

Tinker AFB
RCRA Permit Renewal

DRAFT PERMIT



Compiled by DEQ/LPD

November 2019

TINKER AIR FORCE BASE

RESOURCE CONSERVATION AND RECOVERY ACT OPERATIONS AND CORRECTIVE ACTION PERMIT

Permit # 1571724391

Oklahoma Department of Environmental Quality

Newspaper Notice Text

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY NOTICE OF DRAFT OPERATIONS PERMIT WITH CORRECTIVE ACTION OF AN EXISTING HAZARDOUS WASTE MANAGEMENT FACILITY

The Oklahoma Department of Environmental Quality (DEQ) has received an application to renew a hazardous waste permit for the continued operation of the container storage unit and corrective action at Tinker Air Force Base (AFB), located within Sections 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28, and 31 of Township 11 North, Range 2 West Indian Meridian, Oklahoma County, Oklahoma. The application was filed on February 15, 2012.

DEQ has found that the application meets the requirements of Title 40 of the Code of Federal Regulations (40 CFR) parts 264 and 270, Title 27A of the Oklahoma Statutes (27A O.S. §§ 2-7-101, *et. seq.*), the Oklahoma Administrative Code (OAC) 252:4 and OAC 252:205, and has prepared a draft operations and corrective action permit for public review.

The draft operations permit with corrective action and its conditions propose the continued operation of a hazardous waste container storage unit, corrective action of various sites throughout the base, and a base-wide groundwater monitoring program. The operations and corrective action permit would be issued under the authority of the Oklahoma Hazardous Waste Management Act and the Federal Resource Conservation and Recovery Act.

The application, draft permit, and related documents may be reviewed during normal business hours at:

DEQ's Office of Central Records located on the 2nd floor of the DEQ building at 707 N. Robinson Avenue, P.O. Box 1677, Oklahoma City, OK 73101-1677; and on DEQ's website at <https://www.deq.ok.gov/land-protection-division/permit-public-participation-process/>.

Midwest City Library located at 8143 E. Reno Ave, Oklahoma City, Oklahoma, 73110.

The DEQ and Tinker AFB contacts are:

DEQ: Hillary Young, P.E., Chief Engineer
Land Protection Division
Department of Environmental Quality
P.O. Box 1677
Oklahoma City, OK 73101-1677
(405) 702-5100

Tinker AFB:
Kimberly Woodruff
4421 Air Depot Blvd.
Bldg. 7005, Room 510
Tinker Air Force Base, OK 73145-3010
(405) 739-2035

Persons wishing to comment on the draft permit should submit their comments in writing to DEQ at the above address. Also, any person may request, in writing, a formal public meeting to present written or oral and written comments on the draft permit. A request for a public meeting must identify the nature of the issues to be raised in the meeting. If DEQ determines, based on the requests it receives, that there is a significant degree of public interest in the draft permit, it will schedule a public meeting and provide notice of the date, time and place.

Written comments and requests for a public meeting must be received by DEQ within forty-five (45) days after the date of this publication. More specific information may be obtained by contacting the applicant at the Tinker AFB contact given above, or by contacting DEQ at the contact listed above.

Radio Broadcast Text

Oklahoma Department of Environmental Quality Notice of Proposed Permit Conditions For a Hazardous Waste Management Facility

The Oklahoma Department of Environmental Quality (DEQ) has reviewed a permit renewal application submitted by Tinker Air Force Base, to operate a hazardous waste storage area and to conduct corrective action at various sites throughout the base. The facility is located within Sections 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28 and 31 of Township 11 North, Range 2 West Indian Meridian, Oklahoma County, Oklahoma and is within the incorporated limits of the City of Oklahoma City. The street address for the facility is 7535 Fifth Street, Tinker Air Force Base, Oklahoma 73145-9100. The Department of Environmental Quality has made a tentative determination to renew the permit.

The draft permit and its conditions propose that Tinker Air Force Base continue operation of a hazardous waste container storage area, corrective action and groundwater monitoring. The permit would be issued under the authority of the Oklahoma Hazardous Waste Management Act and the Federal Resource Conservation and Recovery Act.

Further information, including the application, the draft permit, and a fact sheet may be reviewed during normal business hours at the Oklahoma Department of Environmental Quality Office of Central Records, 707 N. Robinson Avenue, Oklahoma City, telephone number (405) 702-1188; and the Midwest City Library at 8143 E. Reno Avenue, Oklahoma City, Oklahoma, telephone number (405) 732-4828.

Persons wishing to comment on the draft permit or to request a public meeting should submit their comments or requests in writing to DEQ no later than forty-five (45) days from the date of this broadcast. DEQ's mailing address is P. O. Box 1677, Oklahoma City, Oklahoma, 73101-1677.

For further information about this notice, please contact Hillary Young, Chief Engineer of Land Protection Division at DEQ, at (405) 702-5100. That number again is (405) 702-5100.

**TINKER AIR FORCE BASE
OKLAHOMA CITY, OKLAHOMA**

RCRA OPERATIONS AND CORRECTIVE ACTION PERMIT

FACT SHEET

Type of Action: Oklahoma Department of Environmental Quality Resource Conservation and Recovery Act (RCRA) renewal Permit for operating a hazardous waste storage facility and conducting corrective actions at Groundwater Management Units, individual Solid Waste Management Units and Areas of Concern under RCRA and the Oklahoma Hazardous Waste Management Act.

Type of Facility: Tinker Air Force Base (AFB) is a United States military installation. The Base is a Department of Defense (DOD) Air Force Materiel Command base whose primary mission is the maintenance, repair, and modification of military aircraft and is host to a number of DOD components. The principal organization at the Base is the Oklahoma City Air Logistics Complex (OC-ALC), which controls and directs the Bases' primary mission. The 72 ABW/CEIEC office located on Tinker AFB has responsibility for day-to-day operations.

EPA ID Number: OK1571724391

Location: 72 ABW/CEIEC
7535 Fifth Street
Tinker Air Force Base
TAFB, Oklahoma 73145-9100

Legal Description: Located within Sections 14, 15, 16, 21, 22, 23, 24, 25, 26, 27, 28, and 31 of Township 11 North, Range 2 West, Indian Meridian, Oklahoma County, Oklahoma. Tinker AFB is located within the corporate limits of the City of Oklahoma City, and adjacent to the City of Midwest City and Del City, in Oklahoma County in central Oklahoma.

Geographic Location: 72 ABW/CEIEC:
Latitude: 35.430623 North GPS: 35° 25' 50.24" N
Longitude: -97.389969 West GPS: 97° 23' 23.88" W

Building 810:

Latitude: 35.404760 North GPS: 35° 24' 17.13" N
Longitude: -97.404903 West GPS: 97° 24' 17.65" W

Landowner: United States Department of Defense

Facility Operator: United States Air Force

Term of Permit: _____, 2020 through _____, 2030

Comment Period: 45 days from the date of publication

Basis of the Draft Permit:

On February 15, 2012, DEQ received a RCRA Part B Permit Renewal Application (Application) for Tinker AFB's 2002 Operations Permit. On May 29, 2013 an updated Part A form was received. On February 1, 2014, Tinker AFB submitted to DEQ's Land Protection Division a revised Application with changes and updates for operating and maintaining a hazardous waste container storage area, conducting corrective action, and a base-wide groundwater monitoring program. Supplemental information was received on December 20, 2017 and April 13, 2018. After review, DEQ has determined that it is appropriate to approve the application and issue a renewal Operations and Corrective Action Permit.

The requirements for the Oklahoma Hazardous Waste Management Act (OHWMA); the Oklahoma Administrative Code Hazardous Waste Management Regulations (OAC 252:205) as amended; the Federal Resource Conservation and Recovery Act (RCRA), and the Federal Hazardous Waste Regulations have been met, and DEQ has prepared proposed permit conditions.

The proposed Operations and Corrective Action Permit allows for the continued operation of a hazardous waste container storage area with a capacity of 158,796 gallons. It will also provide conditions for ongoing corrective actions and groundwater monitoring.

The Administrative Record supporting the potential permit conditions consists of the initial Application dated February 15, 2012, the Part A Form dated May 29, 2013, and supplemental information consisting of Corrective Action Documents submitted on December 20, 2017 (Notice of Intent and Conceptual Site Model), and on April 13, 2018 (both Corrective Action Strategy Workplan and the Risk Evaluation and Risk Management Report), that relates to the Application or are referenced in the Draft Permit and this Fact Sheet.

The proposed Operations and Corrective Action Permit's potential conditions incorporate applicable requirements of OAC 252:205 and Title 40 of the Code of Federal Regulations (40 CFR) Part 270, additional conditions to enhance compliance with OAC 252:205, 40 CFR Parts 260-279, and such other conditions as are required to achieve environmentally sound hazardous waste management.

Information Resources

Copies of the proposed draft Permit conditions, this Fact Sheet, and the Part B application are available for review during normal business hours at the locations listed below:

Midwest City Library
8143 E. Reno Ave.
Oklahoma City, OK 73110
Phone (405) 732-4828

Oklahoma Department of Environmental Quality
Office of Central Records
707 North Robinson, 2nd Floor
Oklahoma City, Oklahoma 73102
(405) 702-1188

The Tinker AFB RCRA Draft Permit may be viewed online at:
<https://www.deq.ok.gov/land-protection-division/permit-public-participation-process/>

Telephone inquiries may be directed to:

DEQ: Hillary Young, Chief Engineer
Land Protection Division, DEQ (405) 702-5100

Tinker AFB: Albert Aguilar, Remedial Project Manager
Tinker AFB (405) 734-4574

Comment Period and Procedures

Persons wishing to comment on the proposed permit conditions may submit their comments, in writing, to DEQ at the address listed below. DEQ will consider and formally respond to all relevant comments in the issuance of the final permit decision. Comments should be directed to the appropriateness of the permit decision and the permit conditions, and should be factual in nature. All comments must be received at the DEQ no later than forty-five (45) days after the publication of the Notice for the draft permit.

Hillary Young, P.E.,
Chief Engineer
Land Protection Division
Oklahoma Department of Environmental Quality
707 N. Robinson, Ave,
P. O. Box 1677
Oklahoma City, OK 73101-1677

The applicable comment period and public hearing procedures may be found at OAC 252:4 and 40 CFR Part 124. The comment period during which written comments on the draft permit may be submitted extends for forty-five (45) days from the date of Notice of the proposed action.

Public Meeting

Pursuant to 40 CFR Part 124 and the Uniform Permitting Act, Title 27A of the Oklahoma Statutes, Section 2-14-303, interested parties may request a public meeting on the permit. The request must be in writing and submitted prior to the closing date of the comment period which expires forty-five (45) days from the date of publication. Persons wishing to request a public meeting should submit their request and/or comments in writing to Hillary Young, Chief Engineer, Land Protection Division at the above address, no later than forty-five (45) days after publication.

Notice of Final Determination

DEQ will notify the applicant and each person who has submitted written comments or requested notice of the final permit decision. Within thirty (30) days after a RCRA permit decision has been issued, any person who filed comments on the draft permit or participated in the public meeting/hearing may petition the Executive Director or DEQ to review any condition of the permit decision. The petition shall include a statement of the reasons supporting that review, including a demonstration that any issues being raised were raised during the public comment period, and when appropriate, a showing that the condition in question is based on a finding of fact or conclusion of law which is clearly erroneous, or an exercise of discretion or important policy consideration which DEQ should review. A petition to the DEQ is a prerequisite to judicial review under OAC 252:205-3-2 which incorporates 40 CFR 124.19 and should be directed to the address listed below:

Scott Thompson, Executive Director
Department of Environmental Quality
707 N. Robinson Ave
Oklahoma City, Oklahoma 73101-1677

If no comments are received during the comment period, the permit will become final and effective immediately upon issuance.

Sites that Require Remediation

The Corrective Action Objectives (CAOs) are outlined in Attachment 5 Notice of Intent for Corrective Action, Attachment 6 Conceptual Site Model, Attachment 7 Corrective Action Strategy Workplan, and Attachment 8 Risk Evaluation and Risk Management Report.

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
RESOURCE CONSERVATION AND RECOVERY ACT PERMIT
FOR CONDUCTING CORRECTIVE ACTION OPERATIONS**

TINKER AIR FORCE BASE

EPA ID#: OK1571724391

Permit Number: 1571724391

Permittee: Tinker Air Force Base
72 ABW/CEIEC
7535 Fifth Street, Bldg. 400
Tinker AFB, Oklahoma 73145-9100

Effective Date: _____, 2020

Expiration Date: _____, 2030

Pursuant to the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (42 U.S.C. § 6901 *et seq.*, commonly known as RCRA) including the Hazardous and Solid Waste Amendments of 1984 (HSWA) and regulations promulgated thereunder by the U.S. Environmental Protection Agency (EPA) codified in Title 40 of the Code of Federal Regulations, the Oklahoma Hazardous Waste Management Act (OHWMA) at 27A O.S. 1994, §2-7-101, *et seq.*, and rules promulgated thereunder in the Oklahoma Administrative Code (OAC 252:205, the Oklahoma Uniform Environmental Permitting Act at 27A O.S. § 2-14-101 *et seq.*), and rules promulgated thereunder in OAC 252:4-7, a Permit to conduct hazardous waste operations and corrective action is reissued by DEQ to Tinker Air Force Base (Permittee). The facility is located within the corporate limits of the City of Oklahoma City, on approximately 5,500 acres (either owned, leased or with easements) in parts of Sections 14, 15, 16, 21, 22, 23, 24, 26, 26, 27, 28 and 30 of Township 11 North, Range 2 West, Indian Meridian, Oklahoma County, Oklahoma (Latitude 35.430623 North and Longitude -97.389969 West), summarily described as follows:

The Permittee is a Department of Defense (DOD) installation. Its primary mission is the maintenance, repair, and modification of military aircraft. Tinker Air Force Base (AFB) is also a DOD Air Force Materiel command base that is a host to a number of DOD components. The Oklahoma City Air Logistics Complex (OC-ALC) controls and directs the base's primary mission.

Historical facility operations resulted in the release of hazardous constituents to soil and groundwater. Various Groundwater Monitoring Units, Solid Waste Management Units, Areas of Concern, with Site designations have been identified in this permit as needing further action. Additionally, Tinker AFB has a permitted hazardous waste storage facility for containers in Building #810, located on the southwest portion of base. This storage area has a capacity of 158,796 gallons. Specifics on description, design capacity per module and secondary containment are located in Attachment 1.A. General Facility Information and Units.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments); the applicable regulations contained in 40 CFR Parts 124, 260 through 264, 266, and 270, as specified in the permit, and other applicable State and Federal Statutes and regulations. Applicable regulations are those

which are in effect on the date of issuance of the permit, in accordance with 40 CFR 270.32(c). Primary responsibility for the enforcement of the provisions of this permit lies with DEQ.

This permit is based upon the documentation and technical data collected during the various RCRA Facility Investigations and Corrective Measure Study phases submitted to DEQ since 1999; the technical and legal requirements pursuant to Section 3008h of RCRA, and the assumption that all information submitted in the Part B Permit Application is accurate, and that the facility will be operated as specified in the Application.

Any inaccuracies found in the submitted information may be grounds for the termination, revocation and reissuance, or modification of this permit in accordance with 40 CFR 270.41, 270.42, and 270.43 and for enforcement action.

This permit is effective as of _____, 2020 and shall remain in effect until _____, 2030 unless revoked and reissued under 40 CFR 270.41, terminated under 40 CFR 270.43, or continued in accordance with 40 CFR 270.51(a).

Issued this ___ day of _____, 2020.

Hillary Young, P.E.
Chief Engineer
Land Protection Division

Kelly Dixon
Director
Land Protection Division

TABLE OF CONTENTS

SECTION I - GENERAL PERMIT CONDITIONS I-1

- 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-6
- F . PERMIT ACTIONS I-6
- G . SEVERABILITY I-7
- H . DUTIES AND REQUIREMENTS I-7
- I . SIGNATORY REQUIREMENT I-12
- J . REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO DEQ I-12
- K . CONFIDENTIAL INFORMATION I-12
- L . DOCUMENTS TO BE MAINTAINED AT THE FACILITY I-12

SECTION II - GENERAL FACILITY CONDITIONS II-1

- A . DESIGN AND OPERATION OF FACILITY II-1
- B . REQUIRED NOTICES II-1
- C . SECURITY II-1
- D . GENERAL INSPECTION REQUIREMENTS II-1
- E . PERSONNEL TRAINING II-1
- F . SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR
INCOMPATIBLE WASTE II-1
- G . PREPAREDNESS AND PREVENTION II-2
- H . CONTINGENCY PLAN II-2
- I . AIR EMISSION STANDARDS II-3
- J . GENERAL CLOSURE REQUIREMENTS II-3
- K . COST ESTIMATE FOR FACILITY CLOSURE; FINANCIAL
ASSURANCE; LIABILITY INSURANCE REQUIREMENTS II-3

SECTION III - STORAGE FACILITY AND STORAGE IN CONTAINERS III-1

- A . PERMITTED UNIT DESCRIPTION III-1
- B . CONDITION OF CONTAINERS III-4
- C . COMPATIBILITY OF WASTE WITH CONTAINERS III-4
- D . MANAGEMENT OF CONTAINERS III-4
- E . INSPECTION SCHEDULES AND PROCEDURES III-4
- F . CONTAINMENT SYSTEM III-5
- G . RECORDKEEPING AND REPORTING III-5
- H . SPECIAL PROVISIONS FOR IGNITABLE OR REACTIVE WASTES III-5
- I . SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES III-5
- J . CLOSURE REQUIREMENTS III-5
- K . PERMITTED AND PROHIBITED WASTE IDENTIFICATION III-6

SECTION IV - SPECIAL CONDITIONS PURSUANT TO THE 1984 HAZARDOUS AND SOLID WASTE AMENDMENTS (HSWA)IV-1

- A . CURRENT SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERNIV-1
- B . STANDARD CONDITIONSIV-1

SECTION V - CORRECTIVE ACTION STRATEGY (CAS)..... V-1

- A . CORRECTIVE ACTION FOR RELEASES..... V-2
- B . CORRECTIVE ACTION USING THE CAS..... V-2
- C . PROJECT DEVELOPMENT AND SCOPING MEETING V-8
- D . CORRECTIVE MEASURES IMPLEMENTATION (CMI) REPORTS AND SUMMARIES..... V-9
- E . CONCEPTUAL SITE MODEL (CSM) V-10
- F . CORRECTIVE ACTION STRATEGY WORKPLAN..... V-10
- G . RISK EVALUATION AND RISK MANAGEMENT REPORT (RMR)..... V-11
- H . INTERIM MEASURES..... V-11
- I . IMPLEMENTATION OF THE SITE INVESTIGATION ACTIVITIES UNDER CAS..... V-12
- J . SUBMISSIONS/AGENCY APPROVAL/ADDITIONAL WORK V-12
- K . RECORDKEEPING AND REPORTING V-13
- L . NOTIFICATION REQUIREMENTS FOR NEWLY-IDENTIFIED SWMUs AND AOCs..... V-14
- M . NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES..... V-15
- N . CORRECTIVE ACTION FOR NEWLY-DISCOVERED RELEASES..... V-16
- O . PUBLIC PARTICIPATION REQUIREMENTS V-16
- P . RE-OPENING OF THIS PERMIT V-17

ATTACHMENTS

- 1. OPERATING UNITS
 - A. GENERAL FACILITY OPERATION AND UNITS
 - B. WASTE CHARACTERISTICS AND WASTE ANALYSIS PLAN (CD Attached)
 - C. SECURITY AND SAFETY
 - D. INSPECTION REQUIREMENTS, PLAN AND SCHEDULE
 - E. PREPARDNESS AND PREVENTION
 - F. CONTINGENCY PLAN (CD Attached)
 - G. TRAFFIC
 - H. PERSONNEL TRAINING
 - I. CLOSURE PLAN
- 2. SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN
- 3. GROUNDWATER MONITORING PROGRAM
- 4. GROUNDWATER MANAGEMENT UNITS AND MONITORING WELLS MAPS
- 5. NOTICE OF INTENT FOR CORRECTIVE ACTION

6. CONCEPTUAL SITE MODEL (CSM) (CD Attached)
7. CORRECTIVE ACTION STRATEGY WORKPLAN (CD Attached)
8. RISK EVALUATION AND RISK MANAGEMENT REPORT (CD Attached)

SECTION I - GENERAL PERMIT CONDITIONS

- A. GENERAL
- B. BASIS OF PERMIT
- C. INCORPORATION BY REFERENCE
- D. DEFINITIONS
- E. EFFECT OF PERMIT
- F. PERMIT ACTIONS
 - 1. Permit Modification, Revocation and Reissuance, or Termination
 - 2. Permit Renewal
 - 3. Permit Expiration
 - 4. Transfer of Permits
- G. SEVERABILITY
- H. DUTIES AND REQUIREMENTS
 - 1. Duty to Comply
 - 2. Duty to Reapply
 - 3. Permit Expiration
 - 4. Monthly Reports
 - 5. Quarterly Reports
 - 6. Biennial Report
 - 7. Need to Halt or Reduce Activity Not a Defense
 - 8. Duty to Mitigate
 - 9. Proper Operation and Maintenance
 - 10. Duty to Provide Information
 - 11. Inspection and Entry
 - 12. Monitoring and Records
 - 13. Reporting Planned Changes
 - 14. Reporting Anticipated Noncompliance
 - 15. Immediate Reporting
 - 16. Other Noncompliance
 - 17. Other Information
- I. SIGNATORY REQUIREMENT
- J. REPORTS, NOTIFICATION, AND SUBMISSIONS TO DEQ
- K. CONFIDENTIAL INFORMATION
- L. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

SECTION I – GENERAL PERMIT CONDITIONS

A. GENERAL

The Permittee shall operate, monitor, and maintain the corrective action programs described herein, in compliance with the provisions of the Oklahoma Hazardous Waste Management Act (OHWMA), 27A O.S. §§ 2-7-101 *et. seq.*, as amended, the Oklahoma Administrative Code (OAC) 252:205, the Federal Resource Conservation and Recovery Act (RCRA), including the Hazardous and Solid Waste Amendments of 1984 (HSWA), and the approved Permit application as further modified through Permit conditions set herein.

B. BASIS OF PERMIT

This permit is granted based on the information submitted and the design criteria presented in the application and all subsequent revisions. 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 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.

This Permit shall be reviewed by DEQ five (5) years after the date of Permit issuance and shall be modified as necessary, as provided in 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)).

C. INCORPORATION BY REFERENCE

All the referenced Code of Federal Regulations (40 CFR) Parts 124, 260 through 266, 268, and 270 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.

D. DEFINITIONS

Except for the terms defined below, for purposes of this Permit, terms used herein shall have the same meaning as those in 40 CFR Parts 124, 260, 261, 264, 266, 268, and 270; and OAC 252:205-1-2 through OAC 252:205-3-6; unless this Permit specifically provides otherwise. Where terms are not defined in OAC, RCRA regulations, 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.

“Application” refers to the RCRA Part B Application and subsequent amendments submitted by the Permittee for obtaining a permit.

“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 and which may have released hazardous constituents. 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 (NFA) is necessary and notify the Permittee in writing.

AOC refers to releases which warrant investigation or remediation (i.e., corrective action). AOCs include non-SWMU area(s) of potential or suspected contamination, as well as actual contamination. An AOC may be on the facility property, or off-site. AOCs include contamination from one-time spills, and contamination from passive leakage of a product (i.e., not routine or systematic). This also includes contamination associated with releases from production processes that are not “routine and systematic”.

“Conceptual Site Model” (CSM) is part of the Data Quality Objective (DQO) process that presents a three-dimensional picture of site conditions at a discrete point in time that conveys what is known about the facility, releases, release mechanisms, contaminant fate and transport, exposure pathways, potential receptors, and risks. The information for the CSM is documented into six profiles (i.e., Facility Profile, Land Use and Exposure Profile, Physical Profile, Release Profile, Ecological Profile, and Risk Management Profile). The CSM evolves as data gaps in the profiles become more complete, and will be refined based upon results of site characterization data. The final CSM is documented in the Risk Management Plan (RMP).

“Constituents of Concern” (COC) means those chemical compounds which have been frequently encountered during sampling events and have been selected as having a reasonable likelihood of having been or might be released, are consistent with the Conceptual Site Model, and pose an adverse hazard or risk to human health or the environment. The COCs are listed in Attachment 3 of the Permit.

“Constituents of Potential Concern” (COPC) means chemicals from hazardous waste and hazardous waste constituents that are potentially site related and have data of quality for use in site screening or a site-specific risk assessment. The facility should compile a list of COPCs for each release site based on existing sampling data, waste analysis reports, etc.

“Corrective Action” is a requirement under the Resource Conservation and Recovery Act (RCRA) that facilities that treat, store or dispose of hazardous wastes investigate and clean up hazardous releases into soil, groundwater, surface water and air. Corrective Action is principally implemented through RCRA permits and orders. Facilities are generally brought into the RCRA Corrective Action process when there is an identified release of hazardous waste or hazardous constituents.

“Corrective Action Objectives” (CAOs) means (1) those corrective action objectives established by DEQ; (2) preferred alternatives for corrective measures to meet the intended remedial goals; and (3) performance-based measures to ensure protectiveness. The CAOs are developed by DEQ and are based on current and reasonably anticipated land and groundwater uses.

“Corrective Action Process” occurs when the RCRA corrective action cleanup process focuses on results rather than specific steps, and is flexible, depending on site-specific conditions. A typical cleanup may include steps such as: initial site assessment, site characterization, interim actions, evaluation of remedial alternatives, and implementation of the selected remedy.

“Corrective Action Strategy (CAS)” means the EPA Region 6 Corrective Action Strategy. CAS is a risk management, performance-based alternate corrective action approach using the development of corrective action objectives based upon performance standards.

“DEQ” means the Oklahoma Department of Environmental Quality.

“Defense Logistics Administration (DLA)” is the Department of Defense’s logistics combat support agency.

“Dense Non-Aqueous Phase Liquid (DNAPL)” is a liquid that is both denser than water and is immiscible in water. DNAPLs tend to sink below the water table. DNAPLs can provide a long term secondary source to dissolved groundwater plumes and can act as an ongoing pathway for constituents to dissolve in groundwater.

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

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

“EPA” means the United States Environmental Protection Agency.

“Facility” means all contiguous property under the control of the owner or operator seeking a permit under Subtitle C of RCRA.

“GWMU” means Groundwater Management Unit.

“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, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health. The term hazardous waste includes hazardous constituents. Characteristic hazardous wastes are referenced in 40 CFR 261.10 and listed hazardous wastes are referenced in 40 CFR 261.11 and are defined in 40 CFR 261.3.

“Hazard Quotient” is the ratio of the potential exposure to a substance at the level at which no adverse effects are expected. When screening only one substance/contaminant the Total Hazard Quotient = 1.0. If screening multiple substances/contaminants the THQ = 0.1.

“Human Health Risk Assessment (HHRA)” is the process to estimate the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future.

“Land Protection Division” (LPD) means the Land Protection Division of the Oklahoma DEQ.

“Maximum Contaminant Level (MCL)” is the legal threshold limit on the amount of a substance that is allowed in public water systems under the Safe Drinking Water Act. MCLs are standards set by EPA and an MCL is an enforceable regulation.

“Permit” means the full permit, Resources Conservation and Recovery Act and special conditions pursuant to the 1984 Hazardous and Solid Waste Amendments to RCRA.

“Permittee” means Tinker Air Force Base, Oklahoma, EPA ID# OK1571724391.

“Plume Containment (to contain a plume)” is defined as to maintain the groundwater plumes within the established GWMUs and to sustain compliance with MCLs as designated points of compliance.

“Point of Compliance (POC)” is defined as the most down-gradient boundary (i.e., groundwater and/or surface water) of the applicable on- or off-base properties described by the legal descriptions in the restrictive (environmental) covenant and easement agreements.

“POC Well” is defined as the point of the property where the MCL for a particular constituent is not exceeded, as the POC is the most downgradient portion covered by the restrictive covenant (e.g., Engineering Controls/Land Use Controls) and easement agreements.

“RCRA” means the Resource Conservation and Recovery Act of 1976 as amended by HSWA in 1984.

“RCRA Permit” means the full permit, with RCRA and HSWA portions.

“RFA” means RCRA Facility Assessment.

“RFI” means RCRA Facility Investigation.

“RSL” means the EPA Region 6 Regional Screening Levels developed using risk assessment guidance. RSLs are risk-based concentrations derived from standardized equations combining exposure information assumptions with EPA toxicity data. RSLs are used in site “screening” to identify areas, contaminants, and conditions that require further attention.

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

“Remediation Treatment” is defined as an in-situ or ex-situ process that immobilizes, stabilizes, removes, transforms, or destroys contaminants in soil and/or groundwater. This has

primarily been performed at the Facility through in-situ enhanced reductive dechlorination (ERD) using subsurface injections. Treatment may also include other innovative or established technologies (e.g., in-situ chemical oxidation).

“Removal” is defined as the process of removing contaminants in soil and/or groundwater (e.g., excavation).

“Risk Evaluation and Risk Management Report” (RMR) is one of the CAS documents prepared by Tinker AFB and includes CAOs and a human health risk assessment (HHRA).

“Sentinel Well” is described as a groundwater monitoring well situated between a sensitive receptor downgradient and the source of a contaminant plume up-gradient. Contamination should be first detected in the sentinel well which serves as a warning that contamination may be moving closer to the receptor. The sentinel well should be located far enough up-gradient of the receptor to allow enough time before the contamination arrives at the receptor to initiate other measures to prevent contamination from reaching the receptor, or in the case of a supply well, provide for an alternative water source.

“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). (See AOC definition for passive leakage for a product or one-time spills, potential or suspected contamination, or off-site areas).

“Source Area” or “Source Zone” is defined as the overall volume of the residual and/or pooled Dense Non-Aqueous Phase Liquid (DNAPL) in the subsurface. In the absence of confirmed residual and/or pooled DNAPL, a source area may also represent the overall volume of unsaturated soils that contain contaminants that could migrate to groundwater at concentrations sufficient to result in non-compliance at groundwater and surface water points of compliance.

“Source Containment (to contain a source)” is defined as the installation of physical controls (e.g., caps, slurry walls, etc.) at or surrounding source areas to limit or eliminate the migration of source materials and/or potential direct exposure pathways.

“Source Material” is defined as material that includes or contains hazardous wastes or hazardous waste constituents which act as a reservoir for migration of contamination to soil, groundwater, surface water, air; or to act as a source for direct exposure sources. Source materials are not always stationary, but can migrate from a location like a landfill or surface impoundment; where contamination was originally released. Non-aqueous phase liquids (NAPL) in the groundwater generally would be viewed as source material.

“Stabilization” is an action taken for the purpose of controlling or abating threats to human health or the environment from releases or preventing or minimizing the further spread of contaminants while long-term remedies are pursued.

“Treatment” means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

“Unrestricted Use/Unrestricted Exposure” (UU/UE) is defined as meeting residential standards for media of soil and/or groundwater.

“Volatile Organic Compounds (VOCs)” are organic chemicals that have a high vapor pressure at ordinary room temperatures. Their high vapor pressure results from a low boiling point, which causes large numbers of molecules to evaporate or sublime from the liquid or solid form of the compound and enter the surrounding air.

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

E. EFFECT OF PERMIT

Any storage, treatment, or disposal of hazardous waste not authorized in this Permit is prohibited, unless exempted from Permit requirements. Subject to 40 CFR 270.4, compliance with this Permit generally constitutes compliance, for purposes of enforcement, with Subtitle C of RCRA. Issuance of this Permit does not convey any property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons, animals, or property, any invasion of other private rights, or any infringement of state or local laws or regulations. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under the OHWMA; 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 or substantial endangerment. [40 CFR 270.4 and 270.30(g)]

F. PERMIT ACTIONS

1. Permit Modification, Revocation-and-Reissuance, or Termination

This Permit may be modified, revoked and reissued, or terminated for cause, as specified in 40 CFR 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)(2) and 270.30(f)]

2. Permit Renewal

This Permit may be renewed as specified in 40 CFR 270.30(b) 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) and HSWA Sec. 212]

3. Permit Expiration

Pursuant to 40 CFR 270.50, this Permit shall be effective for a fixed term not to exceed ten years from its effective date. 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. When the Permittee is not in compliance with the conditions of the expiring or expired Permit, DEQ may choose to do any one or more of the following:

- a) Initiate enforcement action based upon the Permit which has been continued;
- b) Issue a notice of intent to deny the new Permit under 40 CFR 124.6. If the Permit is denied, the owner or operator would then be required to cease the activities authorized by the continued Permit or be subject to enforcement action for operating without a Permit;
- c) Issue a new Permit under Part 124 with appropriate conditions; or
- d) Take other actions authorized by these regulations.

4. Transfer of Permits

This Permit is not transferable, except after notice to DEQ. DEQ may require modification or revocation and reissuance of the permit pursuant to 40 CFR 270.40. 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) and 264.12(c)]

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.

H. DUTIES AND REQUIREMENTS

1. Duty to Comply

The Permittee shall comply with the approved Permit application and all conditions of this Permit, except to the extent and for the duration that noncompliance is authorized by an emergency Permit. 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 intends to continue an activity allowed or required 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 270.30(b)]

3. Permit Extension

This Permit and all conditions herein will remain in effect beyond the permit's expiration date until the Administrative Authority issues a final decision on the re-application, provided the Permittee has submitted a timely, complete new permit application as provided in 40 CFR 270.51.

4. Monthly Reports

The Permittee shall submit monthly reports in accordance with OAC 252:205-9-2.

5. Quarterly Reports

The Permittee shall submit quarterly reports in accordance with OAC 252:205-5-3(a). Wastes are generated from the cleaning and maintenance of aircraft and parts. Occasional waste is generated due to remediation activities. Quarterly reports are required if the facility is a Large Quantity Generator for any given month of the year.

6. Biennial Report

The Permittee shall comply with the biennial reporting requirements of 40 CFR 262.41 and 264.75.

7. 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)]

8. 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)]

9. 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)]

10. 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)]

11. Inspection and Entry

Pursuant to 40 CFR 270.30(i), the Permittee shall allow DEQ, upon the presentation of credentials and other documents to meet the security and confidence requirements of the USAF and Tinker AFB Security, and accompanied by AFB personnel, 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, any substances or parameters at any location for the purposes of assuring Permit compliance or as otherwise authorized by RCRA.

12. 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 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, EPA Method SW-846, 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 three (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. [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.

13. 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, only if such changes relate to hazardous waste management or corrective action operations. [40 CFR 270.30(1)(1)]

14. 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(1)(2)]

15. Immediate Reporting [40 CFR 270.30(1)(6) and OAC 252:205-13-1]

- a) The Permittee shall report to DEQ any noncompliance which may endanger health or the environment. Any such information shall be reported orally immediately after the Permittee becomes aware of the circumstances. Incidents shall also be included. Upon release of materials that are or become hazardous waste whether by spillage, leakage, or discharge to soils or to air or to surface or ground waters (outside the limits of a discharge permit) or by other means, and which could threaten human health or the environment, the facility shall immediately notify DEQ and take all necessary action to contain, remediate, and mitigate hazards from the release. The report shall include the following:

- 1) Information concerning release of any hazardous waste that may cause an endangerment to base personnel or drinking water supplies;
 - 2) Any information of a release or discharge of contaminated groundwater, or of a compromise to remedial operations which could threaten the environment or human health on-base or outside the facility.
- b) The description of the occurrence and its cause shall include:
- 1) Name, address, and telephone number of the person reporting the incident;
 - 2) Date, time, and type of incident;
 - 3) Location of the 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 on-base and/or 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.

16. Other Noncompliance

The Permittee shall report all other instances of noncompliance not otherwise required to be reported above at the time monitoring reports are submitted. [40 CFR 270.30(i)(10)]

17. 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(i)(11)]

I. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to DEQ, shall be signed and certified in accordance with 40 CFR 270.11 and 270.30(k).

J. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO DEQ

All reports, notifications, or other submissions which are required by this Permit to be sent or given to DEQ should be sent by certified mail or given to:

Chief Engineer
Land Protection Division
Oklahoma Department of Environmental Quality
707 N. Robinson, P.O. Box 1677
Oklahoma City, Oklahoma 73101-1677
Telephone Number (405) 702-5100

K. CONFIDENTIAL INFORMATION

In accordance with 40 CFR 270.12, OAC 252:4-1-5(d), and OAC 252:205-1-4, 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, 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 40 CFR Part 2 (Public Information). Claims of confidentiality for the name and address of any permit applicant or Permittee will be denied.

L. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

The Permittee shall maintain at the facility, until all corrective measures and monitoring are complete and 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;
2. Inspection schedules, as required by 40 CFR 264.15(b)(2) and this Permit;
3. Personnel training documents and records, as required by 40 CFR 264.16(d) and this Permit;
4. Contingency Plan, as required by 40 CFR 264.53(a) and this Permit;
5. Operating record, as required by 40 CFR 264.73 and this Permit;
6. Closure Plan, as required by 40 CFR 264.112(a) and this Permit;

7. Post-Closure Plan, as required by 40 CFR 264.118(a) and this Permit;
8. Final Corrective Measures Study (CMS) with Conceptual Site Model (CSM); and
9. CMI Work Plan with Appendices:
 - a) Program and Project management Plan;
 - b) Performance Monitoring Plan;
 - c) Performance Review Plan;
 - d) Contingency Plans;
 - e) Land Use and Controls Plans; and
 - f) Community Relations Plan.

SECTION II - GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

B. REQUIRED NOTICES

1. Hazardous Waste Imports
2. Hazardous Waste From Off-Site Sources

C. SECURITY

D. GENERAL INSPECTION REQUIREMENTS

E. PERSONNEL TRAINING

F. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE OR INCOMPATIBLE WASTE

G. PREPAREDNESS AND PREVENTION

1. Testing and Maintenance of Equipment
2. Access to Communications or Alarm System
3. Arrangements with Local Authorities

H. CONTINGENCY PLAN

1. Implementation of Plan
2. Copies of Plan
3. Amendments to Plan
4. Emergency Coordinator

I. AIR EMISSION STANDARDS

J. GENERAL CLOSURE REQUIREMENTS

K. COST ESTIMATE FOR FACILITY CLOSURE; FINANCIAL ASSURANCE; LIABILITY INSURANCE REQUIREMENTS

SECTION II – GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

The Permittee shall maintain and operate the facility to minimize the possibility of a fire, explosion, or any unplanned, sudden or nonsudden release of hazardous waste constituents to air, soil, ground water, or surface water which could threaten human health or the environment, as required by 40 CFR 264.31.

B. REQUIRED NOTICES

1. Hazardous Waste Imports

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

2. Hazardous Waste from Off-Site Sources

The Permittee may only receive hazardous waste from sister DOD AFB facilities. [40 CFR 264.12(b)]

C. SECURITY

The Permittee is a closed, high-security DOD installation, and therefore has 24-hour armed patrols. These security conditions are not anticipated to change during the term of this Permit. Therefore, as long as these conditions remain, the Permittee meets the requirements of 40 CFR 264.14(b)(2) and (c), (see Attachment 1.C “Security and Safety”).

D. GENERAL INSPECTION REQUIREMENTS

The Permittee shall follow the inspection schedule set out in Attachment 1.D. 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), (see Attachment 1.D “Inspection Requirements, Plans and Schedules”).

E. PERSONNEL TRAINING

The Permittee shall be responsible for assuring that adequate training is provided for all personnel performing hazardous waste management practices and operating the remedial systems, (see Attachment 1.H “Personnel Training Plan”).

F. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

The Permittee shall comply with the requirements of 40 CFR 264.17(a).

G. PREPAREDNESS AND PREVENTION

Required Equipment

At a minimum, the Permittee shall maintain at the facility the equipment required by 40 CFR 264.32, (see Attachment 1.E “Process and Prevention of Hazards”).

1. Testing and Maintenance of Equipment

The Permittee shall test and maintain the equipment specified in Permit Condition II.H.1, as necessary, to assure its proper operation in time of emergency, as required by 40 CFR 264.33.

2. Access to Communications or Alarm System

The Permittee shall maintain access to the communications or alarm system, as required by 40 CFR 264.34.

3. Arrangements with Local Authorities

The Permittee shall maintain arrangements with state and local authorities, as required by 40 CFR 264.37. 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.

H. CONTINGENCY PLAN

1. Implementation of Plan

The Permittee shall immediately carry out the provisions of the base-wide Integrated Contingency Plan, 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, (see Attachment 1.F “Contingency Plan with SPCC”).

3. Amendments to Plan

The Permittee shall review and immediately amend, if necessary, the Contingency Plan, as required by 40 CFR 264.54. Such an amendment may require a permit modification in accordance with 40 CFR 270.42.

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.

I. AIR EMISSION STANDARDS

The Permittee shall follow the 40 CFR 264 Subparts BB and CC requirements for remediation operations and systems.

J. GENERAL CLOSURE REQUIREMENTS

This facility has an operating RCRA waste management unit (e.g., container storage), which will require closure as anticipated by 40 CFR 264 Subpart G. All clean-up, remediation, and post-closure activities are subject to the corrective action measures specified in Section III of this Permit, (see Attachment 1.I “Closure Plan”).

**K. COST ESTIMATE FOR FACILITY CLOSURE; FINANCIAL ASSURANCE;
LIABILITY INSURANCE REQUIREMENTS**

As a federally owned and operated facility, financial assurance for closure and post-closure, and accompanying cost estimates, are not required. Should the facility change ownership to a non-federal entity, both cost estimates and financial assurances will be required prior to approval of a permit transfer [264 Subpart H].

SECTION III - STORAGE FACILITY AND STORAGE IN CONTAINERS

- A. PERMITTED UNIT DESCRIPTION
 - 1. Hazardous Waste Storage Facility
 - 2. Permitted Waste Identification
 - a) Hazardous Waste Identification
 - b) Low Level Mixed Waste (LLMW)
- B. CONDITIONS OF CONTAINERS
- C. COMPATIBILITY OF WASTE WITH CONTAINERS
- D. MANAGEMENT OF CONTAINERS
- E. INSPECTION SCHEDULES AND PROCEDURES
- F. CONTAINMENT SYSTEM
- G. RECORD KEEPING AND REPORTING
- H. SPECIAL PROVISIONS FOR IGNITABLE OR REACTIVE WASTES
- I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES
- J. CLOSURE REQUIREMENTS
- K. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

SECTION III – STORAGE FACILITY AND STORAGE IN CONTAINERS

A. PERMITTED UNIT DESCRIPTION

1. Hazardous Waste Storage Facility

The Hazardous Waste Storage Facility (HWSF), Building 810, is located within a storage area near S.E. 59th Street in the southwest portion of Tinker AFB. The HWSF location is presented in Attachment 1A-1, Figures 1-2 and 1-3.

The HWSF is a concrete masonry unit with a metal roof to prevent accumulation of precipitation within the storage facility. Some storage modules/closets are equipped with roll-up (overhead) doors. A staging area (Staging Area 101) is located within the HWSF and is also equipped with overhead doors. Staging Area 101 is used for direct loading and unloading operations. From the staging area, containers with hazardous waste may be stored before loading onto vehicles or transferring to other designated modules or closets within the HWSF. If remaining in the storage area beyond normal operating hours, hazardous waste containers with free liquids are provided with secondary containment trays. Each secondary containment tray has sufficient capacity to contain 10% of the volume of the containers in each tray or the volume of the largest container in each tray, whichever is greater. The building has four double-wide, fully enclosed modules to allow storage of drums and other large quantities of materials, five standard sized modules, one smaller sized module, and ten closets for storing smaller quantities of materials separately from other materials. A site plan of the building is included in Permit Attachment A.1 Figures 1-5(a) and 1-5(b). A six-inch high concrete curb surrounds the concrete floor of the storage modules. The modules are used for storage of ignitables, corrosive acid, poisons, polychlorinated biphenyls (PCBs), precious metals, oxidizers/reactive and corrosive bases, and low level mixed waste (LLMW).

Since the building is sized for both hazardous materials and hazardous waste, the hazardous materials destined for reutilization, transfer, donation, or sale (RTDS) may also be stored in Building 810. When hazardous waste is placed in specific storage modules or the same modules as hazardous materials, it shall be separated from the hazardous materials. A compatibility chart and knowledge of process shall be used to ensure safe storage of hazardous waste and or materials.

Permit Attachment A.1, Table 1-1 “Storage Capacities vs. Secondary Containment Capacity Requirements” outlines the functional use of the storage modules, and summarizes the maximum storage volumes for the various waste types. Two emergency eyewash/shower stations are available to comply with 29 CFR. Essential spill equipment is also maintained in Building 810 to comply with pertinent section of 29 CFR.

Concrete ramps are provided for entering and exiting each storage module. A ramp is located within each module, along the center corridor that runs the length of the building. A description of the secondary containment system design and containment capacity is presented in Attachment A.1, Table 1-2 “Secondary Containment Calculations”.

Either electric power or chain hoist may operate the HWSF's receiving door. All overhead doors for the large closets, used for the storage of Hazardous Class 1A flammable waste, shall conform to NFPA 80. Electrical lighting shall comply with NFPA 70, Article 500 for hazardous locations.

Storage shall be accomplished by placing a maximum of four 55-gallon drums on pallets, then placing the pallets in a row in the storage module. Pallets shall be placed on metal racks. If necessary, pallets may be stacked in the staging area. Pallets shall not be stacked more than two high. Individual drums of liquid flammable wastes shall not be stacked; however stacking one liquid waste pallet above another on a metal rack shall not be considered direct stacking.

Flammable wastes constitute the largest of the waste groups and require the most space, especially since pallets holding drums of flammable liquids cannot be stacked. The volume of toxic and flammable waste varies considerably. Therefore, it is frequently necessary to convert the use of a bay from storage of one compatible group to storage of another. An entire bay is normally converted. If it becomes necessary to place more than one compatibility group in the same bay, only one group will be subject to that bay's secondary containment. The other group will be placed in secondary containment devices which are compatible with, and which can hold 100% of, the waste being contained.

The staging area will be used for assembling loads of waste to be transported by truck to a TSD facility. In the event additional storage space is required, the staging area may be used for storage. Secondary containment shall be provided in accordance with the protocol described in Section III, A.1. of this Permit.

2. Permitted Waste Identification

a) Hazardous Waste Identification

The Permittee may store on-site, at any one time at the HWSF, a total volume of 158,796 gallons of waste described by the following EPA waste codes subject to terms of this permit:

D001	D002	D003	D004	D005	D006
D007	D008	D009	D010	D011	D012
D013	D014	D015	D016	D017	D018
D019	D020	D021	D022	D023	D024
D025	D026	D027	D028	D029	D030

D031	D032	D033	D034	D035	D036
D037	D038	D039	D040	D041	D042
D043					
F001	F002	F003	F004	F005	F006
F007	F008	F009	F019	F039	
K045					
P001	P012	P021	P029	P030	P042
P066	P077	P097	P098	P099	P104
P105	P106	P108	P119	P121	
U002	U003	U012	U020	U032	U036
U038	U041	U044	U051	U052	U056
U057	U058	U070	U075	U076	U080
U088	U103	U112	U117	U121	U122
U123	U129	U132	U133	U134	U135
U144	U151	U154	U159	U160	U161
U162	U188	U196	U210	U211	U213
U219	U220	U226	U239	U240	U248

The individual containers are generally 55-gallon Department of Transportation (DOT) containers, overpack drums are allowed for deteriorating or leaking containers. Various containers of other sizes are allowed.

The permittee is prohibited from storing hazardous wastes that are not identified in this table or Permit Attachment 1.B “Waste Analysis Plan” Section 1.2.5.

Results of additional waste analyses performed after the submission of the effective date of this permit must be incorporated in the facility operating record. No permit modification shall be required if the analyses results are for a waste with an EPA waste code included in Permit Section III. However if the EPA waste codes is not listed in Permit Section III, the Permittee shall apply for a

permit modification in accordance with 40 CFR 270.42.

b) Low Level Mixed Waste (LLMW)

The Plasma Shop in Building 3001 and Building 3221 includes a process of plasma spray coating the inside and outside of combustion chambers for different aircraft engines. The plasma powder contains thorium and yttrium and carries hazardous waste code D007. The overspray is collected in hoppers then subsequently in 55-gallon drums under the hoppers. The drums are transported to the HWSF where they undergo scanning for radioactivity through the use of a Geiger counter. Any drum that is twice background is considered LLMW and is segregated into Module 119.

B. CONDITION OF CONTAINERS [40 CFR 264.171]

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects, etc.) or it begins to leak, the Permittee shall transfer the hazardous waste from the container to a container that is in good condition, or otherwise manage the waste in compliance with the conditions of this permit.

C. COMPATIBILITY OF WASTE WITH CONTAINERS [40 CFR 264.172]

The Permittee shall use containers made of or lined with materials which will not react with, or are otherwise compatible with, the hazardous waste being stored, so that the ability of the container to contain the waste is not impaired.

D. MANAGEMENT OF CONTAINERS [40 CFR 264.173]

1. The Permittee shall keep the containers closed during storage, except when it is necessary to add or remove waste.
2. The Permittee shall not open, handle, or store containers in a manner which may rupture the container or cause it to leak.
3. The Permittee shall maintain aisle space in the container storage area sufficient to allow the unobstructed movements of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any portion of the container storage area.
[40 CFR 264.35]

E. INSPECTION SCHEDULES AND PROCEDURES [40 CFR 264.174]

The Permittee shall inspect the container area weekly, in accordance with the Inspection Schedule presented in Permit Attachment 1.D “Inspection Requirements, Plan and Schedules” or its equivalent, to detect leaking containers and deterioration of containers and the containment system caused by corrosion and other factors.

F. CONTAINMENT SYSTEM [40 CFR 264.175]

The Permittee shall maintain the containment system in accordance with the attached plans and specifications contained in Permit Attachment 1.A “General Facility Information and Units”, Tables 1-1 “Storage Capacities vs Secondary Containment Capacity Requirements”, Table 1-2 “Secondary Containment Calculations”, Figure 1-5(a) “Storage Building Plan”, and Figure 1-5(b) “Typical Modules Enlarged”.

G. RECORD KEEPING AND REPORTING [40 CFR 264.73 THROUGH 264.77]

The Permittee shall keep a written operating record at the HWSF in accordance with the regulations specified in 40 CFR 264.73 and 264.74, as well as provide reports in accordance with 40 CFR 264.75, 264.76 and 264.77, as applicable.

**H. SPECIAL PROVISIONS FOR IGNITABLE OR REACTIVE WASTES
[40 CFR 264.176]**

Containers holding ignitable or reactive waste must be located at least 15 meters (50 feet) from the facility’s property line.

I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES [40 CFR 264.177]

1. The Permittee shall not place incompatible wastes, or incompatible waste and materials, in the same containers, unless the procedures specified in Permit Attachment 1.B Waste Characterization and Waste Analysis Plan and 40 CFR 264.17(b) are followed.
2. Hazardous waste must not be placed in an unwashed container that previously held incompatible waste or materials.
3. The Permittee shall separate containers of incompatible waste in accordance with 40 CFR 264.177(c).

J. CLOSURE REQUIREMENTS

Closure of the HWSF container area shall begin on the permitted unit within ninety (90) days after receiving the final volume of hazardous waste. Closure shall be completed within 180 days after receiving the final volume of hazardous waste. At closure, the Permittee shall remove all hazardous waste containers and all hazardous waste residues from the containment system, in accordance with the procedures in the approved Closure Plan presented in Permit Attachment 1.I “Closure Plan”.

K. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

1. The Permittee may store the wastes in containers at the facility, subject to the terms of this Permit.
2. The Permittee is prohibited from storing or treating hazardous waste that is not identified in Permit Attachment 1.B.
3. 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. No Permit modification is required if the analyses results are for a waste included in Permit Attachment 1.B. However, if the waste is not listed in Attachment 1.B, the Permittee must immediately make application to modify the Permit to include it.

**SECTION IV - SPECIAL CONDITIONS PURSUANT TO THE 1984
HAZARDOUS AND SOLID WASTE AMENDMENTS (HSWA)**

- A. CURRENT SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

- B. STANDARD CONDITIONS
 - 1. Waste Minimization
 - 2. Dust Suppression
 - 3. Permit Modification
 - 4. Permit Review
 - 5. Compliance with Permit
 - 6. Specific Waste Ban
 - 7. Information Submittal
 - 8. Plans and Schedules Incorporated into Permit
 - 9. Data Retention
 - 10. Management of Wastes
 - 11. Dispute Resolution

Table IV-1: Ongoing SWMUs and AOCs

Table IV-2: GWMUs with CGs, SWMUs AOCs and Site Designations

Table IV-3: No Further Action Determinations

SECTION IV – SPECIAL CONDITIONS PURSUANT TO THE 1984 HAZARDOUS AND SOLID WASTE AMENDMENTS (HWA)

A. CURRENT SOLID WASTE MANAGEMENT UNITS AND AREAS OF CONCERN

The RFI requirements listed in this corrective action section of the Permit shall apply only to the current SWMUs/AOCs/Sites on the SWMU/AOC/Site List (Table IV-1: “Ongoing SWMUs and AOCs”) and to any SWMUs/AOCs/Sites discovered hereafter.

Tinker AFB shall follow DEQ-approved Groundwater Monitoring and Groundwater Sampling and Analysis Plans for the Corrective Action section of this Permit.

Table IV-2: “GWMUs with CGs, SWMUs AOCs and Site Designations” contains the GWMUs, subunits and RCRA SWMUs/AOCs/Sites with which they are associated. Some sites may be assigned to more than one subunit.

B. 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 (5) 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 which 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; and
 - 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, 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, DEQ may initiate permit modification proceedings in accordance with the regulations set forth at 40 CFR 270.41.
- b. Permittee Initiated Modifications
- The Permittee may initiate permit modifications, where appropriate, 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.

4. Permit Review

This Permit may be reviewed by DEQ five (5) years after the date of permit issuance and may be modified as necessary. Nothing in this section shall preclude DEQ from reviewing and modifying the Permit at any time during its term.

5. Compliance with Permit

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:

- a. Become effective by statute;
- b. Are promulgated under 40 CFR 268 restricting the placement of hazardous wastes in or on the land; or
- c. Are promulgated under 40 CFR 264 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, certified quality assurance (CQA) programs, monitoring action leakage rates, and response action plans, and will be implemented through the procedures of 40 CFR 270.42 Class 1 permit modifications.

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. 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 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) or enforcement action as deemed appropriate.

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. All copies 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
707 North Robinson, P.O. Box 1677
Oklahoma City, Oklahoma 73101-1677

8. Plans and Schedules Incorporation Into Permit

All plans and schedules 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 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, for good cause shown, on a case by case basis.

If DEQ determines that actions beyond those provided for, or changes to what is stated herein, are warranted, DEQ may modify this Permit as described by 40 CFR 270.41.

9. Data Retention

All raw data, such as laboratory reports, drilling logs, bench-scale or pilot-scale data, and other supporting information gathered or generated during activities undertaken pursuant to this Permit shall be stored on electronically scanned media and, upon request from DEQ, shall be made available for review within 10 days.

10. Management of Wastes

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

11. 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 HSWA, including, but not limited to, implementation of work plans, 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 10 days of receipt of the written notice. The Permittee and DEQ shall use their best efforts to informally and in good faith resolve the dispute in a timely manner. The Permittee is entitled to meet with DEQ in office or by teleconference, if it so desires, in order to resolve the dispute.
- c. If Permittee and DEQ are unable to resolve the dispute, the Permittee may request a final decision by the Director of the Land Protection Division. Within 30 days of receipt of DEQ's written notice, the Permittee shall submit to Director of the Land Protection Division, 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 an informal 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. The Director of the Land Protection Division, at his/her discretion, will determine whether an informal conference, if requested by the Permittee, will be held.
- e. If an informal conference is convened, DEQ shall consider the written position of the Permittee and the oral arguments, and shall provide a written statement of its decision based on the record. This statement shall be considered to be incorporated as an enforceable part of the permit. The written statement shall respond to the Permittee's arguments and shall set forth the reasons for DEQ's final decision. Such decision shall be the final resolution of the dispute and shall be implemented immediately by the Permittee according to the schedule contained therein.

- f. 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 DEQ determines 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.

Table IV-1: Ongoing SWMUs and AOCs

Current SWMU No.	RFA SWMU No.	Current AOC No.	RFA AOC No.	AFSite No.	Original Site Name	Activity History	Current Status
1	1			LF016	Landfill 6	Listed as a SWMU in the 1991 and 2002 RCRA Permits. Final Phase I RFI report completed September 1994. Final Phase II RFI report completed June 1997. RCRA landfill cap upgrades were completed in 2001. Long term monitoring and care of the RCRA cap was approved as the remedy for this site in a letter from ODEQ dated 6/1/2001.	Long Term Monitoring and Care of the RCRA cap.
2	2			LF015	Landfill 5	Listed as a SWMU in the 1991 and 2002 RCRA Permits. Final Phase I RFI report completed September 1994. Final Phase II RFI completed September 1995. RCRA landfill cap installed in 1998. Long term monitoring and care of the RCRA cap as the remedy for this site was documented in a letter from ODEQ dated 10/4/2001.	Long Term Monitoring and Care of the RCRA cap.
3	3			LF011	Landfill 1	Listed as a SWMU in the 1991 and 2002 RCRA Permits. RCRA landfill cap installed in 1991. Final Phase I RFI report completed September 1994. Final Phase II RFI completed April 1999. Long term monitoring and care of the RCRA cap as the remedy for this site was documented in a letter from ODEQ dated 7/25/2001.	Long Term Monitoring and Care of the RCRA cap.
4	4			LF012	Landfill 2	Listed as a SWMU in the 1991 and 2002 RCRA Permits. Final Phase I RFI report completed September 1994. RCRA landfill cap installed in 1998. Final Phase II RFI completed April 1999. Long term monitoring and care of the RCRA cap as the remedy for this site was documented in a letter from ODEQ dated 7/25/2001.	Long Term Monitoring and Care of the RCRA cap.
5	5			LF013	Landfill 3	Listed as a SWMU in the 1991 and 2002 RCRA Permits. RCRA landfill cap installed in December 1991. Final Phase I RFI report completed September 1994. Final Phase II RFI completed April 1999. Long term monitoring and care of the RCRA cap as the remedy for this site was documented in a letter from ODEQ dated 7/11/2001.	Long Term Monitoring and Care of the RCRA cap.
6	6			LF014	Landfill 4	Listed as a SWMU in the 1991 and 2002 RCRA Permits. RCRA landfill cap installed in December 1991. Final Phase I RFI report completed September 1994. RCRA landfill cap installed in 1998. Final Phase II RFI completed April 1999. Long term monitoring and care of the RCRA cap as the remedy for this site was documented in a letter from ODEQ dated 10/29/2001.	Long Term Monitoring and Care of the RCRA cap.
24	24			OT034	IWTP - Industrial Wastewater Treatment Plant Soils	Identified as a RCRA SWMU in the 1991 and 2002 RCRA Permits. Phase I RFI report completed April 1994, Phase II RFI report completed July 1996. CMS report completed June 2003. The Air Force submitted a decision document to ODEQ (April 23, 2004) proposing the selected remedy be vapor extraction from the soils. The ODEQ concurred with the Air Force in a letter dated May 5, 2004. The VEP system was turned off June 4, 2012. In 2016 a non-time critical removal was performed to remove soil hot spots discovered to be slightly above industrial levels. A RCRA Corrective Action Construction Completion Report for soils was completed and was approved by DEQ on 1/25/2019.	Corrective Action complete - soil removal

Tinker AFB Permit Renewal 2019
EPA ID# OK1571724391

AF Site Number	Current AOC No.	RFA AOC No.	Site Name	Activity History	Current Status
ST007	1	1	Fuel Farm (290 POL Facility)	AOC 1 was identified in the 6/15/89 USEPA Region 6 RFA, but was not listed as an AOC in the 1991 RCRA Permit. As required by the 1991 RCRA Permit, a summary of previous studies was documented in the December 1992 Description Of Current Conditions for Tinker AFB. This AOC was not listed in the 2002 RCRA Permit. However, a RFI report was completed in 1995, and an additional Draft Site Investigation Report was completed in December 1996. Two vacuum enhanced pumping (VEP) systems were installed at the site between 1998 and 2000 as interim corrective measures. Collectively, the two systems extract groundwater and soil vapor from 34 recovery wells around Building 214, the former Building 210, near Tank 349, and near Building 117. The two systems were shut down in April 2012.	ICM – completed in 2012. New RFI underway
ST008	20		Building 201 Vapor Intrusion	A potential vapor intrusion condition was identified at Building 201 during a base-wide vapor intrusion survey (inventory) in 2010.	RFA completed for soil vapors
CG040	21		Gator Groundwater Management Unit	CG040 encompasses chlorinated solvent impacted groundwater underneath an adjunct facility approximately one mile east of the eastern boundary of Tinker AFB near the intersection of SE 59th St. and Post Road. The facility is non-industrial; only one building used for administrative purposes was found at the site. No unique source has been identified for this contamination. A groundwater extraction and treatment system began operation as an interim action in October 1999. The RFI report was completed in December 2003 and the CMS report was completed in July 2006. A Statement of Basis was completed as a decision document between Tinker AFB and the ODEQ, and was signed by ODEQ on July 31, 2006. In 2013, an insitu-bioremediation treatment system consisting of injection wells and two bioreactors was installed to further treat the higher concentrations of CVOCs within the plumes. The extraction system was temporarily shut down December of 2016. Ultimate goal is to achieve UU/UE site close out.	Corrective Action - GW extraction system and bioreactor with in-situ remediation
CG041	22		AWACS Sector	CG041 encompasses impacted groundwater beneath the tarmac and taxiways south of Building 230. This site was introduced to ODEQ at the October 2009 RAB meeting. The RFI report was completed in August, 2014 with a recommendation to conduct a Corrective Measures Study.	RFI completed under Area A Sites. CMS recommended
OT058	23		Jet Engine Test Cells (Bldg. 3703)	A site investigation report was completed in July 2002; Interim Corrective action using soil gas vapor and groundwater extraction was initiated in 2002 with the report issued in May 2003. A CMS was completed in May 2005. The May 2002 VEP system was turned off on May 4, 2012. An additional RCRA Facility Investigation (RFI) is being conducted at this building to further evaluate the nature and extent of the contamination as well as to determine other possible sources at this location.	RFI underway
OT062	24		Building 230	A RFI report was completed in March 2004. A VEP system was installed as an interim corrective measure to mitigate the potential risk posed by subsurface contaminants along the north and west sides of Building 230. A Phase I CMS was completed in April 2007 and a draft Phase II CMS was completed in May 2011. The 2005 VEP system was shut down in 2011. A new RCRA Facility Investigation (RFI) is being conducted to further characterize nature and extent.	RFI underway

Tinker AFB Permit Renewal 2019
EPA ID# OK1571724391

OT064	25		Building 210	A Draft Final RFA was completed in July 2008. A potential vapor intrusion condition was identified. A more recent site investigation (2013) to further delineate the nature and extent of contamination has confirmed that a solvent plume exists within the northern portion of the site and further study is planned to be conducted in the near future.	RFI underway
OT065	26		Building 283, Building 284, Building 296	A potential vapor intrusion condition was identified at Buildings 283, 284, and 296 during a base-wide vapor intrusion survey (inventory) in 2010. . In addition, several fuel USTs existed in the area that may have acted as sources of fuel contamination. However, the tanks were investigated and closed under OCC jurisdiction.	RFI completed under Area A sites; CMS recommended
OT066	27		Building 2110 Oil Water Separator	Same Location as the Fuel Truck Maintenance Area AOC (see Table 10-1). A fuel leak from the oil water separator was noticed in 2004. A RFI report has been completed and was approved by ODEQ in October, 2016. The OWS, and any associated contaminated soil is planned to be removed with the demolition of Building 2110 in the near future. Ultimate goal is to achieve UU/UE site close out.	Corrective Action - Non-time critical OWS removal
OT067	28		Building 2101	This building is the former motor pool which has been demolished and will not be replaced. Due to the nature of the motor pool operations, solvent and fuel leaks are suspected. The RFI report was completed in June 2015. The CMA work plan completed involving a non-time critical soil removal action was approved March 2017. Ultimate goal is to achieve UU/UE site close out.	Corrective Action – non-time critical soil removal action
OT068	29		Replaced" Fuel Hydrant System	In 1992, fuel releases from the hydrant system were detected when fuel would seep to the surface between the joints in the concrete of the tarmac. The RFI report was completed in August, 2014 with a recommendation to conduct a Corrective Measures Study.	RFI completed under Area A Sites. CMS recommended
OT069	30		Building 2121 and Building 2122	A RFA/RFI report was completed in March 2001 followed by a supplemental SI/RFI report in September 2001 and a CMS Report in October 2001 at Building 2122. Soil contamination was identified, but report concluded that it was not impacting the groundwater. Similar process activities occurred at Building 2121 in the past, though no investigations had been performed at Building 2121. Results for sub slab soil gas sampling beneath Building 2121 and 2122 were reported in a Vapor Intrusion Assessment that was completed in August 2011. Recent data from a current RFI to further characterize and delineate indoor air, soil, and groundwater contamination, which is underway, suggests however that soil contamination extends deeper than previously thought and has probably impacted shallow groundwater at the site.	RFI underway
ST033	31		Area A Service (Fuel) Station	Soil and groundwater investigations conducted in 1990 and 1992 showed the presence of motor vehicle gas contamination. A product recovery system was installed in 1992 to pump fuel from the groundwater. By 1996, the extent of soil contamination was delineated, the USTs were removed and the product recovery system expanded. VEP remediation began June 1997, and fuel product recovery was completed by 1999. The OCC approved site closure on December 18, 2000; however, this is limited to only petroleum hydrocarbons in soil and groundwater. A TCE plume (along with other chlorinated compounds) has been identified in the groundwater beneath the site. The VEP system was shut down in November, 2012 and replaced with an Emulsified vegetable oil mixture injection – In Situ.	Corrective Action – In Situ Remediation for CVOCs.

Tinker AFB Permit Renewal 2019
EPA ID# OK1571724391

VI080	32		Building 3105	Suspected releases of solvents from drain lines beneath Building 3105 were reported at this site in August 2009. A RFI to further characterize contamination and to evaluate whether continuing sources exist at the building, is currently underway.	RFI completed Jan 2019, GW under NPL Site
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Table IV-2: GWUMs with CGs, SWMUs, AOCs, and Site Designations

GWMU 1 (within CG037)	GWMU 2 (≈ CG038)	GWMU 3 (CG039)	GWMU 4 (CG039)	GWMU 5	GWMU 3001 (NPL)
	<i>Subunits 2A through 2B within CG037 Subunits 2C through 2F within CG038</i>				
1: <u>SWMU054</u> = WP023 Stained Drainage Ditch [NFA] <u>AOC022</u> = CG041 AWACS Sector (portions) <u>AOC029</u> = OT068 Replaced Fuel Hydrant Sys. (portions)	2A: <u>SWMU014</u> = Old Sanitary Treatment for Housing & Sludge Drying Beds [NFA]	3A: <u>SWMU002</u> = LF015; Landfill 5	4: <u>SWMU026</u> = OD051, Ordnance Disposal Area [NFA]	5A: <u>SWMU001</u> = LF016 (Landfill 6)	<u>SWMU023</u> = IWTP several subunits including waste tanks [NFA] <u>SWMU024</u> = OT034, IWTP soils [NFA] <u>SWMU024.2</u> = ITWP Tanks D1/D2 [NFA] <u>SWMU032</u> = Sanitary WTP & soils [NFA] <u>AOC007</u> = North Tank Area <u>AOC032</u> = B3105
1A: <u>AOC031</u> = ST033 (aka Area A Sites) Area includes Eaker Gate and B400	2B: NW Chlorinated Solvent Plume		4A: <u>AOC023</u> = OT058 (Jet Engine Test Cells; B3703) <u>AOC030</u> = OT069; Twin Hangars B2121/2122 (portions)		
1B: <u>CG042</u> (soils) = BX Service Station	2C: <u>SWMU003</u> = LF011; Landfill 1	3B: <u>SWMU008</u> = FT002 soils [NFA]	4B: <u>SWMU012</u> = WP018 (Ind. Waste Pt #1) soils [NFA]	5B: <u>AOC021</u> = CG040 (GATOR Facility)	
1C: <u>SWMU018</u> = UST at B214; SW/4 (1 of 4 fuel sites) soils [NFA] <u>AOC001</u> = ST007; B290 Fuel Farm (portions) <u>AOC020</u> = ST008, B201 vapor intrusion <u>AOC024</u> = OT062; B230 Quad Hangars (portions) <u>AOC025</u> = OT064 B210 (portions)	<u>SWMU007</u> = FT021 (Fire Training Area 1) [NFA] <u>SWMU011</u> = WP017 (Supernatant Pond) [NFA] <u>AOC002</u> = Old Pesticide Storage B1005 [NFA]	<u>SWMU009</u> = FT003 <u>SWMU040</u> = Fire Control Holding Pond B976 [NFA]	<u>AOC027</u> = OT066 (OWS at B2110) <u>AOC028</u> = OT067 (B2101; former Sawtooth bldg.) <u>AOC030</u> = OT069; Twin Hangars B2121/2122 (portions) <u>WP036</u> = Purge Facility turnaround/waste fuel dump [NFA]		
1D: <u>SWMU015</u> = ST008, B201S (2 of 4 fuel sites) soils [NFA] <u>SWMU016</u> = ST008, B201W (3 of 4 fuel sites) soils and groundwater [NFA] <u>SWMU017</u> = ST008, B201N (4 of 4 fuel sites) soils [NFA] <u>AOC024</u> = OT062, B230 Quad Hangars (portions) <u>AOC025</u> = OT064 B210 (portions) <u>AOC026</u> = OT065 (B283, B284 & B296)	2D: <u>SWMU004</u> = LF002; Landfill 2 (portions) <u>SWMU005</u> = LF013; Landfill 3 (portions) <u>SWMU006</u> = LF014; Landfill 4 (portions) <u>SWMU021</u> = RW027, Radioactive Waste Disposal Site [NFA] <u>SWMU022</u> = FW028, Radioactive Waste Disposal Site [NFA]				
1E: <u>AOC001</u> = ST007; B290 Fuel Farm (portions)	2E: <u>SWMU004</u> = LF002; Landfill 2 (portions) including Cr ^{VI} plume <u>SWMU019</u> = RW025; Radioactive Waste Disposal Site [NFA]	3C:	4C: <u>SWMU013</u> = WP019 (Ind. Waste Pit #2) [NFA]		
1F: Area around the Tinker Gate	<u>SWMU020</u> = RW026; Radioactive Waste Disposal Site [NFA]				
1G: <u>AOC022</u> = CG041 AWACS Sector (portions) <u>AOC029</u> = OT068 Replaced Fuel Hydrant Sys. (portions) soils	2F: <u>SWMU004</u> = LF002; Landfill 2 (portions) <u>SWMU006</u> = LF014; Landfill 4 (portions) (including Cr ^{VI} plume)				

Table IV-3: No Further Action Determinations

Five (5) sites have received No Further Action (NFA) to industrial standard determinations since the issuance of the 2002 RCRA Permit. Fifteen (15) NFA sites were authorized for removal from the 2002 RCRA Permit.

NFA date	SWMU/AOC	Common Site Name
09/15/2015	SWMU-12	Industrial Waste Pit #1 (WP-18)
08/01/2006	SWMU-08	Fire Training Area #2
08/02/2004	SWMU-11	Supernatant Pond (WP-17)
02/20/2004	SWMU-13	Industrial Waste Pit #2 (WP-19)
09/12/2003	SWMU-32	Sanitary Wastewater Treatment Plant soils
08/12/2002	SWMU-14	Sludge Drying Beds
08/12/2002	SWMU-16	Building# 201 West Alcove (ST-08)
08/12/2002	SWMU-17	Building # 201 North Side (ST-08)
08/12/2002	SWMU-18	Building #214 SW corner (ST-08)
08/12/2002	SWMU-19	Radioactive Waste Disposal Site 1030 W (RW-25)
08/12/2002	SWMU-20	Radioactive Waste Disposal Site 201 S (RW-26)
08/12/2002	SWMU-21	Radioactive Waste Disposal Site 62598 (RW-27)
08/12/2002	SWMU-22	Radioactive Waste Disposal Site 1022 E (RW-28)
08/12/2002	SWMU-24	Industrial Wastewater Treatment Plant (OT-34) soils
08/12/2002	SWMU-26	Ordnance Disposal Area (OD-51)
08/12/2002	SWMU-40	AFFF Fire control Holding Pond, Bldg. #976
08/12/2002	SWMU-54	Stained Drainage Ditch (WP-23)
08/12/2002	AOC-2	Old Pesticide Storage Area Bldg. # 1005
08/12/2002		Waste Fuel Dump Site (WP-36)
08/12/2002		Fire Training Area #1

SECTION V - CORRECTIVE ACTION STRATEGY (CAS)

INTRODUCTION

- A. CORRECTIVE ACTION FOR RELEASES**
- B. CORRECTIVE ACTION USING THE CAS**
 - 1. Utilize CAS Guidance Document
 - 2. Performance Standards and Corrective Action Objectives
 - a. Source Control Performance Standard
 - b. Statutory & Regulatory Performance Standard
 - c. Final Risk Goal Performance Standard
 - 3. Corrective Action for Releases Beyond Facility Boundary
 - 4. Summary of Corrective Action Activities
- C. PROJECT DEVELOPMENT AND SCOPING MEETING**
- D. CORRECTIVE MEASURES IMPLEMENTATION REPORTS AND SUMMARIES**
- E. CONCEPTUAL SITE MODEL**
- F. CORRECTIVE ACTION STRATEGY WORKPLAN**
- G. RISK EVALUATION AND RISK MANAGEMENT REPORT**
- H. INTERIM MEASURES**
- I. IMPLEMENTATION OF THE SITE INVESTIGATION ACTIVITIES UNDER CAS**
- J. SUBMISSIONS/AGENCY APPROVAL/ADDITIONAL WORK**
- K. RECORDKEEPING AND REPORTING**
- L. NOTIFICATION REQUIREMENTS FOR NEWLY-IDENTIFIED SWMUs and AOCs**
- M. NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES**
- N. CORRECTIVE ACTION FOR NEWLY-DISCOVERED RELEASES**
- O. PUBLIC PARTICIPATION REQUIREMENTS**
- P. RE-OPENING OF THIS PERMIT**

SECTION V – CORRECTIVE ACTION STRATEGY (CAS)

INTRODUCTION

Since the early 1990s Tinker AFB has taken a phased RCRA Facility Investigation (RFI) approach to characterizing the cleaning up of non-NPL Sites at the base. During the implementation of the initial (Phase 1) RFIs at SWMUs and AOCs at Tinker AFB, the base recognized the inefficiency of investigation of groundwater impacts utilizing a unit-by-unit approach since: (1) designated contaminated sites under the Air Force's Installation Restoration Program (IRP) have not always been recognized as SWMUs or AOCs under RCRA; (2) plumes from multiple sources are sometimes comingled; and (3) discrete sources could not be identified for all the plumes.

- In July 1994 Tinker AFB and EPA agreed that the most effective way to investigate groundwater impacts was to focus on determining the full extent of groundwater contamination resulting from RCRA units across the base, in a holistic approach. Initially, plumes were individually identified under Groundwater Management Units (GWMUs), which were first outlined in the Final Basewide Non-NPL Groundwater Phase II RFI Report for Appendix I and II SWMUs, which was completed in June 1997, and adopted by DEQ on October 14, 1998.
- In 1998, contaminated groundwater was divided into four (4) areas for formal designation as IRP Sites. These are: Contaminated Groundwater (CG) CG037 (Northwest), CG038 (Southwest), CG039 (East), and CG040 (Gator). Three CGs (37, 38 and 39) incorporate most of the base and contain multiple GWMUs and AOCs and may include multiple groundwater plumes with their sources, which fall within areas where groundwater flow directions are generally similar. Plumes within a CG may be comingled or have more than one source within the CG, which is the purpose of contaminated groundwater (CG) designation. The CGs noted above do not entirely coincide with either the GWMUs designated during the Phase II RFI or with individual SWMUs. CG040 is specific to subunit 5B only, which is composed of a single plume.
- These four (4) CGs have formal designation as IRP Sites, although GWMU subunit (i.e., 5B) description has continued to be used when individual plumes are discussed, as they exist with their own system of monitoring wells. Note that the CG unit boundaries are not considered static and have been adjusted over time, and modified as necessary to reflect any new groundwater data from continuing investigation and/or changes to plume extent. The set of analytical and water level data for Tinker AFB's ongoing groundwater monitoring program is published periodically and is found in a report titled Basewide Groundwater Field Sample Collection, which is submitted to DEQ.
- Under the GWMU and CG approach as soils are remediated and attain No Further Action (NFA) status, the contaminated groundwater is jurisdictionally transferred through a Statement of Basis (SB) to the underlying CG.

In 2013, DEQ and Tinker AFB agreed to apply the EPA Region 6 Corrective Action Strategy (CAS) to the base. The Notice of Intent prepared by Tinker AFB in December 2017 announced the CAS, under which many of the investigative and remedial programs at the base would be combined, and that corrective action would become performance/result-based.

The selected remedy relies on the attainment of specific clean-up goals, and focuses on performance-based progression and continuity in meeting those goals. The Corrective Action Objectives (CAOs) are outlined in Attachment 8 Risk Evaluation and Risk Management Report. This section presents the specific requirements of the selected remedy and attendant requirements for remedial operations.

The Tinker AFB remediation strategy is consistent with the Corrective Action requirements set out in the EPA Region 6 CAS document dated February 2015. The CAS at Tinker AFB, as noted in Sections 10.1, 10.2 and the permit renewal application, consists of Risk Management, performance-based remediation and an alternative corrective action approach using the development of CAOs.

A. CORRECTIVE ACTION FOR RELEASES:

Section 3004(u) of RCRA, as amended by the HSWA, requires that permits issued after November 8, 1984, 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.

The EPA Region 6 CAS is an alternate corrective action approach that can be implemented during any phase of corrective action for a release area. In the event that there is discovery of a new SWMU or a new release from an existing SWMU or AOC identified in this permit, or a new AOC identified in this permit, the Permittee shall use the CAS approach as the framework for corrective action to clarify, facilitate, and expedite the process, and shall compare all contaminants in the soil and groundwater to the current EPA RSLs found at <https://www.epa.gov/risk/regional-screening-levels-rsls> for screening new releases and media-specific cleanup standards. Screening should use the most conservative levels based on the chosen receptors or scenario, unless otherwise directed by DEQ.

DEQ may add new AOCs (i.e., releases that were not routine or systematic including off base contamination and one-time spills) to the permit through a permit modification where new information indicates the existence of a new AOC which requires corrective action in order to protect human health and the environment. Nothing in this permit shall prevent DEQ from requiring corrective action under other legal authorities.

B. CORRECTIVE ACTION USING THE CAS

1. This Permit will utilize the CAS Guidance Document (<https://www.epa.gov/ok/hazardous-waste-corrective-action-strategy-epas-south-central-region>) developed by EPA Region 6. The CAS Guidance Document shall be utilized to the fullest extent practicable for planning and implementation of corrective action. The

CAS in this Permit shall not supersede existing Federal, State, and local regulations. The two primary objectives are: (1) to prioritize corrective action at the facility; and (2) streamline corrective action administrative procedures, resulting in the protection of human health and the environment.

The CAS is a performance-based approach using the development of corrective action objectives from the CAS performance standards. The CAS is a risk management strategy that can be implemented during any phase of corrective action. Performance standards are established at the beginning of the corrective action process, allowing earlier and more focused implementation. Releases are screened using the current EPA RSLs found at <https://www.epa.gov/risk/regional-screening-levels-rsls> to assist in determining the priority of corrective action, and remedial alternatives are selected on the basis of their ability to achieve and maintain the established corrective action objectives.

There is no one specific path through the CAS process. The CAS is a facility-wide approach, focusing corrective action on releases that pose the greatest risk first. Screening releases will also enable some areas of interest to qualify for NFA status (Section V.P), thus resources can be used to best benefit the protection of human health and the environment.

The traditional RCRA corrective action process and reports (i.e., RFAs, RFIs, CMSs, CMIs, etc.) are not elements of the CAS. However, the use of information and reports from the traditional corrective action process, if available, is encouraged, in addition to new site-specific information.

DEQ, through an agency-initiated permit modification, may remove the CAS as the means of facility-wide corrective action in the case of the failure of the Permittee to disclose information, adhere to agreed schedules, or show adequate progress; or should an impasse occur between the Permittee and DEQ. DEQ will institute other means of corrective action (such as traditional corrective action) at the facility through modification of this Permit.

2. Performance Standards and Corrective Action Objectives (CAOs)

Expectations for the outcome of corrective action at a facility are established in the CAS by three performance standards (i.e., Source Control, Statutory and Regulatory, and Final Risk Goal), as defined in this Permit Condition. The Permittee's proposed performance standards were presented during the scoping meeting in December 2017. The Permittee must justify the proposed performance standards through evaluation and documentation of land use, groundwater designation (current and reasonable expected future use), types of receptors present, exposure pathways, etc. Through the application of the performance standards and screening with the current EPA RSL found at <https://www.epa.gov/risk/regional-screening-levels-rsls> the Permittee and DEQ shall determine whether a release must be addressed through corrective action, and whether implemented corrective actions are protective of human health and the environment.

The three CAS performance standards approved by DEQ are defined below. The order in which the performance standards are listed does not imply that one performance standard takes priority over another. CAOs are described under each performance standard. All

CAOs must be achieved by the Permittee.

a. **Source Control Performance Standard**

Source control refers to the control of materials that include or contain hazardous wastes or hazardous constituents that act as a reservoir for migration of contamination to soil, sediment, ground water, surface water, or air, or as a source for direct exposure.

The facility must determine if source material is present. Removal, containment, and treatment, or a combination of the three, must be evaluated on a case-by-case basis. Controlling source material is a predominating issue in the CAS, and must be addressed to ensure protectiveness over time. Prioritization of the SWMUs and AOCs does not mean avoidance of controlling source materials.

Potential soil and groundwater sources were identified and evaluated per Site/SWMU/AOC in various RFI/CMS reports (see Table IV-1). Source area removal and treatment actions undertaken by the Facility are described in the various CM Workplan and various related implementation reports submitted to DEQ. The assessment of potential subsurface soil source areas is completed for those SWMUs and AOCs investigated during the various RFIs. The Facility shall investigate the potential for source areas at newly-identified SWMUs and potential AOCs (Permit Section V.L) and newly-discovered releases (Permit Section V.M).

CAO: To support the final groundwater cleanup objective, Tinker AFB must remove or treat source material in subsurface soils and/or groundwater to the extent practicable. As stated in corrective action objective for groundwater, the facility must remove or treat source material in subsurface soils that could subsequently migrate to groundwater, and attain a media-specific cleanup goal protective of groundwater.

- **Performance Metric – Subsurface Soil:** The CAO is to contain the contamination; therefore, source removal activities must target the removal of contamination in soils at concentrations that could result in non-compliance at the point-of-compliance. Cleanup goals for subsurface soil contaminant may vary across the Facility as a function of chemical- and location-specific parameters. The Permittee shall submit written justification for proposed subsurface soil cleanup goals (i.e., may be SWMU/AOC/Site specific) to DEQ for review and approval. Confirmation sampling data will confirm that appropriate cleanup levels are attained. Residual contamination left in place above cleanup levels must be treated, removed or contained. Preference will be given to treatment or removal remedies over containment, if practicable.
- **Performance Metric – Groundwater:** the Permittee must evaluate groundwater data every fifteen (15) months to present a source area assessment in annual performance monitoring reports and identify any potential, new, or persistent DNAPL source areas. The Permittee may utilize other applicable guidance and lines of evidence to evaluate potential source

areas, subject to approval by DEQ. If, upon review of this assessment, DEQ determines that the source area(s) may be present, DEQ will provide written notification to the Permittee. In accordance with the schedule established in the written notification, the Permittee shall submit to DEQ a workplan(s) to identify and evaluate suspected source areas and/or for the removal, treatment or containment of source areas. Preference will be given to treatment or removal remedies over containment, if practicable.

b. Statutory and Regulatory Performance Standard

Applicable statutory and regulatory requirements (Federal, State, and local) must be identified. These requirements may dictate media-specific contaminant levels (e.g., MCLs in drinking water) that must be achieved and may become a performance standard for the Permittee.

CAO: The final groundwater corrective action objective is to contain the plume, and return the groundwater to its maximum beneficial use. Performance monitoring (Attachment 3) will provide sampling analytical data that reports the concentrations of COCs in groundwater and surface water. The data forms the primary basis for evaluating compliance with the CAO. The final Point of Compliance (POC) at each GWMU is defined as the most down-gradient boundary of the property. Tinker AFB does not have Restrictive Covenant or Easement Agreements and does not have off-base Land Use Controls (LUCs).

The CAO is to monitor and provide sampling analytical data that reports the concentrations of COCs in groundwater collected from the sentinel wells at each GWMU until said concentrations are conclusively demonstrated to be stable or shrinking. Failure to meet this CAO (if sampling data and two consecutive verification sampling events show plume migration, and upon being required by DEQ, in writing) will result in the actuation of the appropriate Contingency Plan.

- **Performance Metric – POC Monitoring:** Measured groundwater sample concentrations of COCs exceeding MCLs at any POC Well (Attachment 3, Table A3.1) shall require actuation of the Performance Monitoring Plan by the Facility. Should any of the groundwater plumes migrate off-site, DEQ shall require a CMI Contingency Plan. Notification from DEQ is not required to trigger the CMI Contingency Plan.
- **Performance Metric – Plume Stability Assessment:** The Permittee has yet to develop reliable trigger values at sentinel wells, which if exceeded would require the submittal of the CMI Contingency Plan. In absence of reliable sentinel well trigger values, demonstration of plume stability is an essential measure of compliance with the CAO for groundwater, and is intended to preclude non-compliance at POC Wells. Plume stability assessment methods include single well trend statistics; plume overlay maps, spatial movement analysis, numerical groundwater modeling, etc. Based on the biennial assessment performance review, if DEQ concludes that a plume is neither

stable nor shrinking, written notice will be provided to the Permittee. In accordance with the schedule established in the written notice, the Permittee shall submit a workplan(s) proposing corrective actions to restore plume stability.

- **Performance Metric – Remedy-Specific Monitoring:** Previously installed or potential future treatment technologies (e.g., biowalls, bioreactors permeable barriers, subsurface injections, etc.) shall be assessed to determine whether the treatment technology performance is effective. The Permittee must submit a workplan(s) for remedy specific monitoring and reporting within ninety (90) days of issuance of this Permit. The Permittee shall implement the workplan(s) upon obtaining written approval from DEQ and in accordance with an approved schedule.

Recommendations for rejuvenation (i.e., injection of emulsified vegetable oil) or other optimization events will coincide with any assessment demonstrating incomplete or otherwise suboptimal dechlorination. Collected data and documentation must be sufficient to demonstrate the degree and sustainability of dechlorination pathways occurring within the treatment zones.

Based upon the result of the above initial remedy-specific monitoring due within ninety (90) days of issuance of this Permit, the Permittee shall submit and implement an Operations & Maintenance (O&M) Plan for installed treatment technologies (e.g., surface injections, biowalls, and barriers). The O&M Plan shall include long-term monitoring and maintenance requirements to ensure installed treatment technologies remain effective and support the CAO for groundwater. Any newly installed remedies shall be subject to remedy-specific monitoring and O&M requirements.

- **Performance Metric – LUCs:** The current land use for Tinker AFB is primarily industrial. The Air Force, as property owner, has the authority to determine the future anticipated land use and is responsible for determining, and applying institutional and engineering land-use controls. As provided in the Base Master Plan, the long-term land use plan is for continued industrial use of this site. The current land use of adjacent and surrounding land is a mixture of industrial and non-industrial uses. The current use of adjacent and surrounding land is also expected to remain the same for the foreseeable future. Environmental restoration sites and land-use controls are identified in the Base Civil Engineer Master Plan.

CAO: The corrective action objective for surface water is to monitor contaminant levels in surface water features associated with groundwater management zones to ensure protection of potential human and ecological receptors.

- **Performance Metric – Surface Water POC Monitoring:** Tinker AFB does not have any RCRA surface water POC locations. The outfall locations (listed in the Tinker AFB Permit Renewal Application) are monitored under

the NPDES Permit.

- **Performance Metric – Assessment of Surface Water Use:** Not applicable at this time.

c. **Final Risk Goal Performance Standard**

The final risk goal is the level of protection to be achieved and maintained by the Permittee. The final risk goal shall be based on site-specific issues including land use, special subpopulations, contaminant concentrations based on acceptable risk, location at which the levels are measured, and the remediation time frame.

CAO: For the protection of human health from exposures of residual COCs in surface soils, the Permittee shall attain a media-specific cleanup level at an existing or newly-identified SWMU/AOC/Site or new releases from existing SWMUs/AOCs/Sites. Carcinogenic COCs in surface soils (0 to 2 feet below ground surface) must be remediated to levels that do not exceed a cumulative human health risk level of 1×10^{-5} (1 in 100,000 risk of developing cancer) for an industrial outdoor worker exposure scenario. Non-carcinogenic COCs must be remediated to levels that do not exceed a hazard index (HI) of 1 for an industrial outdoor worker. Subsurface soils (more than 2 feet below ground surface) will be remediated as necessary to ensure that all established risk goals are met. For those sites unable to obtain a Corrective Action Complete without Controls determination from DEQ, all remedial goals will be preserved by engineering and institutional controls. If the Permittee proposes to pursue Corrective Action Complete without Controls determinations at selected SWMUs/AOCs/Sites, it shall attain media-specific cleanup levels approved by DEQ and consistent with a residential exposure scenario for all potentially complete exposure pathways.

- **Performance Metric – All Applicable Media:** Sampling data from investigations and/or corrective actions will confirm attainment of appropriate cleanup levels for all COCs.

3. **Corrective Action for Releases Beyond Facility Boundary**

Section 3004(v) of RCRA as amended by HSWA requires 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. This can include future AOCs off-site.

4. **Summary of Corrective Action Activities**

Due to the holistic approach of groundwater plumes at Tinker AFB and the use of CGs and GWMUs, a Statement of Basis (SB) for a final remedy is issued per specific SWMU/AOC/Site and published prior to DEQ approval. Once soils are NFA, the

groundwater is jurisdictionally transferred to the underlying CG and/or GWMU.

A summary of the corrective action activities associated with the facility is provided in Table IV-1 of this permit. SWMUs and AOCs that are currently being managed or proposed for management under a prescribed corrective action program (e.g., groundwater order, corrective action order, CERCLA) are identified in Table IV-1 and Appendix 2 of this permit.

C. PROJECT DEVELOPMENT AND SCOPING MEETING

1. Notice of Intent

The Notice of Intent (NOI) served as the notice from the Permittee to DEQ of the intent to conduct corrective action using the CAS process. The NOI was prepared by Tinker AFB and was submitted to DEQ on April 13, 2018. The Filing Notice occurred on April 22, 2018. The NOI included:

- a. General Information regarding the facility location;
- b. General information regarding the facility operational history;
- c. General discussion on how the Permittee will proceed through the CAS; and
- d. Brief description of proposed performance standards for corrective action.

2. Scoping Meeting

The scoping meeting with DEQ, EPA Region 6 and Tinker AFB occurred on December 19, 2017, which served as the first CAS milestone where the Permittee and DEQ identified expectations concerning CAS implementation. Agreements on land use, groundwater classification, and the level of detail required in the conceptual site model and expectations for remediation goals were discussed. During the scoping meeting, the Permittee presented the following information to DEQ:

- a. A Conceptual Site Model (Attachment 6);
- b. A CAS Workplan for conducting and completing CAS requirements, including public participation (Attachment 7);
- c. A Risk Evaluation and Risk Management Report (RMR) which includes previous risk assessments both human health risk assessments and ecological risk assessments (Attachment 8);
- d. Discussions on history of corrective action at the facility, including facility investigations, risk evaluations or risk assessments, interim measures, stabilizations and final remedies implemented;
- e. Proposed performance standards for the facility with justification, and potential

risk management approaches;

- f. Discussions on how the Permittee plans to use the CAS to meet its corrective action obligations, including permitting and compliance issues;
- g. A Communication Strategy Plan that specifies where in the CAS process the Permittee is currently, and how the Permittee will provide information about future progress at the facility to DEQ (i.e., progress reports, conference calls, routine meetings, etc.);
- h. Site-specific concerns (i.e., sensitive environments or special subpopulations);
- i. Need for interim measures or stabilization activities, if necessary; and
- j. Schedule for submittal of the CAS Investigation Workplan and proposed schedule for conducting and completing CAS requirements, including public participation.

Information plans and reports that have already been developed by the Permittee during the corrective action process were referenced during the scoping meeting.

D. CORRECTIVE MEASURES IMPLEMENTATION (CMI) REPORTS AND SUMMARIES

1. The CMI Plan requires a review every three (3) years to measure the effectiveness of the remedy in meeting the CAOs. Therefore, the CMI Performance Review Reports will be presented every three (3) years and submitted with the Basewide Sampling and Water Level Reports.
2. The Permittee shall submit signed reports of all activities conducted pursuant to the provisions of this Permit, including the performance monitoring submitted in the Basewide Sampling and Water Level Reports. These reports shall contain, as applicable to the stage of corrective action, the information required by CAS, as well as the following:
 - a. A description of the work completed and the estimate of the percentage of work completed;
 - b. Summaries of all findings, including laboratory data;
 - c. Summaries of all problems or potential problems encountered during the annual reporting period and actions taken to rectify problems;
 - d. Projected work for the next BWGW 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;
 - g. Summaries of all changes made in implementation during the reporting period;
 - h. Copies of other reports relating to or having bearing upon the corrective action work (e.g., inspection reports, drilling logs not previously submitted, and laboratory data) shall be included with the report;
 - i. The determination and approval or remedy selections, schedules of submittals and minor changes to any corrective action workplans may be made by DEQ during the status review briefings.
3. The Basewide Sampling and Water Level Report will be due every fifteen (15) months.
 4. In addition to the written reports as required in Section V.D.1 through 3 above, at the request of DEQ, the Permittee shall provide status review through briefings with DEQ.

E. CONCEPTUAL SITE MODEL (CSM)

The CSM for Tinker AFB has been included in Permit Attachment 6. The CSM shall be considered as the base document to be prepared and updated by the facility as new information is gathered during investigations. The CSM shall be used by the facility to make decisions regarding risk management options, ecological risk, and monitored natural attenuation determinations, or technical impracticability (TI) waiver determinations, when appropriate.

DEQ may require revisions to the CSM based upon data resulting from ongoing investigations and activities. Revisions to the CSM may also be required for newly identified SWMUs or AOCs according to Permit Condition V.N of this Section, and based on new information and information not previously considered by DEQ.

The Permittee shall evaluate the CSM on a regular basis in conjunction with the BWGW Report for necessary changes and inform DEQ in writing of its recommendations. The CSM was presented in the final Corrective Measures Study dated December 19, 2017. Additions/revisions to the CSM shall be documented in the Performance Review reports (i.e., groundwater monitoring). The CSM shall be used by the facility to make decisions regarding risk management options, ecological risk, and any needed changes to the remedy applications as site conditions change or when deemed appropriate by DEQ.

F. CORRECTIVE ACTION STRATEGY WORKPLAN

1. The CAS Investigation Workplan describes site investigation activities for corrective action. The CAS Investigation Workplan addresses releases of hazardous waste or hazardous constituents to all media, unless otherwise indicated, for those SWMUs/AOCs/Units listed in Table IV-1. The focus of the site investigation phase for corrective action is to collect data to fill in data gaps identified in the CSM. The

corrective action investigations may be conducted in phases if warranted by site conditions, contingent upon approval by DEQ.

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

- a. The Permittee shall adhere to semi-annual CASCs of this Permit (Attachment 7). If at any time the Permittee determines that such schedules cannot be met, the Permittee shall, within 15 days of such determination, notify DEQ and submit a request for a permit modification under 40 CFR 270.42, with a justification as to why the current CASC cannot be met.
- b. If DEQ determines that a modification of the CASC is required, the following procedure will apply. CASC Modifications made under this procedure are not subject to administrative appeal.

G. RISK EVALUATION AND RISK MANAGEMENT REPORT (RMR)

Tinker AFB has submitted a RMR, as part of the Application Renewal. This document was approved on April 13, 2018, by DEQ. The RMR includes and documents the remedy/remedies proposed for selection. The Permittee shall propose corrective action remedies in accordance with the RCRA Corrective Action Plan (May 1994), OSWER Directive 9002.3 or as directed by DEQ.

H. INTERIM MEASURES

1. If at any time during the term of this Permit, DEQ determines that a release or potential release of hazardous constituents from a SWMU/AOC/Site poses a threat to human health and the environment, DEQ may require interim measures. DEQ may 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 an Interim Measures Work Plan. DEQ may modify this Permit to incorporate interim measures into the Permit. However, depending upon the nature of the interim measures, a permit modification may not be required.
2. The Permittee may propose interim measures at any time by submittal of an Interim Measures Workplan subject to the approval of DEQ.
3. DEQ shall notify the Permittee in writing of the requirement to perform interim measures and may require the submittal of an Interim Measures Workplan. It is anticipated that Interim Measures Workplans will be submitted on a site-specific basis and on an as needed basis since releases or potential releases cannot be predicted. 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 has the potential to migrate to groundwater 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.
4. Upon approval of the Interim Measures Work Plan and completion of the interim measure(s) implementation, the Permittee will submit a report to DEQ describing the completed work.
 5. At any time during or after the interim measure(s), including the issuance of an NFA, DEQ may require the Permittee to submit the SWMUs/AOCs/Sites for further corrective action.

I. IMPLEMENTATION OF THE SITE INVESTIGATION ACTIVITIES UNDER CAS

DEQ has approved the CAS Investigation Workplan; therefore, the Permittee shall notify DEQ of site investigation activities according to the schedule and in accordance with the approval CAS Investigation Workplan and the following:

1. The Permittee shall notify DEQ at least ten (10) working days prior to any field sampling, field-testing, or field monitoring activity required by this Permit to give DEQ personnel the opportunity to observe investigation procedures and/or split samples.
2. Deviations from the approved CAS Investigation Workplan, which are necessary during implementation, must be approved by DEQ and fully documented and described in the progress reports (Permit Condition V.C.2.g) and the final RMR (Condition V.G and Attachment 8).

J. SUBMISSIONS/AGENCY APPROVAL/ADDITIONAL WORK

1. Within thirty (30) days of approval or modification by DEQ of any work plan(s), the Permittee shall commence work and implement the tasks required by the work plan(s), in accordance with the standards, specifications, and schedule stated in the work plan as approved by DEQ.
2. The Permittee shall provide DEQ with the appropriate semi-annual corrective action progress reports (Permit Condition V.K).

3. DEQ will review all draft and final reports or work plans, as required by the Permit, and notify the Permittee in writing of DEQ's approval/disapproval of the deliverables, or any part thereof. Unless a different response time is stated, within 30 days of receipt of DEQ's disapproval of any deliverable, the Permittee shall address the deficiencies to DEQ's satisfaction and submit a revised report.
4. The Permittee shall submit to DEQ one hard copy and one electronic copy of all reports.
5. Per 40 CFR 270.11, in all instances which this Permit requires written submissions to DEQ, each submission must be accompanied by the following certification signed by a principal executive officer or a duly authorized representative:

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

(For the purpose of the certification, a principal executive officer includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. A person is a duly authorized representative only if: (i) the authorization is made in writing by a person described in paragraph (a) of 40 CFR 270.11; (ii) the authorization specifies either an individual or a position having responsibility for overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and (iii) the written authorization is submitted to the Director.)

6. DEQ may determine, or the Permittee may propose, that certain tasks, including investigatory work, engineering evaluation, or procedure/methodology modifications, are necessary in addition to or in lieu of the tasks included in any DEQ-approved work plan, when such additional work is necessary to meet the CAOs described in Section V.B.

K. RECORDKEEPING AND REPORTING

The Permittee shall report on a semi-annual basis, in writing, to DEQ on the effectiveness of the corrective action program. These corrective action progress reports shall provide a chronology of the events during the preceding six months and provide a summary of the planned activities for the following six months. These reports shall be submitted no later than April 1 and October 1 of each year until the corrective action program has been completed [40 CFR 264.100(g)].

L. NOTIFICATION REQUIREMENTS FOR NEWLY-IDENTIFIED SWMUs AND AOCs

1. The Permittee shall notify DEQ in writing of any newly-identified SWMUs and potential AOCs/Sites (i.e., a unit or area not specifically identified during previous corrective action assessments, RFA, etc.) of hazardous waste or hazardous constituents identified or discovered during the course of groundwater monitoring, field investigations, environmental auditing, or other means, no later than 30 days after discovery.

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 a new CAS workplan. The permit will be modified to incorporate the investigation, if required.

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 30 days after construction. The notification shall include the following items to the extent available:

- a. The location of the newly-identified SWMU/AOC/Site on the topographic map as required under 40 CFR 270.14 (b)(19), and indicate all existing units (in relation to other SWMUs/AOCs/Sites);
 - 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. Specific information, to the extent available, on all wastes that have been or are being managed at the SWMU/AOC/Site; and
 - f. Results of any sampling and analysis required for the purpose of determining whether releases of hazardous wastes including hazardous constituents have occurred, are occurring, or are likely to occur from the SWMU/AOC/Site or whether the AOC/Site should be considered a SWMU (i.e., routine and systematic release into units intended for wastes: landfills, surface impoundments, etc.).
2. Based on the results of the Notification, DEQ will designate the newly-identified

SWMUs/AOCs/Sites. If the area is determined to be a newly-identified SWMU/AOC/Site, DEQ will inform the Permittee in writing and request that the Permittee submit a Class 1 permit modification requested under 40 CFR 270.42 (a) to add the newly-identified SWMU/AOC/Site to Table IV-1 and Attachment 2 of this permit.

Further, DEQ will determine the need for further investigations or corrective measures at any newly identified SWMUs/AOCs/Sites. If DEQ determines that such investigations are needed, DEQ may require the Permittee to prepare a plan for such investigations. The plan for investigations of a SWMU/AOC/Site will be reviewed for approval as part of the current CAS Investigation Workplan or a new CAS Investigation Workplan. The results of the investigation of any newly-discovered SWMU/AOC/Site shall be incorporated into the CSM.

Where DEQ receives any new information concerning the existence of any SWMU/AOC/Site not addressed in this permit, DEQ reserves the right to reopen and modify the permit to require corrective action under the CAS for such SWMU(s)/AOC(s)/Site(s).

M. NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES

The Permittee shall notify DEQ of any release(s) from a SWMU/AOC/Site of hazardous waste or hazardous constituents discovered during the course of groundwater monitoring, field investigation, environmental auditing, or other means. The notification must be in accordance with the procedures specified in Permit Condition V.L of this permit based on the nature, extent, and severity of the release.

Such newly-discovered release may be from newly-identified SWMUs/AOCs/Sites, newly-constructed SWMUs, or from SWMUs/AOCs/Sites for which, based on the findings of the CSM, or investigation of a SWMU/AOC/Site, 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 Permit may be modified to incorporate the investigation, according to the appropriate permit modification procedures under 40 CFR 270.42. The permit modification will specifically require the application of Conditions V.K through V.N of this permit to apply to the newly designated AOC.

Based on the results of the investigation, if the CAS process is triggered, a CSM (Section V.E) may be required. If an interim measure addresses corrective action, a permit modification may not be necessary.

N. CORRECTIVE ACTION FOR NEWLY DISCOVERED RELEASES

1. Corrective Action for Newly Discovered Releases: Section 3004(u) of RCRA, as amended by HSWA, and 40 CFR 264.101, require that permits issued after November 8, 1984, 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.
2. Action Levels
 - a. Applicability – the concept of action levels, described in the RFI guidance document shall be used by the Permittee to determine the need for further corrective actions under this Permit. The Permittee shall conduct a CMS whenever concentrations of hazardous constituents in groundwater, surface water, soils, or air exceed actions 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.
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. These risk assessments, if necessary, shall be performed concurrently with the corrective action activities specified in this Permit.
 - b. Corrective Action for Releases Beyond Facility Boundary: Section 3004(v) of RCRA as amended by HSWA, 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 off-site access is denied.
 - c. Corrective Action Review report shall be submitted to DEQ by March 31, of the following year.

O. PUBLIC PARTICIPATION REQUIREMENTS

Public participation is an essential element in the implementation of any corrective action program at the facility. The CAS promotes the early and continued involvement of stake

holders in a site remediation activity during permit issuance, renewal, or modification.

The public is invited to review and comment on the corrective action requirements contained in any draft permitting decisions or draft permit modification documents and the associated plans and reports submitted by the Permittee. DEQ may require more extensive public participation requirements based on site-specific conditions and other relevant factors (e.g., compliance history, potential offsite impact, community interest, etc.).

Any proposed change(s) in the CAOs and the associated remedies contained in the permit will require the appropriate permit modification per 40 CFR 270.42. Any other proposed changes to the permit must be submitted to DEQ as permit modifications. The Permittee must summarize the changes to the corrective action from the previous year in the annual report. DEQ may require the Permittee to send a summary of changes of the corrective action to the facility mailing list, depending of the significance of the change.

P. RE-OPENING OF THIS PERMIT

This permit is based on information submitted up until the date of issuance. Should additional information become available that indicates that there are SWMUs/AOCs/Sites which were not investigated, or were not completely investigated, prior to this permit being issued, this permit may be modified to include additional investigations and remedies. Any such modifications will be made in accordance with 40 CFR 270.42.