OF PROPERTY

1. The Permittee shall conduct post-closure care for each hazardous waste management unit listed in Permit Condition X.B. above, to begin after completion of closure of the unit and continue for 30 years after that date, except that the 30-year post-closure care period may be shortened upon application and demonstration approved by the Administration Authority that the facility is secure, or may be extended by the Administration Authority if necessary to protect human health and the environment [40 CFR 264.117(a)].

2. The Permittee shall maintain and monitor the groundwater monitoring system in accordance with the provisions set forth in Permit Attachments 6, 13, and 14.
3. The Permittee shall comply with the requirements for land treatment units as set forth in Permit Attachment 12.
4. The Permittee shall not allow any use of the units designated in Permit Condition X.B. which will disturb the integrity of the final cover, vegetative cover, liners, any components of the containment system, or the function of the facility's monitoring systems during the post-closure care period [40 CFR 264.117(c)].
5. Upon DEQ approval of Permittee certification of final closure, the Permittee shall implement the Post-Closure Plan, Permit Attachment 6. All post-closure care activities must be conducted in accordance with the provisions of the Post-Closure Plan [40 CFR 264.117(d) and 264.118(b)].

X.D. INSPECTIONS

The Permittee shall inspect the components, structures, and equipment at the site in accordance with the Inspection Schedule, Permit Attachment 2 [40 CFR 264.117(a)(1)(ii)].

X.E. NOTICES AND CERTIFICATION

No later than sixty (60) days after completion of the established post-closure care period for each hazardous waste disposal unit, the Permittee shall submit to DEQ, by registered mail, a certification that the post-closure care for the hazardous waste disposal unit was performed in accordance with the specifications in the approved Post-Closure Plan. The certification must be signed by the Permittee and an independent, registered professional engineer. Documentation supporting the independent, registered professional engineer's certification must be furnished to DEQ upon request until DEQ releases the Permittee from the financial assurance requirements for post-closure care under 40 CFR 264.145(i) [40 CFR 264.120].

X.F. FINANCIAL ASSURANCE

The Permittee shall maintain financial assurance during the post-closure period as set forth in Permit Attachment 7 [40 CFR 264.145].

X.G. POST-CLOSURE PERMIT MODIFICATIONS

The Permittee must request a permit modification to authorize a change in the approved Post-Closure Plan. This request must be in accordance with applicable requirements of 40 CFR Parts 124 and 270, and must include a copy of the proposed amended Post-Closure Plan for approval by the Agency. The Permittee shall request a permit modification whenever changes in

operating plans or facility design affect the approved Post-Closure Plan, there is a change in the expected year of final closure, or other events occur during the active life of the facility that affect the approved Post-Closure Plan. The Permittee must submit a written request for a permit modification at least sixty (60) days prior to the proposed change in facility design or operation, or no later than sixty (60) days after an unexpected event has occurred which has affected the Post-Closure Plan [40 CFR 264.118(d)].

END OF SECTION X.

SECTION XI – CORRECTIVE ACTION MANAGEMENT UNIT

XI.A. BACKGROUND

To facilitate remediation of SWMUs, the Permittee operated a Corrective Action Management Unit (CAMU) at the Ponca City Facility. The CAMU was previously approved through a Class 3 Permit Modification on May 8, 1997. A copy of the CAMU designation document demonstrating compliance with 40 CFR Section 264.552 can be found in Permit Attachment 18. During the phased closure of the CAMU, the Permittee tracked SWMU waste materials delivered to the Staging Area and placed in the CAMU.

The CAMU has three areas (phases): Phase 1 (the northern area, closed in 1999), Phase 2 (the middle area, closed in 2004) and Phase 3 (the southern area, closed in 2005). With closure of Phase 3 the CAMU entered a 30-year post-closure period. Post-closure activities continue as per Permit Condition III.(C)(2). The CAMU closure summary document can be found in Permit Attachment 16. The location and aerial configurations of the CAMU are described in Permit Attachment 8 Plates 1 and 2. The CAMU is located near the southern boundary of the refinery between the Wastewater Treatment Unit and the Land Treatment Unit.

XI.B. PERMITTED AND PROHIBITED WASTE MANAGEMENT

The CAMU was certified closed in 2005 and post-closure activities continue as per Permit Condition III.(C)(2). The CAMU closure summary document can be found in Permit Attachment 16. No further waste management activities are allowed at the CAMU.

XI.C. CORRECTIVE ACTION REQUIREMENTS

The CAMU (Solid Waste Management Unit (SWMU) No. 35) and the CAMU staging area (SMWU #30) are part of the Permittee's corrective action program. Remedy implementation of this program and the CAMU are specified in Section III of this Permit.

XI.D. MONITORING AND MAINTENANCE

The CAMU is routinely inspected for signs of erosion and cracks as specified in designation document and work plans. The vegetative cover will be maintained in good health to prevent erosion of the cover material by wind and precipitation.

These requirements are specified in the CAMU Designation Document which can be found in Permit Attachment 18, Section III of this Permit (relating to corrective action requirements) and documents submitted pursuant to the corrective action requirements.

Additionally, the Permittee is required to evaluate release detection/groundwater monitoring for the CAMU in accordance with Section VII of this Permit. The Permittee is required to continue to conduct facility-wide corrective action groundwater monitoring in accordance with Permit Attachment 13 and Permit Provision III.C.4.

XI.E. POST-CLOSURE AND LONG-TERM MAINTENANCE

The CAMU Closure Document is found in Permit Attachment 16.

The closure entailed construction of a low permeability cap over the CAMU in phases as remediation waste fill was added, and long-term maintenance including semi-annual inspections to ensure proper condition of the cap, including proper drainage vegetation, and the absence of desiccation cracks. This process is described in the CAMU Closure Summary Document found in Permit Attachment 16.

XI.F. FINANCIAL ASSURANCE

Financial Assurance is provided for the post-closure of the CAMU. Costs are updated on an annual basis for inflation and any changes in costs associated with closure and post-closure care.

END OF SECTION XI.