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MONTANA HAZARDOUS WASTE PERMIT
Permit Number MTHWP-22-01

Issued to:
Malmstrom Air Force Base
341 Missile Wing Commander

For:
Malmstrom Air Force Base
EPA ID Number MT8571924556

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Main Table of Contents
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List of Acronyms and Abbreviations

AF	Air Force
AFI	Air Force Instruction
AOC	Area of Concern
ARM	Administrative Rules of Montana
CAP	Central Accumulation Point
CEMP	Comprehensive Emergency Management Plan
CES/CEIEC	Civil Engineer Squadron, Environmental Compliance
CFR	Code of Federal Regulations
COC	Chain-of-custody
DLA	Defense Logistics Agency
DEQ	Montana Department of Environmental Quality
DEQ-7	Circular DEQ-7 Montana Numeric Water Quality Standards
DoD	Department of Defense
ECC	Emergency Communications Center
EESOH-MIS	Enterprise Environmental Safety and Occupational Health – Material Information System
EPS	Environmental Protection Specialist
HAZWOPER	Hazardous Waste Operations and Emergency Response
HM	Hazardous material
HW	Hazardous waste
HWD	Hazardous Waste Disposer
HWP	Hazardous Waste Program
HWPM	Hazardous Waste Program Manager
HWSF	Hazardous Waste Storage Facility
IRP	Installation Restoration Program
LDR	Land disposal restriction or land disposal restricted
LQG	Large Quantity Generator
LSN	Local Stock Number
MAFB	Malmstrom Air Force Base
MCA	Montana Code Annotated
MHWA	Montana Hazardous Waste Act
MUSTA	Montana Underground Storage Tank Act
NFA	No further action
NSN	National Stock Number
OJT	On-the-job training
OSC	On-Scene Commander
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated biphenyl
P.E.	Professional Engineer
PFAS	Per- and polyfluoroalkyl substances
PFOA	Perfluorooctanoic acid and anions
PFOS	Perfluorooctane sulfonate and anions
ppm	Part(s) per million
psi	Pounds per square inch

RBCA	Montana Risk-Based Corrective Action for Petroleum Releases
RCRA	Resource Conservation and Recovery Act
RED HORSE	Rapid Engineers Deployable Heavy Operational Repair Squadron Engineer
RFI	RCRA Facility Investigation
RI	Remedial investigation
SDS	Safety Data Sheet
SVOC	Semi-volatile organic compound
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TMO	Transportation Management Office
TSDF	Treatment, storage, and disposal facility
UN	United Nations
USDOT	US Department of Transportation
USEPA	U.S. Environmental Protection Agency
UST	Underground storage tank
VOC	Volatile organic compound
VSQG	Very Small Quantity Generator
WAP	Waste Analysis Plan

Module I
Standard Permit Conditions

Table of Contents

Attachments

Module I
Standard Permit Conditions

I.A. **Citation Convention**

For ease of reading and referencing, where the federal rule under the Code of Federal Regulations (CFR) is incorporated by reference into the Administrative Rules of Montana (ARM), only the federal citation is used. Attachment I.1 includes a cross-reference table showing the CFR rules and corresponding ARM rules.

I.B. **Permittee**

This permit is issued to Malmstrom Air Force Base (MAFB) by Department of Environmental Quality (DEQ). MAFB is permitted to operate one greater-than-90-day storage facility as a regulated hazardous waste management facility and must implement corrective action requirements as set forth in 40 CFR 264.101.

I.C. **Facility Description**

I.C.1. *Installation Description*

MAFB is a United States Air Force installation located adjacent to the eastern city limits of Great Falls, Montana (Attachment I.2).

I.C.1.a. Air Force Base Legal Description: Sections 1-3, and 10-15, Township 20 North, Range 4 East; and Sections 6 and 7, Township 20 North, Range 5 East, Cascade County. Geographic Coordinates are -111.2041°W, 47.5071° N

I.C.2. *Permitted Unit Description*

The Hazardous Waste Storage Facility (HWSF) is the sole permitted hazardous waste management unit at the facility. The HWSF is a 2,400-square-foot building designed and constructed to accept and store containers of hazardous waste prior to shipment for disposal. The building is located on 1/8 acre in the northeast portion of the MAFB facility. Location of the HWSF is shown in Attachment I.3. MAFB is permitted to store hazardous waste in the HWSF for greater than 90 days.

I.C.2.a. HWSF Legal Description: The HWSF is located in the north-northeast (NNE) portion of the Air Force base: Section 2, Township 20 North, Range 4 East.

I.D. **Applicability**

The conditions of this Module apply to the HWSF, and all solid waste management units (SWMUs) and areas of concern (AOCs) defined in Condition III.A.4.

I.E. **Definitions**

The terms used in this permit have the same meaning as those in the Resource Conservation Recover Act (RCRA); Montana Hazardous Waste Act (MHWA); ARM Title 17, chapter 53; 40 CFR 124, 260, 261, 264, 268, 270, and 279; and the

Federal Register dated July 27, 1990, unless this permit specifically provides otherwise. Where terms are not defined in the rules and regulations, this permit, or EPA guidance or publications, the terms shall have the meaning of a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. The following terms are specifically defined in this permit.

Area of Concern (AOC) means any area at a facility having a probable release of a hazardous waste or hazardous constituent which may or may not be from a solid waste management unit and is determined by DEQ to pose a current or potential threat to human health or the environment. AOCs include areas that have been contaminated by routine and systematic releases of hazardous waste or hazardous constituents, excluding one-time accidental spills that are immediately remediated and cannot be linked to solid waste management activities. AOCs must be considered equivalent to SWMUs for the purposes of investigation and corrective action.

Contamination means any hazardous waste or hazardous constituent listed in 40 CFR Part 261 or Appendix IX of 40 CFR Part 264.

Corrective Measures means all corrective actions necessary to protect human health and the environment from all releases of hazardous waste or hazardous constituents from any permitted unit, SWMU, and/or AOC at the facility regardless of the time of placement of the waste in the unit, as required under this permit and 40 CFR 264.101. Corrective measures may address releases to air, soils, subsurface gases, surface water, or groundwater.

DEQ means the Montana Department of Environmental Quality

Director means the Director of the Montana Department of Environmental Quality.

Facility means contiguous land, structures, other appurtenances, and improvements on the land under the control of the owner or operator seeking a permit under the MHWA and ARM Title 17, chapter 53.

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

Hazardous Waste means a hazardous waste as defined in 40 CFR 261.3. [40 CFR 270.2]

Hazardous Waste Management Facility (HWM facility) means all contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units. [40 CFR 270.2]

Hazardous Waste Management Unit means a contiguous area of land on or in which hazardous waste is placed or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system, and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed. [40 CFR 260.10]

Hazardous Waste Storage Facility (HWSF) means the Permitted Unit defined in Condition I.C.2.

Land Disposal means placement in or on the land, except in a corrective action management unit or staging pile, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault, or bunker intended for disposal purposes. [40 CFR 268.2]

MAFB Part B Application means the information submitted by MAFB in the RCRA Part B permit application, attached to the Permittee's letter of March 14, 1983, the RCRA Part B permit renewal application dated July 20, 1988, the Part B permit renewal application, attached to the Permittee's letter dated March 29, 1999, the Part B permit renewal application received by DEQ on December 17, 2010, and the Part B permit renewal application dated December 29, 2021.

Permittee means Malmstrom Air Force Base (MAFB).

Person means an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof. [40 CFR 270.2]

Regional Administrator means the Regional VIII Administrator of the Environmental Protection Agency or his/her designee. [40 CFR 260.10 and 40 CFR 270.2]

Release means any spill, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing of any hazardous waste or hazardous constituents into the environment.

Remediation Waste means all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris that are managed for implementing clean-up. [40 CFR 260.10]

Solid Waste means a solid waste as defined in 40 CFR 261.2. [40 CFR 260.10]

Solid Waste Management Unit (SWMU) means any discernible unit at which solid waste has been placed at any time, irrespective of whether the unit was

intended for the management of solid or hazardous waste. SWMUs include MHWA-regulated hazardous waste management units. Such units include any area at a facility at which solid waste has been routinely and systematically released.

Unit includes, but is not limited to, any landfill, surface impoundment, waste pile, land treatment unit, incinerator, injection well, contaminated groundwater collection/storage tank, drum, or other storage device, spray device, splash pad, drip pad, skimmer tank, oil-water separator, container storage area, septic tank, drain field, lateral underdrain, sump, emulsion aerator device, wastewater treatment unit, elementary neutralization unit, transfer station soil ventilation device, recycling unit, underground lateral drain, French drain, waste transfer routes, pipes, sewers, and/or other interim measure or corrective action structure.

I.F. **Effect of Permit**

I.F.1. *General*

I.F.1.a. Compliance with this permit during its term constitutes compliance, for purposes of enforcement, with the MHWA except for those requirements not included in the permit which:

I.F.1.a.i. Become effective by statute;

I.F.1.a.ii. Are later promulgated; or

I.F.1.a.iii. Are promulgated under 40 CFR 268 restricting the placement of hazardous wastes in or on the land;

I.F.1.a.iv. Are promulgated under 40 CFR 265, subpart AA, BB, or CC limiting air emissions. [40 CFR 270.4(a)]

I.F.1.b. The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege. [40 CFR 270.4(b)]

I.F.1.c. The issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations. [40 CFR 270.4(c)]

I.F.2. *Hazardous Waste Storage Facility*

The Permittee is allowed to store hazardous waste in the HWSF in accordance with the conditions of this permit. Any storage of hazardous waste not authorized by this permit is prohibited.

I.F.3. *Facility-Wide Corrective Action*

I.F.3.a. The Permittee is required, under the conditions of this permit and 40 CFR 264.101, to institute facility-wide corrective action as necessary to protect human health and the environment for all releases of hazardous waste or hazardous

constituents from any SWMU or AOC at the facility, regardless of the time at which waste was placed in such units.

I.F.3.b. The Permittee must implement corrective actions beyond the facility property boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of the Director 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. On-site measures to address such releases will be determined on a case-by-case basis.

I.F.3.c. AOCs shall receive the same level of investigation and remediation as that required by rules, regulations and statutes for SWMUs. [40 CFR 270.32(b)(2)]

I.G. **Financial Assurance**

MAFB is a federally owned facility and is exempt from financial assurance requirements for costs of closure and/or post-closure care of the permitted unit (HWSF) required in Module II and the corrective action activities required in Module III. [40 CFR 264.140(c)]

I.H. **General Permit Application Requirements**

I.H.1. *Permit Application*

Any person who is required to have a permit (including new applicants and permittees with expiring permits) shall complete, sign and submit an application to the Director as described in 40 CFR 270.10 and 40 CFR 270.70 through 270.73. [40 CFR 270.10(a)(3)]

I.H.2. *Reapplications*

I.H.2.a. The Permittee shall submit a new application at least 180 days before the expiration date of the effective permit, unless permission for a later date has been granted by the Director, or

I.H.2.b. If the Permittee intends to be covered by a standardized permit, the Permittee may submit a Notice of Intent as described in 40 CFR 270.51(e)(1) at least 180 days before the expiration of the effective permit unless the Director allows a later date. The Director may not allow the Permittee to submit applications or Notices of Intent later than the expiration date of the existing permit, except as allowed by 40 CFR 270.51(e)(2). [40 CFR 270.10(h)]

I.H.3. *Application and Reissuance Fees*

DEQ will assess an applicant of a hazardous waste permit a filing and review fee, or a permit reissuance fee as specified in ARM 17.53.112.

I.I. **Signatories to Permit Applications and Reports**

I.I.1. All permit applications shall be signed as specified in 40 CFR 270.11(a).

I.I.2. All reports required by permits and other information requested by DEQ shall be signed by a person described in 40 CFR 270.11(a) or by a duly authorized representative of that person described in 40 CFR 270.11(b).

I.I.2.a. A person is a duly authorized representative only if:

I.I.2.a.i. The authorization is made in writing by a person described in 40 CFR 27011(a);

I.I.2.a.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, environmental section chief, remedial project manager, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

I.I.2.a.iii. The written authorization is submitted to DEQ. [40 CFR 270.11(b)]

I.I.3. If an authorization under Condition I.I.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Condition I.I.2. must be submitted to DEQ prior to or together with any reports, information, or applications to be signed by an authorization representative. [40 CFR 270.11(c)]

I.I.4. As stated in 40 CFR 270.11(d), any person signing a document under Condition I.I.1. and I.I.2. must make the following certification:

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

I.J. **Conditions Applicable to All Permits**

The conditions of 40 CFR 270.30 apply to all MHWA permits and are hereby incorporated into this permit. [40 CFR 270.30]

I.J.1. *Duty to Comply*

The Permittee must comply with all conditions of this permit, except that the Permittee need not comply with the conditions of this permit to the extent and for the duration such noncompliance is authorized in an emergency permit (40 CFR 270.61). Any permit noncompliance, except under the terms of an emergency permit, constitutes a violation of the appropriate Act 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)]

I.J.2. *Duty to Reapply*

If the Permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the Permittee must apply for and obtain a new permit. [40 CFR 270.30(b)]

I.J.3. *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)]

I.J.4. *Duty to Mitigate*

In the event of noncompliance with the 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)]

I.J.5. *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 include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facility or similar systems only when necessary to achieve compliance with the conditions of this permit. [40 CFR 270.30(e)]

I.J.6. *Permit Actions*

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for a permit modification, revocation, and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. [40 CFR 270.30(f)]

I.J.7. *Property Rights*

The permit does not convey any property rights of any sort, or any exclusive privilege. [40 CFR 270.30(g)]

I.J.8. *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)]

I.J.9. *Inspection and Entry*
The Permittee shall allow DEQ, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

I.J.9.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;

I.J.9.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

I.J.9.c. Inspect at reasonable times any faculties, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

I.J.9.d. Sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by MWHA, any substances or parameters at any locations. [40 CFR 270.30(i)]

I.J.10. *Monitoring, Sampling and Analytical Requirements*
Samples and measurements taken for the purposes of monitoring must be representative of the monitoring activity. [40 CFR 270.30(j)(1)]

I.J.10.a. *Sample and Laboratory Methods*

I.J.10.a.i. The method used to obtain a representative sample of wastes to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261 or an equivalent method approved by DEQ.

I.J.10.a.ii. Laboratory methods for wastes or other media must be those specified in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846), (third edition, 1986 and most recent updates); *Standard Methods for the Examination of Water and Wastewater*, (twenty-first edition, 2005); or an equivalent method approved by DEQ.

I.J.10.b. <u>Monitoring Well and Sampling Requirements</u>

I.J.10.b.i. The Permittee shall maintain a consistent sampling and analysis program that ensures reliable monitoring results. At a minimum, the program must include appropriate procedures and techniques for sample collection, sample preservation and shipment, chain-of-custody control, and sample analysis.

I.J.10.b.ii. The sampling and analytical methods must be appropriate for waste, soil, and surface and groundwater sampling and must accurately measure hazardous constituents in media and waste samples.

I.J.10.b.iii. Samples must be collected, preserved and transported and a chain-of-custody record maintained in accordance with the procedures specified in *Test Methods*

for Evaluating Solid Wastes, Physical/Chemical Methods, (SW-846) (third edition 1986 and most recent updates). Quality assurance and quality control (QA/QC) procedures for field sampling must be followed as specified in SW-846.

I.J.10.b.iv. Monitoring wells must be maintained in operational condition. Access must be controlled at all times. Monitoring well caps must be locked and secure when wells are not being sampled or maintained.

I.J.10.c. Analytical Parameters Definitions

I.J.10.c.i. *Background values* represent the quality of groundwater from a hydrogeologically equivalent source upgradient from the facility.

I.J.10.c.ii. *The Estimated Quantitation Limit (EQL)* is the lowest concentration of a parameter in water and soil that can be reliably determined within specified limits of precision and accuracy by the indicated methods under routine laboratory operating conditions. EQLs are based on a general estimate for the method and are generally 5 to 10 times the method detection limit. Analytical laboratories may also refer to this term as the Practical Quantitation Limit (PQL) or Reporting Limit (RL).

I.J.10.c.iii. *The Method Detection Limit (MDL)* is defined as the sample and method-specific concentration at which there is a specified assurance of the presence and identity of a given parameter in a sample. The analytical laboratory follows the procedures in SW-846 to obtain the method detection limit. Based on nationwide laboratory experience, the U.S. Environmental Protection Agency has developed estimated method detection limits for specific parameters and methods in SW-846.

I.J.10.c.iv. *A reportable value* is defined as any measured concentration for an analyte which equals or exceeds the method detection limit as determined by the analytical laboratory.

I.J.10.d. Analytical Reporting Requirements

All analytical reports submitted to DEQ must at a minimum include the following:

I.J.10.d.i. Laboratory used and name of laboratory contact person;

I.J.10.d.ii. Date of sample receipt, extraction, and analysis;

I.J.10.d.iii. A copy of the signed chain-of-custody document;

I.J.10.d.iv. Sample matrix (water, soil, etc.);

I.J.10.d.v. Sample preservation, preparation and/or analytical method(s) used by the laboratory, including method number references;

I.J.10.d.vi. Analytical data results provided by the laboratory;

I.J.10.d.vii. Estimated quantitation limits (EQLs) actually achieved by the test method used by the laboratory for every parameter in each sample;

I.J.10.d.viii. Method detection limits (MDL) for every parameter tested;

I.J.10.d.ix. Low concentration groundwater data reported as follows:

Analyte Concentration	Report
<MDL	Provide MDL value for analyte
>MDL but <EQL	Detected but reported as an estimated value
>EQL	Numerical concentration quantified

I.J.10.d.x. Quality control information pertinent to analysis including blanks, duplicates, matrix spike recoveries and acceptance limits for the inorganic parameters analyzed; surrogate compound identity; recovery and acceptance limits for the organic parameters analyzed; and calibration verification results; and

I.J.10.d.xi. Description of any deviations from the permit requirements and/or method guidelines or laboratory Quality Assurance Plan (QAP).

I.J.11. *Monitoring Records*

I.J.11.a. 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 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, certification, or application, or until corrective action is completed, whichever date is later. This period may be extended by request of DEQ at any time. The Permittee shall maintain records for all ground water monitoring wells and associated ground water surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well. [40 CFR 270.30(j)(2)]

I.J.11.b. Records for monitoring information shall include:

I.J.11.b.i. The date, exact place, and time of sampling or measurements;

I.J.11.b.ii. The individual(s) who performed the sampling or measurements;

I.J.11.b.iii. The date(s) the analyses were performed;

I.J.11.b.iv. The individual(s) who performed the analyses;

I.J.11.b.v. The analytical techniques or methods used; and

I.J.11.b.vi. The results of such analyses. [40 CFR 270.30(j)(3)]

I.J.11.c. The Permittee shall retain, either at the laboratory or at the facility, the raw organic information for required sampling and analysis including organic chromatographic printouts, mass spectral analyses, QA/QC surrogate and spiking results, etc.

I.J.12. *Signatory Requirements*
All applications, reports, or information submitted to DEQ shall be signed and certified as specified in Condition I.I. [40 CFR 270.30(l)]

I.J.13. *Reporting Requirements*

I.J.13.a. Planned changes: The Permittee shall give notice to DEQ as soon as possible of any planned physical alterations or additions to the permitted facility which will affect the regulated unit or any SWMUs and/or AOCs included in the facility-wide corrective action process. [40 CFR 270.30(l)(1)]

I.J.13.b. Anticipated Noncompliance: The Permittee shall give 30-days advance written notice to DEQ of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. [40 CFR 270.30(l)(2)]

I.J.13.c. Transfers: This permit is not transferable to any person except after notice to DEQ. DEQ may require modification or revocation and reissuance of the permit to change the name of the Permittee and incorporate such other requirements as may be necessary under MHWA. [40 CFR 270.30(l)(3)]

I.J.13.d. Monitoring Reports: Monitoring results shall be reported at the intervals specified elsewhere in this permit. [40 CFR 270.30(l)(4)]

I.J.13.e. Compliance Schedules: Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date unless this permit specifies a different date or the Permittee has made prior written arrangement with DEQ. [40 CFR 270.30(l)(5)]

I.J.13.e.i. DEQ may modify this permit when it determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, or materials shortage or other events over which the Permittee has little or no control and for which there is not reasonably available remedy in accordance with Condition I.S. [40 CFR 270.41(a)(4)]

I.J.13.f. Twenty-Four-Hour Reporting: Pursuant to 40 CFR 270.30(1)(6), the Permittee shall report any noncompliance which may endanger health or the environment. The Permittee shall report any situation that poses or presents an imminent, potential, or existing hazard to public health or the environment from any release of hazardous waste or hazardous constituent. Any such information must be

reported to DEQ orally within twenty-four (24) hours from the time the Permittee becomes aware of the circumstances.

I.J.13.f.i. The oral report must include:

I.J.13.f.i.1. Information concerning release of any hazardous waste or hazardous constituents that may cause an endangerment to public drinking water supplies.

I.J.13.f.i.2. Any information of a release or discharge of hazardous waste or of a fire or explosion from the HWM facility, which could threaten the environment or human health outside the facility.

I.J.13.f.i.3. The description of the occurrence and its cause must include:

I.J.13.f.i.4. Name, address, and telephone number of the owner or operator;

I.J.13.f.i.5. Name, address, and telephone number of the facility;

I.J.13.f.i.6. Date, time, and type of incident;

I.J.13.f.i.7. Name and quantity of material(s) involved;

I.J.13.f.i.8. The extent of injuries, if any;

I.J.13.f.i.9. An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and

I.J.13.f.i.10. Estimated quantity and disposition of recovered material that resulted from the incident. [40 CFR 270.30(l)(6)]

I.J.13.f.ii. A written submission shall also be provided within five (5) calendar days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the non-compliance and its cause; the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. DEQ may waive the five-day written notice requirement in favor of a written report within fifteen (15) calendar days. [40 CFR 270.30(l)(6)(iii)]

I.J.13.g. *Manifest Discrepancy Report*
If a significant discrepancy in a manifest is discovered, the Permittee must attempt to reconcile the discrepancy. If not resolved within fifteen (15) days, the Permittee must submit a letter report, including a copy of the manifest, to DEQ. (See 40 CFR 264.72.) [40 CFR 270.30(l)(7)]

I.J.13.h. *Other Noncompliance*
The Permittee shall report all instances of noncompliance not reported under Conditions I.J.13.d., I.J.13.e., and I.J.13.f. at the time monitoring reports are submitted. The reports shall contain the information listed in Condition I.J.13.f. [40 CFR 270.30(l)(10)]

I.J.13.i. *Other Information*
Where the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to DEQ, it shall promptly submit such facts or information. [40 CFR 270.30(l)(11)]

I.J.14. *Information Repository*
DEQ may require the Permittee to establish and maintain an information repository at any time, based on the factors set forth in 40 CFR 124.33(b). The information repository will be governed by the provisions in 40 CFR 124.33(c) through (f). [40 CFR 270.30(l)(m)]

I.K. **Changes to Permit**

I.K.1. *Transfer*

I.K.1.a. A permit may be transferred by the Permittee to a new owner or operator only if the permit has been modified or revoked and reissued under 40 CFR 270.40(b) or 40 CFR 270.41(b)(2) to identify the new Permittee and incorporate such other requirements as may be necessary under MHWA. [40 CFR 270.40(a)]

I.K.1.b. Changes in the ownership or operational control of the facility may be made as a Class 1 modification with prior written approval of the Director in accordance with 40 CFR 270.42. [40 CFR 270.40(b)]

I.K.1.b.i. The new owner or operator must submit a revised permit application no later than 90 calendar days prior to the scheduled change. A written agreement containing a specific date for transfer of permit responsibility between the current and new permittees must also be submitted to DEQ. [40 CFR 270.40(b)]

I.K.1.c. Before transferring ownership of the facility, the Permittee shall notify the new owner or operator in writing of the requirements of this permit, and 40 CFR Parts 264 and 270. The Permittee shall demonstrate to DEQ that the new owner or operator has been notified of these requirements by sending a copy of the written notification to DEQ within 30 days of new owner or operator notification.

I.K.2. *Modification or Revocation and Reissuance*

I.K.2.a. This permit may be modified, revoked and reissued, or terminated by DEQ for cause as specified in 40 CFR 270.4, 270.30, 270.41 through 270.43.

I.K.2.b. When a permit is modified, only the conditions subject to the modification are reopened. [40 CFR 270.41]

I.K.2.c. If a permit modification is requested by the Permittee, DEQ shall approve or deny the request according to the procedures of 40 CFR 270.42. Otherwise, a draft permit must be prepared and other procedures in 40 CFR Part 124 followed. [40 CFR 270.41]

I.K.3. *Permit Modification at the Request of the Permittee*

I.K.3.a. Class 1 modifications: Class 1 modifications are listed in Appendix I of 40 CFR 270.42. For Class 1 modifications, the Permittee shall follow the procedures specified in 40 CFR 270.42(a).

I.K.3.a.i. Class 1 permit modifications identified in Appendix I by footnote 1 may be made only with the prior written approval of DEQ.

I.K.3.b. Class 2 modifications: Class 2 modifications are listed in Appendix I of 40 CFR 270.42. For Class 2 modifications, the Permittee shall follow the procedures specified in 40 CFR 270.42(b).

I.K.3.c. Class 3 modifications: Class 3 modifications are listed in Appendix I of 40 CFR 270.42. For Class 3 modifications, the Permittee shall follow the procedures in 40 CFR 270.42(c).

I.K.3.d. Other modifications: In the case of modifications not explicitly listed in Appendix I of 40 CFR 270.42, the Permittee shall follow the procedures in 40 CFR 270.42(d).

I.K.3.e. Temporary authorizations: Upon request of the Permittee, DEQ may, without prior public notice and comment, grant the Permittee a temporary authorization in accordance with 40 CFR 270.42(e). The temporary authorization must have a term of not more than 180 days.

I.K.4. *Termination of Permits*

DEQ may terminate a permit during its term or deny a permit renewal application for the causes listed in 40 CFR 270.43.

I.K.5. *Modification Fees*

DEQ will assess a fee for all permit modifications, at the time the modification process is initiated, regardless of whether the modification is requested by the Permittee or initiated by DEQ, as specified in in ARM 17.53.112.

I.L. **Expiration and Continuation of Permits**

I.L.1. *Duration of Permits*

I.L.1.a. This permit shall be effective for a fixed term not to exceed 10 years. [40 CFR 270.50(a)]

I.L.1.b. Except as provided in 40 CFR 270.51, the term of this permit shall not be extended by modification beyond 10 years. [40 CFR 270.50(b)]

I.L.2. *Continuation of Expiring Permits*

I.L.2.a. Pursuant to 40 CFR 270.51, the conditions of an expired permit continue in force until the effective date of a new permit if:

I.L.2.a.i. The Permittee has submitted a timely application under 40 CFR 270.14 and the applicable sections in 40 CFR 270.15 through 40 CFR 270.29 which is a complete (under 40 CFR 270.10(c)) application for a new permit; and

I.L.2.a.ii. DEQ through no fault of the Permittee, does not issue a new permit with an effective date under 40 CFR 124.15 on or before the expiration date of the previous permit.

I.L.2.b. Permits continued under 40 CFR 270.51 remain fully effective and enforceable. [40 CFR 270.51(b)]

I.L.2.c. When the Permittee is not in compliance with the conditions of the expiring or expired permit, DEQ may choose to do any or all of the options specified in 40 CFR 270.51(c).

I.L.2.d. Pursuant to 40 CFR 270.51(d), if a Permittee has submitted a timely and complete application, the terms and conditions of an EPA-issued RCRA permit continue in force beyond the expiration date of the permit, but only until the effective date of DEQ's issuance or denial of a Montana RCRA permit.

I.M. **Personnel Training**

The Permittee shall conduct personnel training as required by 40 CFR 264.16 and Condition II.P.

I.N. **Preparedness and Prevention**

The Permittee must have a preparedness and prevention plan for the facility and implement the plan in accordance with Condition II.Q. [40 CFR 264, subpart C]

I.O. **Contingency Plan and Emergency Procedures**

The Permittee must have a contingency plan for the facility and implement the plan in accordance with Condition II.R. [40 CFR 264.51]

I.P. **Recordkeeping and Reporting**

I.P.1. *Operating Record*

Pursuant to 40 CFR 264.73, the Permittee must keep a written operating record at the offices of MAFB. At a minimum, the following information must be recorded and maintained in the operating record for the time specified below:

I.P.1.a. Retained Until Facility Closure

I.P.1.a.i. A description and the quantity of each hazardous waste received, and the method(s) and dates(s) of storage at the HWSF and final disposal. [40 CFR 264.73(b)(1)]

I.P.1.a.ii. The location of each hazardous waste within the HWSF and the quantity at each location. This information must include cross-references to manifest document numbers if the waste is accompanied by a manifest. [40 CFR 264.73(b)(2)]

I.P.1.a.iii. Records and results of waste analysis and waste determinations performed as specified in 40 CFR 264.73(b)(3). [40 CFR 270.32(b)(2)]

I.P.1.a.iv. Monitoring, testing or analytical data, and corrective action documentation where required by 40 CFR 264, Subpart F – Releases from Solid Waste Management Units and 40 CFR 264, Subpart CC – Air Emission Standards for Tanks, Surface Impoundments, and Containers. [40 CFR 264.73(b)(6)]

I.P.1.a.v. Written documentation informing off-site generators that MAFB has the appropriate permits for acceptance of waste the off-site generators are shipping to the facility. Off-site generators allowed to ship wastes to the main MAFB facility in Great Falls are listed in Condition II.D.1. [40 CFR 264.73(b)(7) and 264.12(b)]

I.P.1.a.vi. All closure cost estimates required under 40 CFR 264.142. [40 CFR 264.73(b)(8)]

I.P.1.b. Retained for Three Years

I.P.1.b.i. Summary reports and details of all incidents that require implementing the contingency plan as specified in 40 CFR 264.56(j). [40 CFR 264.73(b)(4)]

I.P.1.b.ii. Records and results of inspections as required by 40 CFR 264.15(d) and Condition II.M. [40 CFR 264.73(b)(5)]

I.P.1.b.iii. A certification by the Permittee no less often than annually, that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittee to be economically practical; 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. [40 CFR 264.73(b)(9)]

I.P.1.b.iv. All notices, certifications, waste analysis data, and other documentation produced pursuant to 40 CFR 268.7 for at least three years from the date that the waste that is the subject of such documentation was last sent to on-site or off-site treatment, storage, or disposal. [40 CFR 268.7(a)(8)]

I.P.2. *Other Records*
The Permittee must maintain the following documents and any and all amendments, revisions, and/or modifications to these documents at the offices of MAFB:

I.P.2.a. A current copy of this permit;

I.P.2.b. The Part B application for this permit;

I.P.2.c. Personnel training documents and records as required by 40 CFR 264.16(d) and (e);

I.P.2.c.i. Training records on current personnel must be kept until closure of the facility; training records on former employees must be kept for at least three years from the date the employee last worked at the facility. [40 CFR 264.16(e)]

I.P.2.d. All progress reports, work plans and reports required in Module III (Corrective Action); and

I.P.2.e. All other documentation as required by this permit.

I.P.3. *Availability, Retention, and Disposition of Records*

I.P.3.a. All records, including plans, required under 40 CFR 264 must be furnished upon request, and made available at all reasonable times for inspection by DEQ or any representative of DEQ. [40 CFR 264.74(a)]

I.P.3.b. The retention period for all records required by this permit is extended automatically during the course of any unresolved enforcement action regarding the facility or as requested by DEQ. [40 CFR 264.74(b)]

I.P.4. *Reporting*

I.P.4.a. Annual Report from Facilities
Pursuant to ARM 17.53.803, the Permittee must submit an annual report to DEQ, on forms obtained from DEQ.

I.P.4.b. Generator Reporting and Annual Fee Requirements
The Permittee shall comply with the hazardous waste generator registration and reporting requirements of ARM 17.53.111, 113, 603, and 604.

I.P.4.c. Facility-Wide Corrective Action Reporting
All reports and work plans required in Module III must be submitted within the timeframes specified within that module, unless the Permittee obtains prior approval from DEQ.

I.P.4.d. Planned Changes and Anticipated Non-Compliance
The Permittee shall comply with the reporting requirements of Conditions I.J.13.a. and I.J.13.b. for planned changes to the HWSF or any anticipated non-compliance with permit conditions.

I.P.4.e. Twenty-Four Hour Reporting
The Permittee shall comply with the reporting requirements in Condition I.J.13.f. for any non-compliance which may endanger health and/or the environment.

I.Q. **Confidential Information**
The Permittee may claim confidential any information required to be submitted by this permit in accordance with ARM 17.53.208.

I.R. **Dispute Resolution**

I.R.1. DEQ and the Permittee shall work by consensus and when a dispute arises concerning specific activities required by this permit, shall first attempt to resolve the matter informally.

I.R.2. Remedy approval as set forth in Condition III.J. may not be included in the formal dispute resolution process. To ensure public comment and involvement on remedy approval, DEQ shall modify the permit. The Permittee may choose to comment on the remedy selection through the modification process.

I.R.3. Review Period: If no resolution is reached and the Permittee further objects or if the Permittee objects in whole or in part to any Department notice of disapproval or other decision or directive made pursuant to this permit, the Permittee shall notify DEQ in writing of its objections within ten (10) calendar days after its receipt of DEQ's notification. This notification must include the reasons for the objection with any supporting documentation, and the Permittee's preferred alternate solutions.

I.R.4. Negotiation Period: DEQ and the Permittee shall endeavor to meet promptly and work in good faith for a period of fourteen (14) calendar days from DEQ's receipt of the Permittee's written notification of objection, in an effort to reach a mutually agreeable resolution of the dispute. If the dispute is resolved, the Permittee shall submit a revised submission or implement the agreed-upon action(s) in accordance with an agreed-upon schedule.

I.R.5. If agreement is not reached within the negotiation period, DEQ shall, within twenty-one (21) calendar days of receipt of the Permittee's written objection, provide a written statement of its decision and the reasons therefore to the Permittee signed by the Director of DEQ. Within ten (10) calendar days after receiving the written statement of decision from DEQ, if the Permittee continues to disagree with the decision, the Permittee may seek, by written request, a meeting with DEQ. If the Permittee requests such a meeting with DEQ, such request shall stay enforcement actions or determinations of noncompliance until a

decision is rendered or for up to fourteen (14) calendar days following the date of receipt by DEQ of the request, whichever occurs first.

I.R.6. During the negotiation period, the Permittee shall be excused from performing only the requirement under this permit that is specifically the subject of such dispute. DEQ's consideration of matters placed into dispute shall not excuse, toll, or suspend any compliance obligation or deadline required pursuant to this permit. The Permittee shall take any actions required by this permit that DEQ determines are not substantially affected by the dispute.

I.R.7. Notwithstanding the other provisions of this permit, any agreement or decision made by DEQ pursuant to Condition I.R. shall be reduced to writing, shall be deemed incorporated into this permit without further order or process, and shall be binding to the parties. Nothing herein precludes the Permittee's right to notice and hearing before the Board of Environmental Review or to judicial review after attempting resolutions pursuant to Conditions I.R.1 through I.R.4.

I.S. **Force Majeure**

I.S.1. The Permittee shall perform the requirements of this permit within the time limits set forth herein, unless the performance is prevented or delayed by events which constitute a force majeure. A force majeure is defined as any unforeseeable event such as a flood over which the Permittee has little or no control and for which there is not a reasonably available remedy.

I.S.2. If any event occurs or has occurred that may delay the performance of any obligation under this permit, whether or not caused by a force majeure event, the Permittee shall notify DEQ in writing within ten (10) calendar days thereafter, including the reasons for the delay, the anticipated duration of the delay, all actions taken or to be taken to prevent or minimize the delay and a schedule for the implementation of any measure to be taken to mitigate the effect of the delay. Failure to comply with the notice provisions of this section as to any individual event will constitute a waiver of the Permittee's right to assert a force majeure claim as to that event.

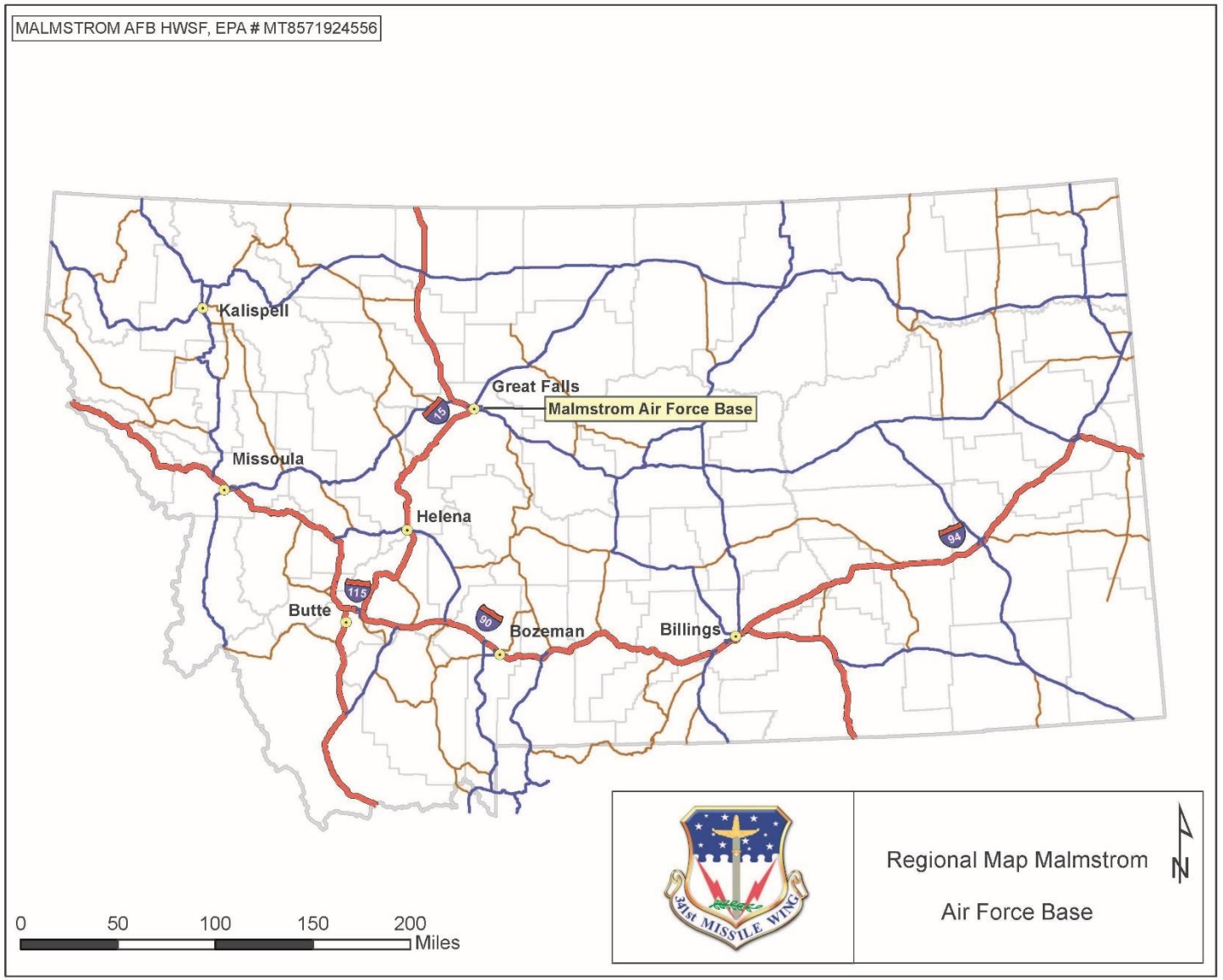
I.T. **State and Federal Laws**

Nothing in this permit may be construed to preclude the institution of any legal action or to relieve the Permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by Section 3009 of the RCRA, as amended. [Title 42 United States Code § 6929]

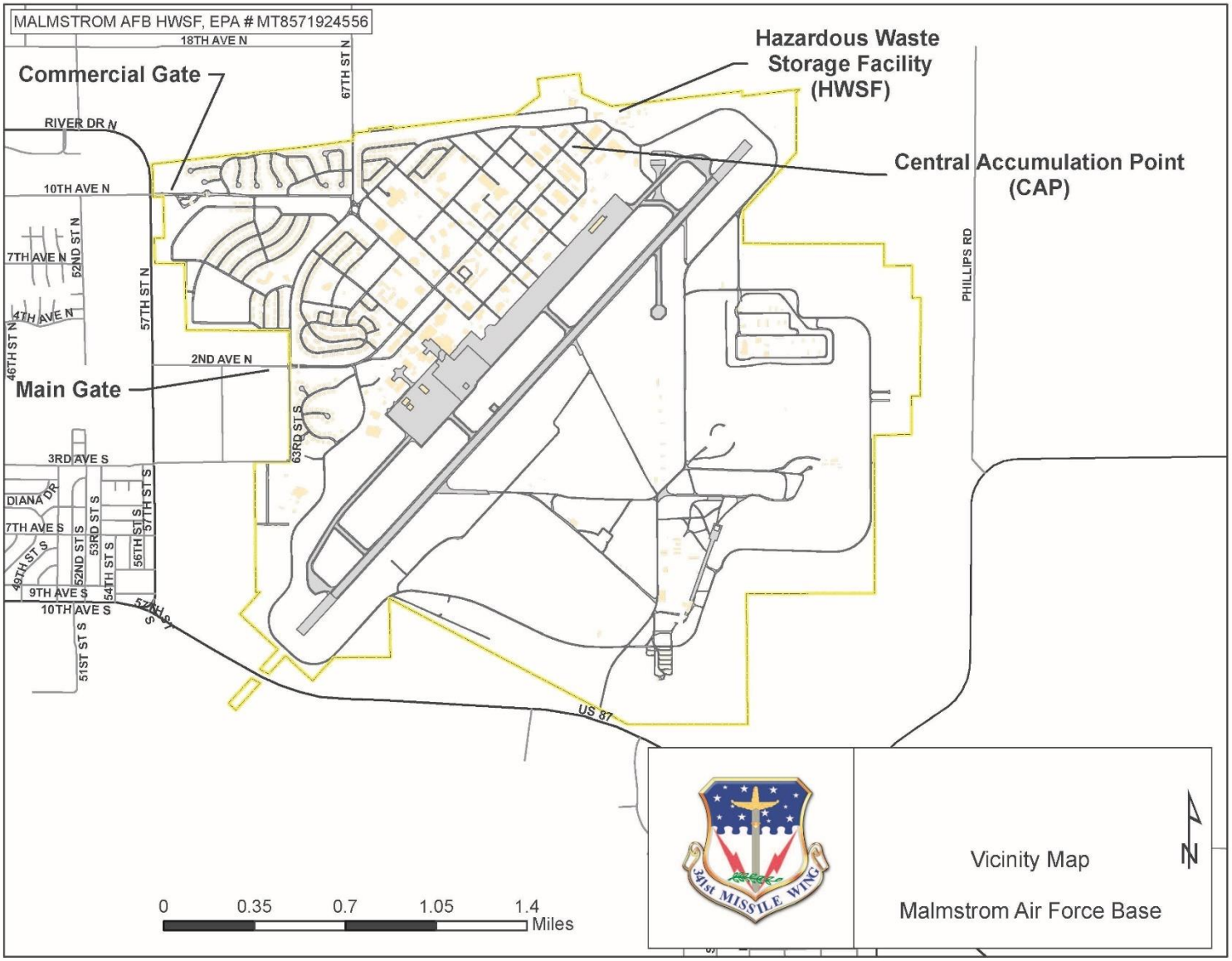
Attachment I.1
Regulation Cross Reference Table

Code of Federal Regulations (CFR) Incorporated by Reference into ARM	Administrative Rules of Montana (ARM)
General Incorporation by Reference	17.53.105 17.53.107
40 CFR 124	17.53.1201 17.53.1202
40 CFR 260	17.53.404 17.53.405 17.53.406
40 CFR 261	17.53.501 17.53.502
40 CFR 262	17.53.601 17.53.602
40 CFR 263	17.53.701 17.53.702
40 CFR 264	17.53.801 17.53.802
40 CFR 265	17.53.901 17.53.902
40 CFR 266	17.53.1001 17.53.1002
40 CFR 267	17.53.1501 17.53.1502
40 CFR 268	17.53.1101 17.53.1102
40 CFR 270	17.53.1201 17.53.1202
40 CFR 273	17.53.1301 17.53.1302
40 CFR 279	17.53.1401 17.53.1402

Attachment I.2
Regional Map



Attachment I.3
Facility Map



Module II
Hazardous Waste Storage Facility

Table of Contents

Attachments

Module II Figures

Module II Tables

Module II
Hazardous Waste Storage Facility

II.A. **Applicability**

The conditions in this module apply to the operation and closure of the permitted Hazardous Waste Storage Facility (HWSF) defined in Condition I.C.2 and Condition II.B.

II.A.1. The Permittee shall operate and maintain the HWSF in accordance with this permit and applicable requirements in Administrative Rules of Montana (ARM) Title 17, chapter 53.

II.B. **Permitted Unit**

The HWSF is the sole permitted hazardous waste management unit at MAFB. The HWSF is a 2,400-square-foot building designed and constructed to accept and store containers of hazardous waste prior to shipment for disposal. The building is located on 1/8 acre in the north-east portion of the MAFB facility. Attachment II.1 contains location and layout maps of the HWSF.

II.B.1. MAFB is permitted to store hazardous waste in the HWSF for greater than 90 days and must follow the storage time requirements of Condition II.J.

II.B.2. All waste management activities must be confined to the following authorized units within the HWSF:

II.B.2.a. Three large storage modules for storing hazardous waste;

II.B.2.b. Four large storage closets for segregation of hazardous waste;

II.B.2.c. Two small storage closets for segregation of hazardous waste, universal wastes or storage of cleanup response items; and

II.B.2.d. One enclosed loading and unloading area.

II.C. **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 non-sudden release of hazardous constituents to the air, soil, or surface water, which could threaten human health or the environment. [40 CFR 264.31]

II.D. **Waste Acceptance**

The Permittee shall accept and store at the HWSF only those wastes identified in Condition II.D.2. that have been generated at the facilities listed in Condition II.D.1. Wastes described in Condition II.D.3. are prohibited from storage in the HWSF.

II.D.1. *Generating Facilities*
Waste generated at the following facilities may be accepted and stored in the HWSF:

II.D.1.a. MAFB;

II.D.1.b. Missile alert and launch control facilities under the control of MAFB; and

II.D.1.c. Other United States Air Force facilities under the control of MAFB.

II.D.2. *Permitted Hazardous Wastes*
The following hazardous wastes may be stored in the HWSF:

II.D.2.a. Characteristic and F-Listed Wastes
The Permittee may store characteristic wastes as defined in 40 CFR 261, subpart C, and F-listed wastes as defined in 40 CFR 261.31 in containers at the facility, subject to the terms of this permit. Attachment II.2 shows permitted D- and F-listed wastes.

II.D.2.b. P-Listed Wastes
The Permittee may store discarded commercial chemical products, off-specification commercial chemical products, container residues and spill residues (40 CFR 261, Subpart D, 261.33(e)) in containers at the facility, subject to the terms of this permit. Attachment II.2 shows permitted P-listed wastes.

II.D.2.c. U-Listed Wastes
The Permittee may store discarded commercial chemical products, off-specification commercial chemical products, container residues and spill residues (40 CFR 261, Subpart D, 261.33(f)) in containers at the facility, subject to the terms of this permit. Attachment II.2 shows permitted U-listed wastes.

II.D.3. *Prohibited Wastes*
The Permittee is prohibited from storing the following wastes within the permitted hazardous waste storage area:

II.D.3.a. Radioactive wastes, infectious wastes and explosives.

II.D.4. *Wastes Acceptance Procedures*
Prior to accepting any hazardous waste at the HWSF, the Permittee shall carry out the procedures specified in Attachment II.3 (Waste Analysis Plan), including the following:

II.D.4.a. Ensure the hazardous waste has all proper acceptance documentation and return to the generator all unknown waste or waste not adequately characterized by the generator;

II.D.4.b. Inspect all containers according to Attachment II.3; and

II.D.4.c. Overpack or transfer all hazardous waste received in a leaking or damaged container into a proper container, as specified in Attachment II.3.

II.D.5. *Waste Analysis*
Wastes must be sampled and analyzed in accordance with the Waste Analysis Plan in Attachment II.3 and the conditions of this permit.

II.D.5.a. The Permittee shall follow the sampling, analytical, and quality assurance/quality control procedures described in the Waste Analysis Plan in Attachment II.3, and Condition I.J.10.

II.E. **HWSF Containment Systems**

II.E.1. *Storage Unit Containment System*
The Permittee shall operate and maintain the secondary containment system in accordance with the Preparedness and Prevention Plan in Attachment II.4, Paragraph C, and the following requirements: [40 CFR 264.175]

II.E.1.a. A base or floor under containers must be free from cracks or gaps and must be sufficiently impervious to leaks and spills until the leaked or spilled waste or other material has been detected and removed. The containers must be elevated or otherwise protected from contact with accumulated liquids.

II.E.1.b. The secondary containment system must have sufficient capacity to contain more than 10% of the volume of containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids do not need to be considered in this determination.

II.E.1.c. Spilled or leaked waste or other material must be removed in a timely manner to prevent overflow of the secondary containment system.

II.E.1.c.i. The Permittee shall follow the procedures in Attachment II.4 (Preparedness and Prevention Plan) when determining the potential hazard of liquids removed from the secondary containment system and shall dispose of them accordingly.

II.E.1.c.ii. The operating record must show the results of analytical tests and actions taken to dispose of any liquids removed from the containment system.

II.E.2. *Loading/Unloading Area Containment System*
The Permittee shall operate and maintain the loading/unloading area containment system, including the containment sump, in accordance the Preparedness and Prevention Plan in Attachment II.4 and the following requirements:

II.E.2.a. The concrete floor of the loading/unloading area must be free or cracks and/or gaps, and must be sufficiently impervious to leaks and spills until leaked or spilled waste or other material has been detected and removed.

II.E.2.b. Liquid that has accumulated in the containment sump must be removed in a timely manner to prevent overflow of the sump, or mixing of incompatible wastes.

II.E.2.b.i. The Permittee shall follow the procedures in Attachment II.4. when determining the potential hazard of liquids removed from the loading/unloading area containment sump and shall dispose of them accordingly.

II.E.2.b.ii. The operating record must show the results of analytical tests and actions taken to dispose of any liquids removed from containment sump.

II.F. **Condition of Containers**

If a container holding hazardous waste is not in good condition (such as severe rusting, bulging, apparent structural defects) or if it begins to leak, the Permittee must transfer the hazardous waste from such container to a container that is in good condition or manage the waste in some other way that complies with the conditions of this permit. [40 CFR 264.171]

II.G. **Compatibility of Waste with Containers**

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

II.H. **Management of Containers**

In accordance with 40 CFR 264.173 and the conditions of this permit:

II.H.1. The Permittee shall store all containers in areas with secondary containment.

II.H.2. All hazardous waste containers must be closed during storage, except when it is necessary to add or remove waste.

II.H.3. The Permittee shall not open, handle, or store containers in a manner which may rupture the container or cause it to leak.

II.H.4. In accordance with 40 CFR 264, Subpart CC, Air Emission Standards for Tanks, Surface Impoundments, and Containers, the Permittee shall ensure all containers are equipped with a cover and closure devices that form a continuous barrier over the container openings. [40 CFR 264.1086(c)]

II.I. **Labeling of Containers**

In accordance with 40 CFR 262.17(a)(5), the Permittee must mark or label its containers with the following:

II.I.1. The words "Hazardous Waste";

II.I.2. An indication of the hazards of the contents (examples include, but are not limited to, the applicable hazardous waste characteristic(s) (i.e., ignitable, corrosive, reactive, toxic); hazard communication consistent with DEQ of Transportation requirements at 49 CFR part 172 subpart E (labeling) or subpart F (placarding); a hazard statement or pictogram consistent with the Occupational Safety and Health Administration Hazard Communication Standard at 29 CFR 1910.1200; or a chemical hazard label consistent with the National Fire Protection Association code 704; and

II.I.3. The date upon which each period of accumulation begins clearly visible for inspection on each container.

II.J. **Prohibitions on Storage of Restricted Wastes**

In accordance with 40 CFR 268.50, the Permittee shall not store restricted wastes for more than one year unless the wastes are stored solely to accumulate such quantities of waste to facilitate proper recovery, treatment, or disposal. If restricted wastes are stored for more than one year, the Permittee bears the burden of proving such storage was solely to accumulate such quantities of waste to facilitate proper recovery, treatment, or disposal.

II.K. **Special Requirements for Ignitable or Reactive Waste**

II.K.1. The Permittee shall not locate containers holding ignitable or reactive waste within 50 feet of the facility property line. [40 CFR 264.176]

II.K.2. The Permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive waste in accordance with 40 CFR 264.17(a) and follow the procedures specified in Attachment II.3.

II.K.2.a. Ignitable and reactive wastes must be separated and protected from sources of ignition or reaction including but not limited to open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat.

II.K.2.b. While ignitable or reactive waste is being handled, the Permittee must confine smoking and open flame to specially designated locations.

II.K.2.c. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

II.K.3. The Permittee shall store ignitable wastes and reactive wastes in separate storage modules or closets, as specified in Attachment II.3.

II.L. **Special Requirements for Incompatible Waste**
In accordance with 40 CFR 264.177, the Permittee:

II.L.1. Shall not place or store incompatible wastes or materials in the same container.

II.L.2. Shall not place hazardous waste in any unwashed container that previously held an incompatible waste or material.

II.L.3. Shall separate containers holding incompatible wastes by means of a dike, berm, wall, or other device from other incompatible materials stored nearby.

II.M. **Inspection Schedules**

II.M.1. The Permittee shall inspect the HWSF at least weekly and according to the inspection log form and schedule in Table II.5. The Permittee shall look for leaking containers and for deterioration of containers and the containment system caused by corrosion or other factors. [40 CFR 264.174]

II.M.1.a. An inspection of the items that indicate an inspection frequency of "daily when in use" in Table II.5 must occur immediately after loading or unloading of hazardous waste at the HWSF.

II.M.2. If any container holding hazardous waste is found to be in poor condition during an inspection, the Permittee shall transfer the hazardous waste from that container to a container that is in good condition, or manage the waste in some other way that complies with the conditions of this permit.

II.M.3. The Permittee shall remedy any deterioration or malfunction of equipment or structures which the inspection reveals on a schedule which ensures that the problem does not lead to an environmental or human health hazard. Where a hazard is imminent or has already occurred, remedial action must be taken immediately. [40 CFR 264.15(c)]

II.N. **Availability of Log Sheets for Emergency Personnel**
The Permittee shall maintain a log sheet of hazardous waste present in the HWSF. The log sheet must be updated on the day any new hazardous waste is placed in storage, and must be kept in a location that is readily visible and accessible at all times by MAFB personnel and emergency personnel.

II.O. **Security**
The Permittee shall comply with security requirements set forth in 40 CFR 264.14(b) and (c). Security measures as described in Attachment II.1 and Attachment II.4 must be maintained.

II.P. **Personnel Training**

The Permittee shall conduct personnel training as required by 40 CFR 264.16. This training program must follow the description outlined in Attachment II.5. The Permittee shall maintain training documents and records as required by Condition I.P.2.c and 40 CFR 264.16(d) and (e).

II.Q. **Preparedness and Prevention**

II.Q.1. *Design and Operation of Facility*

The HWSF must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. [40 CFR 264.31]

II.Q.2. *Required Equipment*

At a minimum, the HWSF must be equipped as specified in Attachment II.4 and 40 CFR 264.32.

II.Q.3. *Testing and Maintenance of Equipment*

All communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment must be tested and maintained as specified in Attachment II.4 to assure proper operation of the HWSF in time of emergency. [40 CFR 264.33]

II.Q.4. *Access to Communications or Alarm System*

Whenever hazardous waste is handled, the Permittee shall ensure all personnel involved in the operation have immediate access to an internal alarm or emergency communication device, as required by 40 CFR 264.34(a).

II.Q.4.a. If there is ever just one employee on the HWSF premises, that employee must have access to a communication device which is immediately available and which is capable of summoning emergency assistance, as required by 40 CFR 264.34(b).

II.Q.5. *Required Aisle Space*

At a minimum, the Permittee shall maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of operation in an emergency, as required by 40 CFR 264.35.

II.Q.6. *Arrangements with Local Authorities*

The Permittee shall maintain arrangements with state or local authorities, as required by 40 CFR 264.37(a).

II.Q.6.a. If state or local officials decline to enter into such arrangements with the Permittee, the Permittee shall document this refusal in the operating record. [40 CFR 264.37(b)]

II.R. **Contingency Plan**

The Permittee must have a contingency plan for the HWSF and implement the plan in accordance with this Module, including Attachment II.6, and 40 CFR 264, subpart D.

II.R.1. *Purpose*

II.R.1.a. The contingency plan must be designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituent to air, soil, or water.

II.R.1.b. The provisions of the plan must be carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment. [40 CFR 264.51]

II.R.2. *Content*

The contingency plan must include the content specified in 40 CFR 264.52.

II.R.3. *Implementation*

II.R.3.a. The Permittee shall immediately follow the emergency procedures of the Contingency Plan, Attachment II.6, whenever there is an imminent or actual emergency situation, and/or a release, fire or explosion. [40 CFR 264.56]

II.R.3.b. The Permittee must maintain a log sheet of hazardous waste present in the HWSF. The log sheet must be updated on the day any new hazardous waste is placed in storage, and must be kept in a location that is readily visible and accessible at all times by MAFB personnel and emergency personnel.

II.R.4. *Copies of Contingency Plan*

II.R.4.a. A copy of the contingency plan and all revisions to the plan must be:

II.R.4.b. Maintained at the facility; and

II.R.4.c. Submitted to all local police departments, fire departments, hospitals, and State and local emergency response teams that may be called upon to provide emergency services. [40 CFR 264.53]

II.R.5. *Amendment of Contingency Plan*

II.R.5.a. Pursuant to 40 CFR 264.54, the contingency plan must be reviewed and immediately amended, if necessary, whenever:

II.R.5.b. The facility permit is revised;

II.R.5.c. The plan fails in an emergency;

II.R.5.d. The facility changes;

II.R.5.e. The list of emergency coordinators changes; or

II.R.5.f. The list of emergency equipment changes.

II.R.6. *Emergency Coordinator*
The Permittee shall comply with the emergency coordinator requirements of this Module, 40 CFR 264.55, and 40 CFR 264.52(d) with the exception noted in Condition II.R.6.a.

II.R.6.a. MAFB personnel titles may be listed on the Emergency Notification List in Table II.10, in place of personnel names and addresses. The Emergency Notification List must include on-duty and off-duty phone numbers.

II.R.6.b. At all times, there must be at least one employee either on the facility premises or on call with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the contingency plan, all operations and activities at the HWSF, the location and characteristics of waste handled, the location of all records for the HWSF, and the HWSF layout.

II.R.6.c. The emergency coordinator must have the authority to commit the resources needed to carry out the contingency plan.

II.R.7. *Emergency Procedures*
Whenever there is an imminent or actual emergency situation, the emergency coordinator (or his designee when the emergency coordinator is on call) must immediately implement the contingency plan and follow the procedures specified in Attachment II.6 and 40 CFR 264.56.

II.S. Closure

II.S.1. *General Requirements*
At closure and in accordance with the Closure Plan, Attachment II.7, the Permittee shall remove all remaining hazardous waste from the HWSF. Any hazardous waste residue must be removed from the HWSF containment system in the storage units and the loading/unloading area. [40 CFR 264.178]

II.S.2. *Performance Standard*
The Permittee shall close the HWSF as required by this Module and 40 CFR 264.111. The intent of the HWSF closure is to leave no wastes, residuals, or contamination in place so long-term post-closure care and monitoring will not be required.

II.S.3. *Amendment to Closure Plan*
The Permittee shall amend the closure plan in accordance with 40 CFR 264.112(c), whenever necessary.

II.S.4. *Notification of Closure*
The Permittee shall notify DEQ at least 45 days prior to the date closure is expected to begin, as required by 40 CFR 264.112(d).

II.S.5. *Time Allowed for Closure*
The Permittee shall:

II.S.5.a. Within 90 days after receiving the final known volume of hazardous waste, remove all hazardous waste from the HWSF; and

II.S.5.b. Within 180 days after receiving the final known volume of hazardous waste, complete closure activities in accordance with the schedule specified in Attachment II.7. [40 CFR 264.113]

II.S.5.c. DEQ may approve an extension to the closure period in accordance with 40 CFR 264.113(b).

II.S.6. *Disposal or Decontamination of Equipment*
The Permittee shall decontaminate and/or dispose of all facility equipment as required by 40 CFR 264.114, and as described in Attachment II.7.

II.S.7. *Certification of Closure*
Within 60 days of completion of closure of the HWSF, the Permittee shall submit to DEQ, by registered mail, a certification that the facility has been closed in accordance with the specifications in the Closure Plan (Attachment II.7) and as required by 40 CFR 264.115. The certification must be signed by the Permittee and by an independent registered Professional Engineer.

Module II Attachments
Hazardous Waste Storage Facility

Attachments

Module II Figures

Module II Tables

Attachment II.1
Facility Description

Table of Contents

Attachment II.1
Facility Description

A. Facility Owner/Operator

Permittee: Malmstrom Air Force Base (MAFB)
341st Missile Wing

Operator: MAFB
341st Missile Wing
Day-to-day operation performed by 341st Civil Engineer Squadron, Environmental Compliance (341 CES/CEIEC)

Facility Name: Hazardous Waste Storage Facility (HWSF)

Facility Location: 8035 Pole Yard Road
MAFB
Great Falls, Montana 59402

B. General Facility Description

40 Code of Federal Regulations (CFR) 270.14(b)(1)

The HWSF, located in Building 1535, is a hazardous waste regulated storage unit that is operated in accordance with 40 CFR Part 264 and Part 270. The HWSF is a specially designed and constructed 2,400 square-foot building on an approximately 1/8-acre parcel of MAFB property. The HWSF is operated by 341 CES/CEIEC. Figures showing the regional location of MAFB, vicinity of MAFB, location map and vehicle routes, HWSF site plan, and HWSF building plan are included in Figures II.1 through II.5.

1. Malmstrom Air Force Base

MAFB is an Air Force Installation (National Defense) located adjacent to the eastern city limits of Great Falls, Montana. MAFB is home to the 341st Missile Wing and is responsible for 150 intercontinental ballistic missile launch facilities scattered over nearly 14,000 square miles of central Montana. Although its mission may undergo changes based upon National Defense priorities, MAFB maintains active services to support U.S. Air Force units such as Air Force Global Strike Command's 341st Missile Wing, Air Combat Command's 819th Rapid Engineers Deployable Heavy Operational Repair Squadron Engineer (RED HORSE) Squadron, and tenant units.

2. 341st Civil Engineer Squadron, Environmental Compliance (341 CES/CEIEC)

CES/CEIEC provides the full spectrum of environmental management to MAFB. These services encompass conservation, wildlife management, and compliance with air, water, toxics, and hazardous waste (HW).

3. Hazardous Waste Storage Facility

The HWSF, located in Building 1535, is a separate structure within an area at MAFB. A detailed description of the HWSF is provided in the following sections.

C. Hazardous Waste Storage Facility Description

1. Location

40 CFR 270.14(b)(11)

The HWSF, designated as Building 1535, is located on MAFB property. The location of the HWSF is shown on Figures II.2 and II.3. The HWSF is a 2,400 square-foot building specifically designed and constructed in 1993 for the indoor storage of HW and was available for beneficial occupancy in August 1994. In 2003, the HWSF was modified to fully enclose the outdoor, three-walled, covered loading/unloading area at the HWSF. Updated figures reflecting this change are included in this Module II.

The HWSF is more than 50 feet from the MAFB property line as shown on Figure II.4. All hazardous HW storage and loading/unloading areas are located inside the building. Run-on at the facility into the storage area cannot occur.

2. Storage Units

40 CFR 270.15

Total storage capacity of the HWSF is 22,400 gallons of HW. The configuration of the HWSF is shown on Figure II.5. Drums and containers are stored on racks that prevent storage in standing liquid. Racks that store drums have three shelves and can store drums two deep. The floor of the HWSF is a high-density concrete with a non-reactive polymer sealant to prevent any permeation to the ground surface. HW is stored in modules and closets described as follows:

a) Storage Modules

The Facility has three large storage modules for storing hazardous waste: one for flammable storage, one changeable (flammable U.S. Department of Transportation (USDOT) Class 9, miscellaneous HW) identified by signs for the current use, and one for HW that must be heated to prevent

freezing. Each unit is designed with its own containment system (approximately 1,500-gallon capacity) and capable of storing 96 drums (55-gallon) or 5,280 gallons of HW.

b) Large Storage Closets

The facility has four large storage closets for segregation of HW. Each unit is designed with its own containment system (approximately 160-gallon capacity) and is capable of storing twenty-four 55-gallon drums, or 1,320 gallons of HW.

c) Small Storage Closets

The facility has two small storage closets for segregation of HW. Each unit is designed with its own containment system (approximately 80-gallon capacity) and is capable of storing twelve 55-gallon drums or 660 gallons of HW. Storage closets may also be used to store cleanup materials, brooms, shovels, pads, booms, protective clothing and other emergency response items.

3. Containers and Markings

All wastes at the HWSF will be stored in USDOT United Nations (UN)-approved containers that are compatible with the materials stored or other equivalent approved packaging. All containers will be marked with the following:

- The words "Hazardous Waste"
- An indication of the hazard(s) of the contents (examples include the hazardous waste characteristic(s), hazard communication consistent with 49 CFR part 172 subpart E or subpart F, hazard statement or pictogram consistent with 29 CFR 1910.1200, or chemical hazard label consistent with National Fire Protection Association code 704)
- The date upon which each period of accumulation begins that is clearly visible on each container

The HWSF should only receive wastes from Generators that have marked hazardous waste with an indication of the hazard(s) of the contents and meet all other waste acceptance criteria outlined in this Permit. When the Permittee accepts waste, and for any container marking maintenance or replacement of containers marking/labels that occurs at the HWSF, labels for hazardous waste must use hazard communication that describe all the applicable hazards and the container must be marked as describe above.

The Resource Conservation and Recovery Act (RCRA) waste codes must be placed on the containers before shipping hazardous waste off site to the RCRA-

permitted disposal facility but are not required to be applied before that time. An electronic system, such as a bar code system, is acceptable as long as the RCRA waste code(s) are tied to the specific container.

4. Air Emissions Standards for Containers

40 CFR 264, Subpart CC

MAFB does not store or intend to generate any waste resulting in a VOC concentration that exceeds 500 parts per million (ppm). The containers at the HWSF that are larger than 0.1 cubic meters (26.4 gallons) and less than 0.46 cubic meters (122 gallons) are subject to Level 1 container requirements. In accordance with 40 CFR 264.1086 the containers adhere to the following:

- All containers are US DOT approved containers
- All containers are equipped with covers or closure devices
- The containers remain closed at all times unless actively adding, removing, or transferring waste from the container.
- If necessary, a pressure relief valve is used during storage to allow venting in accordance with 40 CFR 264.1086(c)(3)(iv)

Containers are inspected weekly at the HWSF, and container condition is documented in inspection logs. If a defect in the container or closing device is discovered, MAFB will transfer the waste contents into a new container within 5 days.

5. Physical Layout

Figure II.5 provides a building plan of the HWSF.

D. Location Information

40 CFR 270.14(b)(10) and (11)

1. Hazardous Waste Transporters

40 CFR 270.14(b)(10)

a) Hazardous Waste Transporters

The majority of HW is transported from generating activities at MAFB to the HWSF by Air Force (AF)-owned ½- to ¾-ton pick-up trucks, 1- to 2½-ton trucks, and 5- to 10-ton tractor-trailer units.

b) Number of Trips

The average number of trips to the HWSF is two trips per month. HW is handled with forklifts with capacity of up to 10 tons. Approximately 12 times per year MAFB has a U.S. Environmental Protection Agency (USEPA)-approved transporter remove HW from the HWSF. Typically, the transporter has a standard size tractor-trailer unit available to haul the waste.

c) Transport Documentation

Transfers of HW to the HWSF are documented using DD Form 1348-1A, Issue Review/Release Document (Table II.3), or an equivalent document, which, when necessary, allows the Department of Defense (DoD) to establish a delivery order for the offsite transportation and disposal of the HW.

2. Traffic Patterns

40 CFR 270.14(b)(10)

a) Primary Routes

There are four main routes by which the HW can be transported off site from the HWSF, and one route which is used to transport HW to the HWSF from the Central Accumulation Point (CAP), (same route back if waste is not accepted). The HWSF Location and Vehicle Routes (Figure II.3) shows these primary routes as follows:

- North on Interstate Highway 15
- South on Interstate Highway 15
- North towards Havre on U.S. Highway 87
- South on U.S. Highway 87/89
- Route from CAP to the HWSF and route from HWSF to the CAP.

b) MAFB Vehicle Routing

The primary and alternate vehicle routing while on MAFB is shown on Figure II.3. When using the primary route, vehicles do not cross any bridges but cross a culvert adjacent to the commercial gate entrance on the installation. The maximum speed limit on MAFB roads traveled by transport vehicles is 30 miles per hour.

c) MAFB Street Conditions

The load-bearing capacity of the asphaltic concrete pavement on MAFB is 4,500 pounds per tire at 80 pounds per square inch (psi).

3. Seismic Standard

40 CFR 264.18(a); 270.14(b)(11)

MAFB is in Seismic Zone 2. The HWSF is designed to comply with Seismic Zone 2 standards. No faults exist within 3,000 feet of the facility; therefore, the potential for severe seismic activity is low.

4. Floodplain Standard

40 CFR 264.18(b); 270.14(b)(11)(iii) and (19)(ii)

In 1979, the Federal Emergency Management Agency performed a floodplain insurance study on all streams in Cascade County considered to have severe flooding problems. No area on MAFB was considered in this study nor in any other floodplain study.

a) Area Topography

40 CFR 270.14(b)(19)

MAFB is located on a high plateau. The drainage from this plateau flows into a number of small coulees which terminate in the Missouri River approximately 1.5 miles north of MAFB.

b) Local Surface Water Drainage

40 CFR 270.14(b)(19)(iii)

The storm and surface drainage from the HWSF flows into a small coulee which begins approximately 500 feet northeast of the HWSF. The coulee joins others entering Whitmore Ravine which drops rapidly for approximately 1.5 miles and terminates in the Missouri River below Rainbow Dam. (Source: Flood Insurance Rate map, Cascade County, Montana, Panel 242 of 1300, 8 December 1981).

c) 100-Year Floodplain Location

40 CFR 264.18(b); 270.14(b)(11)(iii) and (19)(ii)

The elevation of the 100-year flood boundary at Black Eagle Dam (limit of detailed study) is 3,306 feet. The elevation of the HWSF is 3,404 feet. The elevation of the Missouri River where the subject drainage coulee terminates is 3,140 feet. As such, the HWSF is 264 feet above the

Missouri River below Rainbow Dam, which is downstream of Black Eagle Dam.

5. Local Wind Patterns

40 CFR 270.14(b)(19)(v)

a) Prevailing Winds

Prevailing winds in the vicinity of the HWSF are from the southwest.

6. Adjacent Land Use

All land immediately adjacent to MAFB is used for agricultural or residential purposes. This information was obtained through a visual survey of the properties. The land adjacent to the HWSF is occupied by the Defense Logistics Agency (DLA) and other MAFB services, or pasture.

7. Threatened/Endangered Species

MAFB does not contain any threatened or endangered species or critical habitat covered under the Endangered Species Act.

E. Generators Using The HWSF

1. Generators

The following MAFB-related operations transport HW for temporary storage at the HWSF:

- MAFB (Large Quantity Generator or LQG)
- Missile Alert Facilities (Very Small Quantity Generator or VSQG)
- Missile Launch Facilities (VSQG)
- Any other facilities controlled or serviced by MAFB (VSQG).

The waste from the VSQG sites is transported to MAFB by maintenance teams and is placed in a trailer with containment. The waste is considered to be in transit until picked up by 341 CES/CEIEC. The waste quantities and any episodic events from each VSQG are tracked by the MAFB hazardous waste program to ensure that they maintain their VSQG status and meet the episodic event requirements, as outlined in 40 CFR 262, and as allowed through the Generator Improvements Rule. In the event an offsite facility generates hazardous waste in amounts above regulatory limits for VSQGs (and becomes an SQG or LQG), MAFB will immediately take action to notify the Montana Department of Environmental Quality (DEQ) and register that site as a Hazardous Waste Generator. The Permittee will also gain approval from DEQ prior to receiving this waste at the Permitted HWSF, if required.

Note that a VSQG generator may maintain its existing generator category for hazardous waste generated during an episodic event provided that the generator complies with conditions outlined in 40 CFR 262.232.

For any waste received by the HWSF from the VSQGs, the waste will be handled in accordance with the applicable storage requirements of 40 CFR 264 and stored, managed, and handled as any other HW under this Permit.

2. Temporary Storage

The purpose of storing HW at this location is to await offsite transportation by a USEPA-approved or state-authorized transporter and treatment, storage, or disposal at a USEPA-approved or state-authorized treatment, storage, and disposal facility (TSDF). The HWSF is not a final disposal site and no storage tanks are present.

Therefore, portions of a RCRA Part B Permit Application addressing requirements related to these operations and activities do not apply.

F. Operations

1. Facility Management

a) Chief, Environmental Compliance (341 CES/CEIEC)

Chief, Environmental Compliance (341 CES/CEIEC) has ultimate responsibility for management and compliance at the HWSF. He/She oversees management of all personnel and operations at the HWSF.

b) The Hazardous Waste Program Manager (HWPM)/Environmental Protection Specialist (EPS)

The HWPM/EPS is responsible for the day-to-day administration of all operations at the HWSF and reports to the Chief, Environmental Compliance (341 CES/CEIEC). His/Her duties include interpreting regulations, supervising the processing of a wide range of HW, and ensuring compliance with requirements for the receipt, handling, storage, packaging, and offsite transportation and disposition of HW. The HWPM/EPS provides technical guidance to HWSF personnel involved in all aspects of HW processing and management. The HWPM/EPS also determines requirements for work force, space, and equipment, and initiates required actions.

c) Hazardous Waste Disposer (HWD)

The HWD is responsible for the proper receipt and storage of HW and reports to the Chief, Environmental Compliance (341 CES/CEIEC). He/She verifies nomenclature, description, quantities, and conditions of

HW received against the documentation; classifies items based on inspection of condition; and identifies the proper storage location within the HWSF. The HWD operates a forklift, as required; handles HW upon receipt and prior to offsite transportation; and performs inspections and other HWSF operational activities.

2. Hazardous Waste Streams

The HWSF facility receives HW for temporary storage and offsite treatment, storage, or disposal. The facility handles "non-specific generation sources" types of HW from generators identified in Section E. These HWs are typically the result of various cleaning, paint stripping, and maintenance operations that generate unused or no longer usable products requiring disposal. These wastes include:

- Waste acids/alkalis
- Solvents, strippers, and thinner (discarded and spent)
- Cyanide-bearing material
- Paints, cements, sealers, resins, and miscellaneous products (discarded and spent)
- Miscellaneous solids and sludges
- Pesticides (discarded and spent)

Specific wastes accepted at the HWSF are listed in the HWSF Part A Permit Application. References to these wastes are provided in Section III: Allowable Hazardous Wastes.

G. Operating Personnel

40 CFR 264.16(d)(4)

The following position is the primary point of contact for the HWSF:

Chief, Environmental Compliance (341 CES/CEIEC)	Office Phone: 406-731-6155

Other positions that may be contacted for specific information concerning hazardous material or wastes include:

HWPM/EPS	Office Phone: 406-731-6163
HWD	Office Phone: 406-731-6739

H. Process Description

40 CFR 270.15; 270.14(b)(8) and (9)

The HWSF receives HW from MAFB generators and collects, stores, consolidates, and prepares the HW for offsite transportation and disposal at a USEPA-approved or state-authorized TSDF. The HWSF also performs lab packing to consolidate compatible smaller quantities of HW into an over pack. Storage of HW at the HWSF does not exceed 365 days.

I. Security Procedures

40 CFR 264.32; 264.34; 264.35; 264.37; 40 CFR 270.14(b)(4)

1. HWSF Major Security Features

40 CFR 264.14

a) Fencing

The HWSF is enclosed within a 6-foot-high chain-link fence with standard barbed wire outriggers. Fencing is shown on the Site Plan, provided in Figure II.4.

b) Warning Signs

Warning signs with the legend "Authorized Personnel Only" are posted on the gates into the HWSF, and "Warning – Unauthorized Personnel Keep Out" signs are posted on the HWSF. The signs are in English and are visible from a distance of 25 feet and from all approaches to the facility and are attached to the lightning protection poles.

c) Controlled Access

The driveway leading into the HWSF is 2-inch asphaltic concrete pavement constructed to MAFB specifications. This is the only road to and from the HWSF. The entrance to the HWSF is either locked, closed, or guarded.

d) Security Work Force

This facility is on U.S. Air Force property and has 24-hour security provided by base security personnel.

e) Emergency Access

There is adequate space around the perimeter of the HWSF for access by the MAFB fire department.

2. HWSF Integral Security Features

40 CFR 264.14(b)(2)(ii)

The HWSF has the following integral security features:

- Internal alarm system (fire alarm control panel has backup battery power)
- Telephone next to front (main) personnel door
- Fire extinguishers
- Fire suppression sprinkler system (does not connect to the electrical power system)
- Locks on all personnel entrance doors
- Controlled access.

In addition, warning signs are posted, in English, on all four sides of the HWSF that can be read at least 25 feet away cautioning "No Smoking" and "Danger – Unauthorized Personnel Keep Out."

Attachment II.2
Allowable Hazardous Waste

United States Environmental Protection Agency (USEPA). *Characteristics of Ignitability, Corrosivity, Reactivity and Toxicity*. 40 Code of Federal Regulations (CFR) 261.21 through 261.24. 2022 and as updated.

USEPA. Hazardous Waste From Non-Specific Sources F001- F005. 40 CFR 261.31. 2022 and as updated.

USEPA. Discarded Commercial Chemical products, Off-Specification Species, Container Residues and Spill Residues – P-Listed Wastes. 40 CFR 261.33(e). 2022 and as updated.

USEPA. Discarded Commercial Chemical products, Off-Specification Species, Container Residues and Spill Residues – U-Listed Wastes. 40 CFR 261.33(f). 2022 and as updated.

Attachment II.3
Waste Analysis Plan

Table of Contents

Attachment II.3
Waste Analysis Plan
40 CFR 270.14(b)(3); 264.13(b) and (c)

A. Introduction

1. Purpose

40 CFR 270.14(b)(3); 264.13(b) and (c)

The MAFB Waste Analysis Plan (WAP) provides a summary of waste-generating activities and storage and disposal procedures for the HWSF. This plan also defines sampling methods; analytical testing requirements and rationale; quality control and assurance procedures; requirements for incoming wastes; storage requirements for ignitable, reactive, and incompatible wastes; and the waste tracking and recordkeeping procedures. This plan describes the methodologies used to characterize wastes stored at the HWSF to ensure sufficient information is available for safe handling and storage until transported off site to an USEPA-approved or state-authorized TSDF.

2. Generators

40 CFR 270.14(b)(3)

HW processed through the HWSF is complex and varied. The HWSF accepts HW from various operations associated with MAFB. This WAP primarily describes how the HW generated at MAFB is accumulated and characterized prior to shipment to the HWSF. The WAP also describes the testing procedures that ensure the waste is handled properly and in an environmentally safe manner.

3. MAFB – Generated HW Accumulation and Disposal

40 CFR 270.14(b)(3)

a) Satellite Accumulation Points

Each organization with repetitive, ongoing processes at MAFB that generate HW (Paragraph C.3 below) has a satellite accumulation point. A MAFB generator may accumulate up to 55 gallons of HW or 1 quart of acute HW. The waste may be held in containers at or near the point of generation without a permit. The generator who accumulates more than 55 gallons of HW or 1 kilogram or 1 quart of acute HW must, within three consecutive calendar days, move excess material to the designated CAP.

b) Central Accumulation Point (CAP)

The CAP is the 90-day or less location of HW storage from the satellite accumulation points. At the CAP, the HW is analyzed, if necessary, and

prepared for transfer to the HWSF. HW that is already characterized by process knowledge does not require analysis.

c) HWSF

The HWSF is the location where HW is stored until disposed at a USEPA-approved or state-authorized facility.

d) HW Disposal Company

DoD contracts with a USEPA-approved state-authorized HW transportation contractor and TSDF through competitive bid according to federal contracting and acquisition laws to treat or dispose of the HW. This contract is renewed after each performance period and the actual contractor used for this service may vary.

4. Extent of HWSF Services

40 CFR 270.14(b)(3)

The HWSF does not treat nor provide final disposal of HW. All treatment and disposal are through contract services at an offsite USEPA-approved or state-authorized TSDF.

B. Waste Identification and Restricted Wastes

40 CFR 270.14(b)(3)

1. Extent of HWSF Services

a) Allowable Hazardous Wastes

Any HW with a waste code listed in the Part A Permit Application is accepted for storage and processing at the HWSF.

b) Identification Methods

The wastes accepted at the HWSF are limited to HW as defined in 40 CFR 261.3. The contents of items transferred to the HWSF for disposal as HW are identified by one of the following methods.

(1) The National Stock Number (NSN) or Local Stock Number (LSN): The NSN or LSN is used to locate the contents on the Enterprise Environmental Safety and Occupational Health-Material Information System (EESOH-MIS). The NSN or LSN is a 13-digit number that facilitates supply management for all items in the U.S. Air Force Inventory.

(2) Safety Data Sheets (SDS): The manufacturer material SDS is used to determine contents of the item. If an SDS is not available, a call is placed to the manufacturer for information regarding the HW and an SDS is requested. SDSs are formerly known as Material Safety Data Sheets or MSDSs.

(3) Enterprise Environmental Safety and Occupational Health – Material Information System (EESOH-MIS): The EESOH-MIS is a computerized system that provides information on a wide number of products and manufacturers. Information from the EESOH-MIS is used to locate the NSN or LSN and obtain the SDS for the HW.

(4) Label Information: When other information is not available, ingredient information from the label will be used to determine product composition.

(5) Analysis: The above information is generally sufficient to waive analysis to characterize the waste. However, analysis is required to identify material contents where other methods described in (1) through (4) above do not adequately characterize the waste or determine the proportion of different wastes collected in the same container. Wastes that are generated on site on a regular basis (waste streams), one-time generated wastes, or wastes that are mixed stock items, where information is not adequate to characterize the waste, will be required to have sampling and analysis accomplished before acceptance at the HWSF.

2. Waste Categories

Waste categories accepted at the HWSF include the following:

- Waste acids and alkalis
- Solvents, strippers, and thinners for parts cleaning
- Paints, cements, sealers, resins, and other discarded chemical products that are no longer usable
- Solids and sludges
- Spill and cleanup products.

3. Restricted Wastes

Any wastes not permitted in the HWSF are restricted from storage unless procedures for permit modification are followed.

C. Process Descriptions

40 CFR 270.14(b)(2); 264.13(a)(1) and (2)

1. Purpose

40 CFR 264.13(a)(1) and (2)

This section summarizes the processes at MAFB that generate consistent waste streams which are received at the HWSF for storage and processing. Other wastes may be received from non-specific sources on an irregular basis. These wastes are characterized prior to receipt at the HWSF**.**

2. Waste Stream Identification

40 CFR 264.13(a)(1) and (2)

a) Documentation

Wastes generated from specific industrial processes, in specific locations on a regular basis with few changes in the waste profiles are considered waste streams. These waste streams require completion of a waste stream profile sheet DLA Form 2511 Hazardous Waste Profile Sheet (DLA Form 2511, version November 2016) (Table II.1) or equivalent hardcopy or electronic document. The HWSF uses this form to track and validate wastes. The HWSF uses Part 3 of the form (Material Composition/ Underlying Hazardous Constituents) to document information obtained for each HW transferred to the HWSF. Laboratory analysis sufficient to characterize each waste stream, if necessary, must be conducted by the MAFB generator or the CAP prior to assignment of a waste stream number.

HW that are transferred to the HWSF and are restricted from land disposal are required to have a written restricted waste notification Land Disposal Restriction & Certification Form (Table II.2) or equivalent hardcopy or electronic document accompanying the waste. The HWSF will verify that items are properly identified as land disposal restricted (LDR) wastes so that notification is provided to the TSDF in accordance with 40 CFR 268.

(1) Waste Stream Variety: MAFB does not generate pure waste streams as a result of an established process. The waste streams generated at MAFB generally result from various cleaning and stripping processes that are tracked by source of generation.

(2) Testing Rationale: Results of analytical tests may be necessary to determine the types of contaminants, percentage of different chemicals present in waste stream, or to determine the final HW characteristic based

on 40 CFR 261.21 through .24 (ignitability, corrosivity, reactivity, or toxicity).

b) Acceptance

Detailed physical and chemical analysis or information regarding the chemical and physical properties of the waste must be provided to the HWSF with the transfer of the HW. The analysis may include data from analytical testing performed under 40 CFR Part 261, existing published or documented data on the HW, or existing published or documented data on HW generated from similar processes. Information regarding the chemical and physical properties of the waste will generally be based upon SDSs or similar documentation. If wastes are incidental or generated on an irregular basis, the MAFB 341st Civil Engineer Squadron (CES) hazardous waste program manager makes the waste determination using identification by the generator, laboratory analysis, SDSs, or user. HW must be accompanied by a completed HW Profile Sheet identifying generator, waste information including USEPA or state waste codes, chemical/material composition, and other pertinent information.

Existing analyses for HW received previously at the HWSF must be repeated prior to transfer to the HWSF, as necessary, to ensure the analytical data are accurate and up to date. The analyses must be repeated in any of the following situations:

(1) Change in Generating Process: Analyses must be repeated when the CAP Manager is notified (or has reason to believe) that the process or operation generating the HW has changed.

(2) Inconsistency with HWSF: Analyses must be repeated when the results of any HWSF-acceptance inspection indicates that the HW received at the facility does not match the waste designated on the accompanying manifest or shipping paper.

(3) Periodic: Periodic sampling of hazardous waste streams will be conducted by MAFB generators or the CAP prior to transfer to the HWSF according to the parameters of Air Force Instruction AFMAN 32-7002. After initial characterization, hazardous waste processes that generate more than four 55-gallon drums annually will be sampled and analyzed annually. For processes that generate less than four 55-gallon drums annually, the waste will be sampled and analyzed every three years.

For waste processes that are determined to be non-hazardous after initial characterization, the waste will be resampled if the process changes or the shop requests new hazardous materials that affect the process.

c) Acceptance Criteria

The HWSF accepts wastes from a specific waste stream under a specific profile if the wastes contain the same chemical components. Due to the varying nature of the MAFB waste-generating processes, the percentage of specific chemicals may vary significantly for a specific profile. When the profile involves chemical compositions not previous encountered, a new waste profile sheet DLA Form 2511 (Table II.1) or equivalent hardcopy or electronic document, must be submitted.

3. Sources of Waste Stream Generation

40 CFR 264.13(a)(1) and (2)

a) MAFB Waste Streams

MAFB typically generates hazardous waste from maintenance, cleaning, and painting/coating operations. The table below describes the general processes and waste streams.

Waste Stream Process	Waste Stream Description
Helicopter Maintenance	MEK Contaminated Rags, Paints & Thinners, Engine Wash Water
Sign Preparation	Paints & Thinners, Xylene Rags
Vehicle Maintenance	Gasoline Fuel Filters
Vehicle Painting	Paints/ Thinners
Equipment Calibration	Chromate Rags, Sodium Chromate, Battery Fluid
Weapon Maintenance	Alodine Solution, Alodine Rags, Paint and Adhesive Rags, P- Nitrophenol Rags, Mixed Waste
Corrosion Control	Respirator Filters, Paints & Thinners, Paint Rags
Heavy Equipment Maintenance	Gasoline Fuel Filters
Weapon Cleaning	Lead Contaminated Rags, Lead Dust
Missile Field General Maintenance	Battery Fluid, Sodium Chromate Solution, Sodium Chromate Rags, Paint Rags
Armory	Lead Contaminated Rags
Hazardous Waste Collection and Consolidation	Wash Water, Rinse Water, Barrel Residue, Waste Paints & Thinners
Electronics Laboratory	Cork Repair, Sodium Chromate Rags, Alodine Rags
Logistics	Lead Contaminated Rags, Gas Mask Filters
Pharmacy	Empty Coumadin Bottles and Pills

b) MAFB Waste Streams

MAFB currently accepts waste from the missile field. Wastes generated from these sites are infrequent and minimal. These sites are considered Very Small Quantity Generators (VSQG) and will meet the notification requirements for any planned or unplanned episodic events that exceed the waste generation thresholds for VSQGs.

D. HWSF Operating Procedures

40 CFR 270.14(b)(2); 264.13

1. Material Acceptance

40 CFR 270.14(b)(2)

341 CES/CEIEC operates the HWSF. All HW must have a completed HW Profile Sheet (DLA Form 2511 [Table II.1] or equivalent) identifying generator, waste information, including USEPA or state waste codes, chemical/material composition, and other pertinent information. HW identified through generator knowledge will be identified by one of the sources described in Attachment II.3, Paragraph B.1.b., NSN/LSN, EESOH-MIS, or labels. The waste profile must provide supporting information regarding the chemical and physical characteristics of the HW through SDSs or an equivalent document or analytical test results. The HWSF will reject any wastes not accompanied by a complete and accurate waste profile.

2. Identification

40 CFR 270.14(b)(2)

HW transferred to the HWSF must be identified with the amount and type of chemical composition and physical properties. Adequate information must be provided to permit identification of the HW and contaminants being transferred. The HW must be accompanied by a HW Profile Sheet (DLA Form 2511 [Table II.1] or equivalent) and Restricted Waste Notification (Land Disposal Restriction & Certification Form [Table II.2] or equivalent), if necessary, and one or more of the following supporting documents:

- Laboratory analysis
- SDSs
- Label and generator statement certifying material contents or generating process

- DD Form 1348-1 or DD Form 1348-1A Issue Review/Release Document (Table II.3) or equivalent document when necessary, allows DoD to establish a delivery order for the offsite transportation and disposition of the HW.

3. Inspection

40 CFR 264.13(a)(4); 1086(c)(4)

Prior to acceptance for storage, the HWSF personnel visually inspect each HW shipment received at the HWSF to ensure the following:

- Proper identification by the generator, including sufficient documentation to characterize the waste for offsite treatment, storage, or disposal and to segregate waste.

- Proper labeling:

  Labeling should occur at the initial point of generation. RCRA waste codes must be added only before shipping waste off site. In addition, all containers will be labeled in accordance with 40 CFR 262.17(a)(5)(i) to include:

  - The words "Hazardous Waste"
  - An indication of the hazards of the contents (examples include the hazardous waste characteristic(s), hazard communication consistent with 49 CFR part 172 subpart E or subpart F, hazard statement or pictogram consistent with 29 CFR 1910.1200, or chemical hazard label consistent with National Fire Protection Association code 704)
  - The date upon which each period of accumulation begins that is clearly visible on each container

  For containers that have small containers inside (e.g., tubes, vials, etc.), generators can mark the outer/secondary container or attach a tag with the required information. For wastes that are in a container that already has appropriate marking and labeling (e.g., a commercial chemical product in its original container with an intact label), the existing marking and labeling is sufficient, provided it indicates the hazards of the chemical. HW must be packaged in nonleaking, structurally sound containers that are safe to handle.

  - Containers are made of, or lined with, materials that are compatible with the contained hazardous waste.

- Repackage the HW if the container is not in good condition (e.g., severe rusting, apparent structural defects) or if the container is leaking.

- Compliance with air emissions standards for Level 1 containers for containers subject to 40 CFR 264, Subpart CC requirements (unless emptied within 24 hours of receipt):

    - Visual inspection of container, cover, and closure devices is conducted to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position, at the time the HWSF first accept possession of the container.

HW that does not meet these criteria or is deemed by HWSF to require analytical testing for storage or offsite transportation, treatment, or disposal must be rejected and transferred to the MAFB CAP. Alternatively, for Level 1 containers subject to 40 CFR 264, Subpart CC, if a defect is detected in the container, repair to the container will be made within 5 days at the HWSF or contents transferred to an alternative container and documented on DRMS Form 1713 or equivalent form.

4. Condition of Containers

40 CFR 264.171

a) Poor Container Condition

If a container of hazardous waste leaks or is in poor condition (severe rusting, structural integrity compromise), MAFB will transfer the waste from the poor container to a container that is in good condition.

5. Assurance of Waste and Container Compatibility

40 CFR 264.172

a) Regulatory Compliance

HW is stored at the HWSF in the containers in which received unless there is evidence of container damage or leaks. Wastes received in leaking or damaged containers are transferred or over packed into labeled USDOT/UN-approved containers or other equivalent approved packaging. Since HW is only accepted for storage at the HWSF in properly labeled USDOT/UN-approved containers or other equivalent approved packaging, all containers will conform to 49 CFR 173 requirements for shipments and packaging and will be made of, or lined with, materials that are compatible with the contained hazardous waste**.**

b) Waste Identification

All hazardous materials (HM) used at MAFB are identified through shipping labels, SDS, NSN/LSN, or the EESOH-MIS database. 341 CES/CEIEC accepts unused HM and determines if the waste meets the definition of a listed or characteristic hazardous waste. Containers identical to those used to ship the HM, if not the original containers, are used to dispose of the waste.

c) Unknown Waste

Unknown HW is not generally accepted at the HWSF. HW received from a MAFB generator may be sampled and analyzed, as necessary, for proper storage and processing for offsite transportation and disposition at a USEPA-approved or state-authorized TSDF.

d) Segregation

HW is separated upon receipt at the HWSF by type of waste (e.g., ignitable, reactive, or corrosive) and stored in separate modules or closets.

6. Management of Containers

40 CFR 264.173

a) Adding/Removing Waste

A container holding hazardous waste will remain closed during storage unless actively adding, removing, or transferring waste. Containers of hazardous waste will not be opened, handled, or stored in a manner that may cause container rupture or leakage.

7. Precautions to Prevent Accidental Ignition or Reaction of Ignitable or Reactive Wastes

40 CFR 270.14(b)(9); 264.17; 264.176

a) Purpose

The intent of this section is to prevent the ignition or reaction of ignitable, reactive, and incompatible wastes through proper identification, handling, and storing.

b) Identification

(1) Accompanying Documents: All HW transferred to the HWSF must be accompanied by a completed HW Profile Sheet (DLA 2511 [Table II.1] or equivalent). The MAFB generators are responsible for providing

complete information in support of the HW Profile Sheet (DLA 2511, Table II.1 or equivalent) to properly identify ignitable and reactive wastes.

(2) Responsibility for Analyses: The HWSF identifies the waste characteristics through generator documentation and inspection.

(3) HWSF Inspections: Although all material or waste received at the HWSF is prepackaged or comes in sealed containers, HWSF personnel physically inspect all shipments and compare each shipment to its accompanying documentation. Documents used to further assess compatibility of material include*:*

- Chemical Dictionary
- DLA Instruction 14145.11, Storage and Handling Hazardous Materials
- AFI 32-7042 Waste Management
- National Institute of Occupational Safety and Health Pocket Guide to Chemical Hazards, latest edition.

c) Storage at the HWSF

Ignitable, reactive, and incompatible material and wastes are stored in separate storage modules or closets. The flammable storage modules are designed especially for ignitable material and are fitted with explosion-proof fixtures. Each storage area is properly identified to prevent accidental storage of the wrong material.

d) Safety Precautions

(1) Ignition Sources: No open flame, cutting, or welding is allowed within 50 feet of any HW storage area, unless proper fire protection measures are present (i.e., MAFB Fire Department, fire extinguisher).

(2) Smoking: Smoking is prohibited in all DoD facilities, except in specially designated areas. Wherever a hazard exists from ignitable or reactive wastes, "NO SMOKING" signs are conspicuously posted, including on the entrances to the HWSF.

(3) Electrical Fixtures: All electrical outlets and fixtures are grounded and explosion proof where required.

e) Property Boundary

Containers stored in the HWSF that hold ignitable or reactive material or waste must be at least 50 feet from the MAFB property line.

8. Analytical Testing

40 CFR 264.13(a)(1)

No analytical testing is routinely performed at the HWSF. All testing, as needed, is performed by MAFB generators or 341 CES/CEIEC at the CAP prior to transfer to the HWSF. In the unlikely event that testing is necessary, personnel from the 341 CES/CEIEC CAP will be contacted and perform such testing. Emergency provisions for testing waste are included in Section E, HWSF Sampling and Analytical Methodology.

9. Waste Tracking

40 CFR 264.13(a)(1) and (2)

Information obtained from the HW Profile Sheet (DLA 2511 [Table II.1] or equivalent) is entered into an automated tracking system, which is a computer database used by MAFB for management of transferred HW.

10. Recordkeeping

40 CFR 264.13(a)(1) and (2); 268.7

The HWSF maintains the following records:

- HW Profile Sheet – DLA Form 2511 (Table II.1) or equivalent
- Restricted Waste Notification – Land Disposal Restriction & Certification Form (Table II.2) or equivalent
- Supporting waste characterization documentation – SDS or equivalent or analytical test results
- Issue Review/Release Document – DD Form1348-1A (Table II.3) or equivalent
- A copy of the USEPA Universal HW Manifest (EPA Form 8700-22). DEQ does not require the receiving facility or the generator to routinely send a copy of the manifest to DEQ except as outlined in the Manifest discrepancy report or as specifically requested.

The documentation for HW transferred to the HWSF and documentation for the offsite shipment and disposition are maintained at the HWSF and/or the 341 CES/CEIEC in accordance with 40 CFR Part 264 and 268.

E. HWSF Sampling and Analytical Methodology

1. Purpose of Analysis

40 CFR 270.14(b)(2)

HW received at the HWSF is characterized by MAFB generators or at the CAP. HW received at the HWSF that is not sufficiently characterized to allow proper management, segregation and offsite transportation, and/or treatment or disposal will be rejected as described in Section D. Analysis is therefore performed on HW stored at the HWSF on an emergency basis when rejection and return of HW is not possible. The intent of the analyses is to determine underlying hazardous constituents for the purpose of providing information to treatment facilities and evaluation of land disposal restrictions. The sampling and analysis procedures are provided in this section.

2. Analyses

40 CFR 264.13(b)(1)

The following analyses will be utilized in the event that sampling and analysis is conducted at the HWSF. Analytical test methods are performed by an outside laboratory using Test Methods for Evaluating Solid Waste, SW 846, USEPA Office of Water and Waste Management, Washington D.C. 20406, November 1986, and subsequent updates unless otherwise specified. The parameters and rationale for these methods are as follows:

a) Physical Description

A physical description determines the general characteristics of the waste. This parameter facilitates subjective comparison of the sampled waste with prior waste descriptions or samples. Samples are inspected and the physical appearance of the waste is recorded to include as much of the following as possible

- Color
- Physical state (i.e., solid, liquid, or semi-solid)
- Sludge content
- Layering (number of phases)
- Presence and percentage of free liquids.

b) Ignitability

40 CFR 261.21

The flash point characterizes ignitability of liquid wastes to establish proper storage modes and conformance to permit conditions. A waste exhibits the ignitability characteristic if the liquid has a flashpoint <140 °F

(60 °C). Allowable test methods are described in SW 846 Test Methods 1010B (Pensky-Martens Closed Cup Tester) and 1020C (Setaflash Closed Cup Tester). The characteristic of ignitability also applies to the following:

- A non-liquid capable of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns vigorously and persistently
- Ignitable compressed gases
- Oxidizers as defined in 49 CFR 173.127.

c) Corrosivity

40 CFR 261.22

Analysis for pH determines the corrosive nature of the waste. This test applies to aqueous or liquid wastes that were identified during the primary analysis. The test method is described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Publication SW 846. Tests may include one of the following:

- pH of aqueous samples (SW 846 Test Method 9040C)
- Corrosivity towards steel (SW 846 Test Method 1110A).

d) Reactivity

40 CFR 261.23

The test for reactivity applies to wastes that are unknown or were identified during the primary analysis to determine if the product exhibits the characteristic of reactivity. A solid waste exhibits the characteristic of reactivity if the waste has any of the following properties:

- Normally unstable and readily undergoes violent change without detonating
- Reacts violently with water
- Forms explosive mixtures with water
- When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment

- Cyanide- or sulfide-bearing waste which, when exposed to pH conditions between 2.0 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment

- Is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement

- Readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure

- A forbidden explosive as defined in 49 CFR 173.54, or is a Division 1.1, 1.2, or 1.3 explosive as defined in 49 CFR 173.50 and 173.53.

If a waste is suspected to contain cyanide and/or sulfide, the follow tests may be included as part of reactivity characterization:

- Cyanide (SW 846 Test Method 9012B)

- Sulfide (SW 846 Test Method 9030B).

e) Toxicity

40 CFR 261.24

The characteristic of toxicity is defined by the Toxicity Characteristic Leaching Procedure (TCLP). TCLP is used to characterize a solid waste as hazardous or non-hazardous by determining the concentration of contaminants listed in 40 CFR 261.24 Table 1 – Maximum Concentration of Contaminants for the Toxicity Characteristic. The leaching procedure, SW-846 Method 1311, is used to extract metals, volatile organics, semivolatile organics, pesticides, or herbicides from a representative sample. The extract is then filtered and analyzed according to common solid waste analysis methods, as shown in paragraphs (1) through (5) below.

(1) TCLP Metals Extraction: Analysis is performed on an extract using SW 846 Test Methods 6010D and 7470A when the following heavy metal contaminants are suspected:

- Arsenic
- Barium
- Cadmium
- Chromium
- Lead
- Mercury
- Selenium
- Silver

(2) TCLP Pesticides Extraction: Analysis is performed on an extract using SW 846 Test Method 8081B when testing wastes originating from pesticide operations for:

- Chlordane
- Heptachlor
- Methoxychlor
- Endrin
- Lindane
- Toxaphene

(3) Herbicide TCLP Extraction: Analysis is performed on an extract using SW 846 Test Method 8151A when testing wastes originating from vegetation control operations suspected to contain herbicide compounds:

- 2,4-D
- 2,4,5-TP Silvex

(4) Base Neutral Organics TCLP Extraction: Analysis is performed on an extract using SW 846 Test Method 8270E when wastes are the result of soil and groundwater contamination involving oil products for:

- 2,4-Dinitrotoluene
- Hexachloro-1,3-Butadiene
- Hexachlorobenzene
- Hexachloroethane
- Nitrobenzene
- Pyridine

(5) Acid Extractable Organics TCLP Extraction: Analysis is performed on an extract using SW 846 Test Method 8270E from wood treatment products and selected stripping processes where the product is unknown for:

- Cresols (m, p, o)
- Pentachlorophenol
- 2,4,5-Trichlorophenol
- 2,4,6-Trichlorophenol

(6) VOCs TCLP Extraction: Analysis is performed on an extract using SW 846 Test Method 8260D when VOC contaminants are suspected for:

- Carbon tetrachloride
- Chlorobenzene
- Chloroform
- 1,4-Dichlorobenzene
- 1,2-Dichloroethane
- 1,1-Dichloroethylene
- Methyl ethyl ketone
- Tetrachloroethylene
- Trichloroethylene
- Vinyl chloride

f) Polychlorinated Biphenyl (PCB) Analysis

Analysis SW 846 Test Method 8082A identifies and quantifies the presence of PCBs. The test applies to oily liquids drained from transformers, ballast, or other electronic components.

g) Gas Chromatography/Mass Spectrometry Purgeable Organics

The gas chromatograph/mass spectrometry purgeable organics analysis identifies the solvents present in oily wastes. This test applies to wastes potentially containing chlorinated solvents based on generator's notification of solvents used with that specific process. This test using SW 846 Test Method 8260D will be primarily used to determine the presence of the following priority purgeable organics:

- Benzene
- Bromobenzene
- Bromochloromethane
- Bromodichloromethane
- Bromoform
- Bromomethane
- Carbon tetrachloride
- Chloroethane
- Chlorobenzene
- 2-Chloroethylvinylether
- Chloroform
- Chloromethane
- 2-Chlorotoluene
- 4-Chlorotoluene
- Dibromochloromethane
- 1,2-Dibromoethane
- Dibromomethane
- 1,2-Dichlorobenzene
- 1,3-Dichlorobenzene
- 1,4-Dichlorobenzene
- Dichlorodifluoromethane
- 1,1-Dichloroethane
- 1,2-Dichloroethane
- 1,1-Dichloroethene
- cis1,2-Dichloroethene
- Trans1,2-Dichloroethene
- 1,2-Dichloropropane
- 1,3- Dicholorpentane
- 2,2-Dichloropropane
- 1,1-Dichloropropene
- cis-1,3-Dichloropropene
- trans-1,3-Dichloropropene
- Ethyl benzene
- Methylene chloride
- Methyl ethyl ketone
- Styrene
- 1,1,2,2-Tetrachloroethane
- 1,1,2,2-Tetrachloroethane
- Tetrachloroethene
- Toluene
- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- Trichloroethene
- Trichlorofluoromethane
- 1,2,3-Trichloropropane
- Vinyl chloride
- Xylene

h) Listed and Solvent Analysis

This analysis applies to solid or semi-solid wastes going to an offsite permitted TSDF for land disposal. It quantifies and identifies F-Listed solvents using SW 846 Test Method 8260D or equivalent. This test will be conducted on all unknown wastes or where SDS indicated the presence of compounds not otherwise tested for to determine percent present. This test would be used to determine presence of F001, F002, F003, F004, and F005 solvents.

i) Paint Filter Liquids Test

This method is used to determine the presence of free liquids in containerized material when existence is not readily known using SW 846 Test Method 9095B.

j) Wastewater and Nonwastewater Determination

This test is applied to all samples to ensure that the proper treatability group is selected for HW notifications.

(1) Nonwastewaters: Nonwastewaters are wastes that do not meet the criteria for wastewaters as defined in 40 CFR 268.2(f).

(2) Wastewaters are wastes that contain less than 1% by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (TSS), as defined in 40 CFR 268.2(f)..

(3) Test Methods: Test methods for determining wastewater and nonwastewater when not apparent include:

- Total Organic Carbon – SW 846 Test Method 9060A or EPA 415.2
- Total Suspended Solids – EPA Method 160.2 or Standard Method (SM) 2540D.

k) Total Organic Halogens (TOX, TX, or EOX)

This test applies to solid, semi-solid, and liquid wastes. SW 846 Test Method 9020B or equivalent will be performed on wastes which are not otherwise land restricted.

3. Sampling Procedures

40 CFR 264.13(b)(3); 264.13(c)

a) Generator (MAFB) Activities

Representative samples, as defined by 40 CFR 260.10, may be taken by trained personnel to attain HW characterization data adequate for HWSF acceptance and to facilitate offsite transportation and disposition. All sampling personnel are U.S. Air Force trained in sampling procedures. Features relevant to sampling are described as follows:

(1) Accepted Containers: Waste types managed for sampling primarily involve liquids in 55-gallon drums but may include sludges and packed solids in 55-gallon drums and other containers.

(2) Time of Sampling: If sampling is necessary, it will be performed as soon as possible after the containers arrive.

(3) Sampling Devices: Sampling is conducted from containers, most of which are 55-gallon drums (ref: SW-846, Volume 2, Paragraph 9.2.3). The sampling device for liquids is a disposable glass Coliwasa tube, or disposable pump, which collects representative samples from a drum (40 CFR 261 Appendix I). A top to bottom representative sample is taken of liquid and semi liquid wastes using Coliwasa tubes. Representative grab samples are taken for solid wastes.

(4) Sample Preservation: Sample preservation will be performed according to method specifications. Samples are placed in coolers and cooled using chemical cool packs. Samples are shipped to a laboratory within 24 hours of being taken. If a delay in shipment occurs, a new sample is taken and the old sample is returned to the waste stream.

(5) Safety: Splash gear is worn to protect all parts of the body; eye goggles or a face shield is also worn.

(6) USEPA Protocol: Sampling procedures are in accordance with USEPA SW 846 methodology. The volume of sample depends on analysis method and will be determined with the help of the contracted laboratory. Recommended sample containers, preservation techniques, and holding times are provided in SW 846.

(7) Sample Disposition: All samples are sent off-MAFB to a laboratory for testing. The disposition of the samples is the responsibility of the receiving laboratory.

(8) Shipping Criteria: All applicable USDOT and USEPA rules on shipping are followed when shipping samples.

(9) Sampling Results: Sample results will be tracked and filed by the HWPM.

b) Sampling Activities

Samples collected for HW stored at the HWSF will be performed by 341 CES/CEIEC personnel or contractors.

c) HWSF Personnel Activities

HW transferred to the HWSF is verified as described in Paragraphs B and E. HW transferred to the HWSF is accompanied by a HW Profile Sheet (DLA 2511 [Table II.1] or equivalent). HWSF personnel verify that the physical characteristics of the material match the description on the HW

Profile Sheet. In addition, the following methods of verification may be used:

(1) Labels and Markings: HWSF verifies that labels and markings on each container transferred are consistent with USDOT Identification and/or equivalent accompanying documentation.

(2) Chemical Warfare Materials: Shelf-life chemical warfare materials are characterized using SDS and DoD Guidance for Chemical Defense Equipment Kits. Components in the kits with different hazard classes are required to be separated and repackaged for disposal.

(3) Expired Shelf-Life Materials: Unopened, expired shelf-life materials are characterized using SDS and label information. Verification of these wastes consists of opening selected containers and verifying the materials inside are unopened and match the description on the waste profile sheet.

(4) Other Waste: Other types of HW from generators require lab testing for verification.

F. Quality Assurance and Quality Control

40 CFR 270.14(b)(3); 264.13(b)

1. Purpose

The primary purpose of the Quality Assurance and Quality Control Program is to ensure that selected outside laboratories and sampling personnel perform accurate sampling and testing that provides consistent and legally defensible results. Laboratories utilized by MAFB follow analytical methods, including quality control protocols, published in USEPA SW-846.

2. Sampling Techniques

Quality assurance/quality control sampling procedures are in accordance with methods specified in USEPA SW-846. For attaining representative liquid samples, a full-range sample is taken so that all layers of the waste can be evaluated. For solid samples, a grab sample is taken that characterizes the majority of the waste.

3. Equipment

The sampling device is most often a disposable glass Coliwasa tube or disposable sampling pump that collects representative samples from a drum, but in any case, a suitable sampling device will be selected from those listed in 40 CFR 261 Appendix I. Splash gear is worn to protect all parts of the body, to include eye goggles or face shield**.**

4. Selection of an Outside Laboratory

Any analytical work supporting operation of the HWSF will be conducted by contract laboratories obtained by a competitive bidding process through either Purchase Orders or Blanket Purchase Agreements or by government credit card. The contracting process is governed by the Federal Acquisition Regulations. Laboratory services in addition to those contracted may be attained from the US Army Public Health Command. In order to be selected, laboratories must follow analytical methods, including quality control protocols, published in USEPA SW846.

5. Chain-of-Custody Procedures

a) MAFB Procedures

During sampling, conditions and activities related to each sample collected are recorded in a bound field notebook. Each sample is placed into an appropriate container (size, composition, preservative) labeled to identify the name of sample collector, barrel number, date drawn, waste type, and analyses requested. Samples remain in the custody of the designated custodian until delivery to the laboratory sample custodian or the carrier. A chain-of-custody (COC) form, with content similar to the example shown in Table II.4, is initiated by the sample collector, shipped with the samples, and completed by laboratory custodian. All COC forms, shipping documents, funding sheets, and laboratory results are filed and maintained as required. Laboratories receiving samples for analysis will contact the shipper of the sample to verify that the samples have been received. If confirmation has not been received within 3 days following shipment, MAFB personnel will contact the laboratory to verify receipt.

b) Procedures if Contractor Collects Samples

Contractors collecting samples at the HWSF are required to prepare a Sampling and Analysis Plan that is reviewed and approved by MAFB prior to sample collection. While the contractor remains responsible for the COC and sample integrity from collection to analysis, MAFB is ultimately accountable for the results of the contractor's work and therefore maintains oversight throughout the process.

c) MAFB Transmittal Documentation

The MAFB Transportation Management Office (TMO) uses DD Form 1149, Table II.12, or an equivalent document for their own control of all sample shipments to an offsite laboratory.

6. Data Processing

Final analysis reports are provided by the selected laboratory and kept on file in the 341 CES/CEIEC office.

G. Land Disposal Restrictions (LDR)

40 CFR 268

1. Purpose

Certain HW are restricted from land disposal. HW must meet LDRs based upon concentration levels or methods of treatment established by USEPA, 40 CFR 268. The LDR requirements include requirements for generators to make LDR determinations; maintain documentation for testing, tracking and recordkeeping; and meet storage requirements. MAFB will maintain documentation provided by the generator and meet the storage requirements.

2. Applicability

The LDR requirements apply to generators of HW.

3. Notification Received from Generator

a) Determination

For each HW generated, the generator must determine whether the waste is subject to the LDR rules. To assist in this process, the generator should determine:

- All applicable USEPA HW codes.
- Applicable treatment standards or prohibition levels, depending on the waste classification (e.g., wastewater or nonwastewater) and subdivisions made within a waste code base on waste-specific criteria (e.g., D003, reactive cyanides).
- Regulated constituents and what concentrations are present in the waste.
- Comparison of treatment standards or prohibitions levels to constituents and their concentrations in the waste. The generator can also make LDR determinations based on knowledge of the wastes using SDS, by conducting a total waste analysis, or by testing the waste extract resulting from the TCLP. If the generator uses his knowledge of the waste to determine whether the waste is restricted from land disposal, the generator must maintain records

at the facility of all supporting data used to make the determination (40 CFR 268.7(a)(5)).

b) Documentation

DLA Form 2511, Hazardous Waste Profile Sheet (Table II.1), describes the contents of the Waste Profile Sheet required for transfer of HW to the HWSF. An equivalent document in either hard copy or electronic form is also acceptable for use.

Land Disposal Restriction & Certification Form (Table II.2), or equivalent form containing required information, must also be prepared by the generator for all HW transferred to the HWSF. The notice contains the following information:

- USEPA HW Code(s).
- The Treatment Subcategory – Subdivision made within an HW code based on waste-specific criteria (e.g., D003 reactive cyanides, ignitable liquids, acid corrosives).
- Treatability Group – Classification of the waste as wastewater, 40 CFR 268.2(f) or nonwastewater, 40 CFR 268.2(d).
- Standard or Reference – For waste codes F001 through F005 and F039, the treatment standards or prohibition levels specific to the constituent contained in the waste must be listed on the notification. The standards for all other restricted wastes either must be included or reference the CFR section and paragraph where the treatment standards appear. Where the applicable treatment standards are expressed as specified technologies in 40 CFR 268.42, the applicable five-letter treatment code found in Table 1 of 40 CFR 268.42 also must be listed on the notification.
- Variance Data – If wastes subject to an extension to the effective date are disposed in a landfill or surface impoundment, the unit must meet the minimum technological requirements of 40 CFR 268.5(h).

c) Certification

Certification statements signed by a representative that states that the waste meets the treatment standards and that the information included in the notice is true, accurate, and complete may be provided by the generator for wastes below the LDR levels. [40 CFR 268.7(a)(3)]

4. Methods to Determine Applicable Treatment Standards

HW generated on site is characterized using SDS or laboratory analysis. The following data will be collected for each HW to determine applicable treatment standards:

- USEPA HW codes that apply to each HW
- Treatment subcategory
- Treatability group by ascertaining if the waste is wastewater or nonwastewater
- Technology-based treatment standard (if it exists) for each HW code per 40 CFR 268.42 to determine the five-letter treatment codes or standards.

For any HW that is listed under both 40 CFR Part 261, Subparts C and D, if the treatment standard for the waste code listed in Subpart D includes a treatment standard for the constituent that causes the waste to exhibit the characteristic, then the treatment standard for the listed waste (i.e., F, K, P, and U wastes) will operate in lieu of the treatment standard for the characteristic waste code. In addition, if the waste exhibits a characteristic not addressed in the treatment standard specified for the 40 CFR 261, Subpart D waste code, the treatment standard established for the characteristic waste code and the treatment standard for the listed waste must both be met.

5. Confirmation Testing of Received Wastes

Section C describes the Operating Procedures for wastes transferred to the HWSF. As discussed, laboratory analysis or other documentation will be used to determine if an HW meets the treatment standards. All HW determined not to meet the LDRs will be transported off site and treated at a USEPA-approved or state-authorized TSDF prior to land disposal. Copies of all notices, certifications, demonstrations, waste analysis, and other supporting data in characterizing waste transferred to the HWSF will be retained on site for at least 3 years.

6. Storage of Wastes Restricted from Land Disposal

40 CFR 268.50

HW restricted from land disposal stored at the HWSF will be stored in accordance with the requirements of 40 CFR 268.50.

a) Storage Requirements

HW restricted from land disposal will be stored in containers solely for the purpose of accumulation of such quantities of HW as necessary to

facilitate proper disposal. The container will be clearly marked to identify its contents and the date each accumulation period begins at the HWSF.

b) Storage Timeframe

Generally, the HWSF will store HW restricted from land disposal for up to 1 year. MAFB may store HW beyond 1 year solely for the purpose of accumulating sufficient quantities of restricted HW as are necessary to facilitate proper disposal. Documentation demonstrating sufficient quantities of restricted HW for proper disposal will be based upon review of records maintained at the HWSF.

c) Prohibition on the Storage of Liquid PCBs

No liquid HW containing PCBs at concentrations greater than or equal to 50 ppm will be stored at the HWSF.

Attachment II.4
Preparedness and Prevention Plan

Table of Contents

Attachment II.4
Preparedness and Prevention Plan

A. Inspection Schedule

40 CFR 264.15; 264.174

1. Purpose

a) Inspection Plan

The inspection plan is intended to detect and prevent system and equipment malfunctions and deterioration, operator errors, and unplanned discharges, which without corrective action may lead to a release of HW constituents to the environment or a threat to human health at the HWSF. The inspection plan includes regular inspections of the Subpart CC containers. The inspections are documented on the HWSF Inspection Log, Table II.5 or equivalent.

b) Inspection Schedule

The HWSF is routinely inspected for container storage, structural deterioration, unauthorized discharges, safety issues, equipment malfunctions, and security concerns. The inspection schedule is based on operational experience and engineering knowledge of the rate of possible structural and container deterioration. The schedule includes the items to be inspected, the potential issues associated with each item, the frequency and time of the inspection, and identification of corrective actions. The areas of the HWSF where ignitable or reactive wastes are stored are inspected at least annually by the MAFB Fire Department for compliance with MAFB fire codes**.** The loading/unloading area at the HWSF will be inspected daily when waste is being transferred to or from the facility and is included in the HWSF Inspection Log, Table II.5.

c) Remedial Action

Minor leaks that require only level D personal protective equipment will be handled by onsite personnel. Major leaks or spills will be addressed by non-HWSF personnel and will activate the HWSF Contingency Plan.

2. Container and Container Area Inspections

40 CFR 264.174 and Subpart CC

a) Inspection

All items on the HWSF Inspection Log, Table II.5 (or equivalent) will be inspected by employees trained in conducting inspections for HW

management. The condition of the hazardous waste containers and the environment around the containers will be inspected weekly (40 CFR 264.174). These inspections include inspecting the sump in the unloading area, secondary containment areas, curbs, roof, walls, lighting and compliance with air emissions requirements under 40 CFR 264, Subpart CC for Level 1 containers. The following items will be checked during the inspection:

- Condition of containers
- Closure of all containers
- Labeling/marking
- Container segregation and adequacy of aisle space
- Presence of adequate signage
- Evidence of:
    - Leaks
    - Odors
    - Tampering
    - Damage
- Condition of the containment area
- Compliance with air emission requirements for Level 1 containers:
    - Meet USDOT standards (49 CFR Parts 173, 178, 179 and 180);
    - Have a cover and closure device that forms a continuous barrier over the container so that there are no visible gaps; or
    - Be an open-top container that has a barrier placed on or over the hazardous waste that suppresses organic vapors so that no hazardous waste is exposed to the atmosphere.

b) Documentation

Inspection results will be documented on the HWSF Inspection Log (Table II.5, or equivalent), and maintained at the HWSF for at least 3 years. The following minimum entries must be made:

- Inspector's name and signature
- Date and time of inspection
- Satisfactory and unsatisfactory conditions
- Location and observations of unsatisfactory items
- Date and nature of corrective action

c) Corrective Actions

Upon identification of an unsatisfactory item, the inspector will identify the nature of the issue and take corrective action as follows:

(1) Non-Emergency Response: If an inspection identifies a non-emergency, unsatisfactory condition that requires maintenance, the hazardous waste inspector is authorized to initiate action to take corrective action to remedy the unacceptable conditions.

(2) Emergency Response: If a hazard or emergency is imminent or has already occurred during the course of an inspection, or any time between inspections, the hazardous waste inspector will take immediate corrective action in conformance with the HWSF Contingency Plan.

3. Items Inspected

a) Location

In addition to the HWSF areas and conditions outlined in the HWSF Inspection Log (Table II.5), Figures II.6 (telephone locations), II.7 (fire control equipment locations), and II.8 (emergency equipment locations) show additional locations of items requiring inspection.

b) Inspecting Agencies

(1) Inspection Log Items: HWSF personnel inspect items listed on the HWSF Inspection Log, Table II.5, and report discrepancies for corrective action. Corrective actions are accomplished by HWSF staff for container or waste issues. Facility issues are addressed by submission of a work order to 341 CES Customer Service Section to effect repairs or corrective actions. Corrective actions are noted in the inspection log when completed.

(2) Alarm and Fire Protection Systems: All alarm and fire protection systems are maintained by MAFB according to AF directives and OSHA standards. Alarm and fire protection systems are inspected annually by a qualified fire protection systems technician and are shown on Figures II.7 and II.8.

B. Inspection Logs and Emergency Response Equipment

1. Purpose

The HWSF Inspection Log (Table II.5), or an equivalent document, is designed to address all pertinent items/features of the equipment, including communication devices, to ensure safe operation and readiness. The HWSF Inspection Log is periodically updated and modified to accommodate the changing needs of the

facility. The inspections are performed periodically on a daily, weekly, or monthly basis depending on the type of item being inspected. At a minimum, the following are performed monthly: testing the communication alarm, fire control equipment, spill control equipment, and decontamination equipment.

2. Responsibility

a) Hazardous Waste Program Manager (HWPM)/Environmental Protection Specialist (EPS)

The HWPM/EPS is responsible for the implementation of the inspection program. He/She has the training and authority to implement the required inspections, perform necessary evaluations and hazard assessments, and recommend appropriate corrective actions.

b) Other

Specific duties may be delegated by the Chief, Environmental Compliance (341 CES/CEIEC) to employees under his/her supervision who are trained to perform such duties.

3. Emergency Equipment

40 CFR 264.32(c)

Tables II.6 through II.9 identify the emergency response equipment available at MAFB and the HWSF to respond to emergency situations.

C. Prevention Procedures Structures and Equipment

40 CFR 264.31

1. Operations

HW is transported to and from the HWSF in small trucks and flatbed trailers. All HW is containerized, primarily in steel drums. Loading and unloading operations are conducted in the unloading area of the HWSF. This area is constructed of concrete and slopes to a blind sump. Only properly trained personnel using forklifts equipped with special drum handling devices are allowed to load and unload vehicles. Prior to loading and unloading, containerized waste is inspected for leaks or damage. The containers are stored such that content identification labels are visible. If liquid accumulates in the containment area or sump, it will be pumped with a portable sump pump into drums. Equipment used to remove the liquids will be decontaminated after use. If the spilled liquid is unknown, it will be analyzed in accordance with the WAP, described in Attachment II.3.

2. Runoff Prevention

The HWSF, including the loading and unloading area, is an enclosed building. The floors of the entire facility are concrete that is either seamless or sealed seam construction. Additional features include the following:

a) Containment Curbs

All storage areas within the facility are contained by 6-inch high integral curbs so that sufficient capacity exists to hold 10 percent of all the stored waste or 100 percent of the largest container within a storage area. The loading/unloading area has curbs on three sides and slopes to a blind sump in the containment area.

b) Sumps

The floor of the loading/unloading area slopes to a containment sump. There are no sumps in the container storage area or bays.

c) Floor Slopes

The container storage areas have a concrete secondary containment under each container storage location. The storage facility bays are self-contained and the floor slopes into each bay from the adjoining hallway.

3. Water Supplies

Contamination of water supplies is prevented through use of secondary containment structures (i.e., integral curbs and sumps) and proper waste handling practices for storage, loading, and unloading operations.

The secondary containment structures and surrounding areas are inspected once a week for cracks, gaps, integrity, and evidence of leaks or spills. The protective coatings on the pads, where applicable, are also inspected regularly and repaired, as necessary. Cracks and gaps are sealed using injected epoxy where appropriate.

4. Equipment and Power Failure

In the event of a power failure, facility personnel are instructed to shut down all operations, including loading or unloading, if safety is impacted. A power failure during non-operational hours would not impact the facility since all operations will have been shut down and secured.

5. Personnel Protection

Personnel protection is provided to prevent undue exposure of facility personnel to HW. This is accomplished through facility layout and design, waste management equipment and practices, employee training and use of proper

protective clothing and equipment as required. Primary measures to protect personnel include the following:

a) Secured Containers

All container lids are kept closed except when sampling or verifying waste contents.

b) Personnel Training

All personnel handling HW are provided with and required to complete training in the management and proper safe handling of HW. No employee is permitted to work unsupervised until he/she has completed training.

c) Protective Clothing

While engaged in loading or unloading operations personnel are directed to wear steel-toed boots, chemical-resistant gloves, and eye/face protection, as necessary.

d) Administrative Area Segregation

Administrative activity areas not directly involved with the transfer or storage of hazardous waste are not located within the active portions of the HWSF.

e) Visitor Escorts

Authorized visitors must sign in and be escorted or under observation of HWSF personnel while in the HWSF.

6. Fire Prevention

Features to mitigate any fire hazard at the HWSF include the following:

a) No Smoking

Smoking is prohibited at the facility except in designated areas.

b) Fire Extinguishers and Sprinklers

All storage areas are equipped with fire extinguishers or sprinkler systems in the event of a fire. The locations of this equipment are shown on Figure II.7.

c) Fire Alarm System

The HWSF is equipped with an alarm system connected directly to the MAFB Fire Department.

d) Personnel Training

All personnel are briefed on required actions in the event of a spill, fire or explosion**.**

e) Loading/Unloading

All loading/unloading is performed within the HWSF. Curbs on all four sides slope inward to a blind sump. Palletized drums are unloaded by forklifts and individual drums are loaded/unloaded using drum forks. The facility has ramps to allow forklift access throughout. Only properly trained personnel are authorized to operate the forklifts.

D. Security Procedures and Equipment

40 CFR 264.32; 264.34; 264.35; 264.37

1. Barrier and Means to Control Entry

a) Fence and Lighting

The HWSF is surrounded by a 6-foot high chain-link fence with standard barbed-wire outriggers on all sides. Access is controlled by gates that are kept closed when HWSF personnel are not present. Exits and entrances are located to control traffic flow, limit access to the active area of the facility, and provide emergency escape. The storage yard is illuminated by automatic outdoor lighting.

b) Restricted Access

Parking for employees and visitors is located outside the gated area surrounding the HWSF. Access into the HWSF is restricted to waste transportation vehicles and authorized personnel and visitors. Visitors requiring access to the HWSF must first sign in at the office. All gates are closed and locked after operating hours. Only authorized personnel are issued keys. Issued keys are logged.

c) Security Forces

Facility security is provided 24 hours per day by MAFB Security Forces. Security personnel are knowledgeable of base procedures for notifying the MAFB Fire Department, MAFB staff personnel, and HWSF staff in emergency situations.

d) Warning Signs

Warning signs are posted in English with the legend, "Authorized Personnel Only." Signs are posted on the gates into the HWSF and "Warning – Unauthorized Personnel Keep Out" signs are posted on the HWSF. The signs are visible from a distance of 25 feet and from all approaches to the facility and are attached to the lightning protection poles**.**

e) HWSF

Access to the HWSF is also restricted. The building is always locked when not occupied.

2. Internal Communications

40 CFR 264.32(a)

a) Equipment

The HWSF is equipped with a facility-wide telephone system. The approximate location of the closest phone to the entry/exit of the HWSF is provided in Figure II.6.

b) Telephone/Alarm Capabilities

Each telephone located at the HWSF and throughout the complex is capable of reaching emergency response groups such as police, fire department, and ambulance directly**.**

c) Telephone/Alarm Access

Immediate access to all telephone and alarm systems is available to employees at the facility. There is one telephone located at the front personnel entrance of the HWSF and other telephones are located throughout the complex to summon emergency help in the event it is needed.

3. External Communications

40 CFR 264.32(b)

External communication is available through two-way radio and cell phones.

4. Emergency Equipment

40 CFR 264.32(c)

Equipment used for spill and emergency response is readily available and inspected as specified in the HWSF Inspection Log (Table II.5), or equivalent document, for access and operability. Spill response equipment including absorbent materials, overpack drums, and various hand tools are stored in the HWSF. Mobile equipment such as trucks and forklifts are also available. Figures II.6 through II.8 indicate the locations of telephones, fire control equipment, and emergency spill response equipment, respectively. Lists of available emergency response equipment at MAFB and the HWSF are presented on Tables II.6 through II.9.

5. Water for Fire Control

40 CFR 265.32(d)

The HWSF has a fire sprinkler and alarm system that automatically notifies the MAFB Fire Department if the fire sprinkler system or alarm is activated. Fire extinguishers are available throughout the HWSF. The MAFB Fire Department can access all areas of the HWSF from the perimeter.

a) Sprinkler and Alarm System Features

The fire detection and alarm systems at the HWSF have the following features:

(1) Fire Water Flow Data:

- System Type: Dry
- Pneumatic Pressure: 68 psi
- Residual Pressure: 22 psi
- Flow: 787 gallons per minute.

(2) Sprinkler System: The sprinkler system is not connected to the electrical power system at MAFB. Therefore, there is no effect from a power outage.

(3) Fire Alarm System: The fire alarm control panel is equipped with backup battery power (duration 48 hours) in the event of a power outage.

b) System Maintenance

All alarm systems and fire protection equipment are maintained by the MAFB Fire Department or Civil Engineer shops on a recurring maintenance basis. Communication devices are maintained by the appropriate maintenance personnel.

6. Aisle Space Requirements

40 CFR 264.35

a) Inspection and Access

Adequate aisle space is provided for inspection of the storage area as well as access for forklifts.

b) Emergency Equipment

Adequate aisle space is provided for unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in an emergency**.**

c) Emergency Response Agreement

40 CFR 264.37

Emergency response is provided by MAFB police, fire, and medical personnel. Letters of agreement for mutual aid with the Great Falls Fire Department, local hospital and ambulances are maintained by the MAFB Fire Department, MAFB Clinic, and Base Disaster Preparedness Office.

E. Prevention of Reaction of Ignitable, Reactive, and Incompatible Wastes

1. Purpose

The intent of this section is to determine proper identification, handling, and storing procedures that will prevent the ignition or reaction of ignitable, reactive, and incompatible wastes.

2. Identification

All material or waste received at the HWSF is prepackaged or comes in sealed containers and must be accompanied by a Hazardous Waste Profile Sheet DLA Form 2511 (Table II.1) or equivalent, and SDS. MAFB personnel are required to physically inspect all shipments and compare it to accompanying documentation. Documents used to identify and assess compatibility of material include:

- Chemical Dictionary
- AFMAN 32-7002
- National Institute of Occupational Safety and Health Pocket Guide to Chemical Hazards, latest edition.

3. Storage

Ignitable, reactive, and incompatible material and wastes in the HWSF are stored in separate storage modules or closets. Each of the storage modules and closets have their own individual secondary containment areas. The flammable storage modules are designed especially for ignitable material and are fitted with explosion proof fixtures.

Each storage area is properly identified to prevent accidental storage of incompatible material. All containers are kept closed except when being inspected or sampled. Wastes are not typically mixed at the facility in order to reduce potential for chemical reactions. Only when preparing lab packs will wastes be mixed. Lab packs are only prepared by trained personnel having knowledge of HW constituents. Only wastes with known characteristics will be lab packed. Only new/clean containers will be used for lab packs.

4. Safety Precautions

40 CFR 264.17(a)

a) Ignition Sources

No open flame, cutting, or welding is allowed within 50 feet of the HWSF, unless proper fire protection measures are present. The MAFB Fire Department will determine the level of fire protection appropriate for any proposed cutting or welding operation in or near the HWSF and provide necessary equipment (i.e., fire truck, fire extinguisher, etc.).

b) Smoking

Smoking is prohibited in all DoD facilities, except in specially designated areas. Wherever an ignitable or reactive source is present, "No Smoking" signs are posted. At the HWSF, "No Smoking" signs are posted at entrances to the HWSF.

c) Electrical Fixtures

All external electrical outlets and fixtures are grounded and explosion proof where required.

5. Property Boundary

40 CFR 264.176

The HWSF Site Plan for MAFB, Figure II.4, shows that the containers holding ignitable or reactive material or waste are at least 50 feet from the MAFB property line.

Attachment II.5
Personnel Roles and Training

Table of Contents

Attachment II.5
Personnel Roles and Training
40 CFR 270.14(b)(12) and 264.16

A. General Description

40 CFR 264.16

1. Overview

a) Personnel Preparation

The training program prepares personnel to operate the HWSF in a safe manner and in compliance with regulatory requirements. The program includes instruction on HW management and the Permit Contingency Plan, Attachment II.6, including instruction on responding effectively in emergency situations through familiarization with emergency procedures, emergency equipment, and emergency situations, as applicable. The type and amount of training is based upon positions to which personnel are assigned. Only personnel who have received USDOT hazardous materials training (HAZMAT) and who have been delegated responsibility in writing are authorized to sign hazardous waste manifests**.**

b) Training Types

The training program includes supervised on-the-job training (OJT) and formalized classroom training on HW handling for personnel working with HW. The program addresses the following types of training:

- General introduction to HW management
- Instruction on types of HW and precautions to be taken during handling
- Instruction on proper storage, handling, and recordkeeping
- Emergency response
- HW Contingency Plan including emergency response procedures, equipment, and situations, as applicable
- Job-specific training
- Refresher training, as needed.

2. Implementation of Training Program

40 CFR 264.16(a)(2), (b), (d)(3), (d)(4) and (e)

a) Personnel Orientation

Within 6 months of the date of employment or transfer to the HWSF, all employees involved in HW handling will receive OJT and classroom training for proper handling, storage, and recordkeeping. This includes the introductory training listed in this Attachment II.5, Section C.

b) On-The-Job Training (OJT) Instruction

OJT instruction requires each employee to read and understand the HW Contingency Plan and become familiar with the procedures for receipt, handling, storage, inspection, and offsite transportation and disposition of HW.

c) Annual Refresher Training

Annual HW and Hazardous Waste Operations and Emergency Response (HAZWOPER) refresher training will be accomplished as specified in 40 CFR 264.16 and 29 CFR 1910, as described in this Attachment II.5, Section C.

d) Training Responsibility

It is the responsibility of 341 CES/CEIEC to ensure that HWSF personnel receive the proper OJT and classroom training.

(1) Training Director: The Chief, Environmental Compliance (341 CES/CEIEC) or his/her designee is responsible for identifying the proper training and ensuring that classroom and OJT is conducted.

(2) Course Selection: The Chief, Environmental Compliance (341 CES/CEIEC) or his/her designee has an extensive working knowledge of the operations of HW facilities and the RCRA regulations. The Chief, Environmental Compliance (341 CES/CEIEC) or his/her designee will select relevant courses to conform to the training required by applicable regulations.

e) Training Documentation

Successful completion of classroom instruction and OJT, including any refresher training, is verified by a certificate issued to an employee, course of OJT training record, or document of classroom or other training, including electronic documents demonstrating successful completion of the required training. Training records for facility personnel are kept at

the 341 CES/CEIEC offices and include the job title, name of employee, and job description. AFMAN 32-7002 requires that installations with Part B permitted TSDFs maintain all facility records past the closure of the facility and in accordance with the AF Records Disposition Schedule (50 years). OJT training is part of day-to-day work activities and is not specifically documented.

B. Personnel Duties, Job Descriptions and Requisite Qualifications

40 CFR 264.16(d)(1) and (2)

1. Chief, Environmental Compliance (341 CES/CEIEC)

The Chief, Environmental Compliance (341 CES/CEIEC) has ultimate responsibility for management and compliance at the HWSF. He/She oversees management of all personnel and operations at the HWSF. He/She reports to Chief, Environmental 341 (CES/CEIE).

a) Role

The Chief, Environmental Compliance (341 CES/CEIEC) has ultimate responsibility for management of operations at the HWSF, compliance with laws, regulations, and permit conditions, and safe and efficient operation.

b) Duties

The Chief, Environmental Compliance (341 CES/CEIEC) oversees management of operations at the HWSF, including overseeing interpretation of applicable regulations, this permit, and the technical guidance provided to HWSF personnel. The Chief, Environmental Compliance (341 CES/CEIEC) also oversees work force, space, equipment, and budgets for the operation of the CES.

c) Specific Skills Required

The Chief, Environmental Compliance (341 CES/CEIEC) is required to possess a thorough knowledge of AF and MAFB policies and procedures and all applicable local, state, and federal laws and regulations. He/She must have an ability to communicate effectively, both orally and in writing, and establish effective working relationships with operational groups, customers, and regulators. The Chief, Environmental Compliance (341 CES/CEIEC) must have an ability to oversee the HWSF and HWSF personnel, including determining proper identification and condition of HW and having knowledge of procedures to be followed for receipt, segregation, identification, classification, compatibility storage, processing, and disposition of HW.

d) Education and Experience Required

The Chief, Environmental Compliance (341 CES/CEIEC) must have knowledge of MAFB policies and procedures and all applicable local, state, and federal laws and regulations.

e) Working Conditions

No specific work conditions apply to the Chief, Environmental Compliance (341 CES/CEIEC) position.

f) Other Requirements

There are no additional requirements.

2. Hazardous Waste Program Manager (HWPM) / Environmental Protection Specialist (EPS)

a) Role

The HWPM/EPS is responsible for the day-to-day administration of operations at the HWSF and reports to the Chief, Environmental Compliance (341 CES/CEIEC).

b) Duties

The HWPM/EPS is responsible for the day-to-day operation of the HWSF, which includes interpreting regulations, developing operating procedures as necessary, supervising the processing of HW, and ensuring compliance with requirements for the receipt, handling, storage, packaging, and offsite transportation and disposition of HW. The HWPM/EPS provides technical guidance to HWSF personnel involved in HW processing and management. The HWPM/EPS also determines requirements for work force, space, and equipment and initiates required actions to improve economy, efficiency, safety, and physical security of operations. The HWPM/EPS develops requests for work and maintains personal contacts with local and state government agencies and military commands. HWPM/EPS conducts periodic inspections to ensure the HWSF is maintained in accordance with the permit and pertinent state and federal environmental regulations. The HWPM/EPS responds to non-emergency spills/releases through containment, cleanup, and decontamination. He/She is responsible for analyzing data, reviewing HW documentation and manifests, and preparing HW reports. The HWPM/EPS is also responsible for assisting AF and DLA Disposition Service personnel in providing OJT for personnel involved with HW operations.

c) Specific Skills Required

The HWPM/EPS is required to possess a thorough knowledge of the HWSF operations and equipment. He/She must have an ability to communicate effectively, both orally and in writing, and establish effective working relationships with operational groups, customers, and regulators. The HWPM/EPS must have an ability to determine proper identification and condition of a broad range of HW through visual observation, supply lists, catalog, manual, technical publications, and analytical reports. He/She must have knowledge of procedures to be followed for receipt, segregation, identification, classification, compatibility storage, processing, and disposition of HW. Specific skills also include safe operation of forklifts, material handling equipment, and hand tools such as pliers, wrenches, and screwdrivers.

d) Education and Experience Required

The HWPM/EPS must have knowledge of regulations and procedures, and all applicable local, state, and federal laws and regulations.

e) Working Conditions

The HWPM/EPS must be capable of working in an outdoor environment with exposure to dirt, dust, noise, odors, temperature extremes, machinery, and potential exposure to hazardous chemicals and vapors. The HWPM/EPS is expected to work for long durations, and break when necessary, to complete immediate tasks. Inside work is performed in warehouse conditions, which may be drafty or unheated. Outside work is subject to inclement weather. Discomfort may be experienced while wearing protective clothing, goggles, or a face mask. The HWPM/EPS may be exposed to hazardous vapors, liquids, powders, solids, and to the possibility of cuts and bruises.

f) Other Requirements

There are no additional requirements.

3. Hazardous Waste Disposer (HWD)

The HWD reports to the Chief, Environmental Compliance (341 CES/CEIEC).

a) Role

The HWD is responsible for the proper collection, receipt, and storage of HW. He/She verifies nomenclature, description, quantities, and conditions of HW received against the documentation, classifies items based on inspection of condition, and identifies the proper storage location within the HWSF. The HWD operates a forklift as required, handles HW upon

receipt and prior to offsite transportation, and performs inspections and other HWSF operational activities.

b) Duties

The HWD receives and unloads all incoming HW transferred to the HWSF. He/She reviews HW transfer documents and verifies documentation with the HW. The HWD handles and manages the HW at the HWSF from time of receipt at the loading/unloading area until offsite transportation and disposition. The HWD is responsible for proper handling, movement, segregation, storage, inspection, and verification of documentation for offsite transportation and disposition. In the absence of the HWPM/EPS, the HWD is authorized to perform the responsibilities and duties of the HWPM/EPS.

c) Specific Skills Required

The HWD must possess ability and knowledge to reference manuals, chemical charts, federal and state regulations, and AF and MAFB policies and procedures. He/She must be able to identify and properly process HW requiring special handling. The HWD must be skilled to safely operate a forklift, manual hand equipment, and other HWSF equipment. He/She must also be proficient in the use of hand tools such as pliers, wrenches, and screw drivers.

d) Education and Experience Required

The HWD must have knowledge of AF regulations and procedures, and all applicable local, state, and federal laws and regulations.

e) Working Conditions

The HWD must be capable of working in an outdoor environment with exposure to dirt, dust, noise, odors, temperature extremes, and machinery and potential exposure to hazardous chemicals and vapors. The HWD is expected to work for long durations, through breaks when necessary, to complete immediate tasks. Inside work is performed in warehouse conditions, which may be drafty or unheated. Outside work is subject to inclement weather. Discomfort may be experienced while wearing protective clothing, goggles, or a face mask. The HWD may be exposed to hazardous vapors, liquids, powders, solids, and to the possibility of cuts and bruises.

C. HWSF Environmental Training Plan

40 CFR 264.16(d)(3)

1. New Employee Orientation

New employee orientation includes the following:

- Identification of HWSF
- Operation of HWSF
- Duties of individual and other employees
- Fire and safety briefing
- Training opportunities
- Contingency plan implementation.

2. Training Program

The training plan for HWSF personnel include requirements under RCRA (40 CFR 264.16(a)(3), OSHA HAZWOPER (29 CFR 1910.120), and USDOT (49 CFR 172, Subpart H). Training may be conducted in a classroom, via correspondence and internet/other electronic methods, or OJT. The training program includes initial training and refresher training as follows:

a) Initial Training

- OSHA HAZWOPER Training – The OSHA HAZWOPER training (29 CFR 1910.120) includes 40 hours of instruction. A description is provided in Section 3 below.

- RCRA Waste Management Facility Training – The RCRA training includes 24 hours of instruction meeting the requirements of 40 CFR 264.16(a)(3). A description is provided in Section 3 below.

- USDOT HAZMAT Training – USDOT HAZMAT training (49 CFR 172.704) includes a maximum of 40 hours of instruction. A description is provided in Section 3 below**.**

b) Refresher Training

- OSHA HAZWOPER/RCRA Annual Refresher – The OSHA and RCRA regulations require annual refresher training. This training is met with a combined 8-hour course addressing requirements under both OSHA and RCRA (29 CFR 1910.120 and 40 CFR 264.16(a)(3)) and includes review of container management, prevention and preparedness, and the Contingency Plan.

- USDOT HazMat Training – The USDOT regulations (49 CFR 172.704) require recurrent training every three years. Currently DoD requires recurrent training every two years. The Permittee will meet the requirements of USDOT and the more stringent DoD requirements, as applicable.

c) Biennial Refresher Training

- USDOT Biennial Refresher, see above Paragraph b.

3. Course Descriptions/Overview

a) OSHA HAZWOPER Initial Training

The OSHA HAZWOPER training is a 40-hour course that fulfills the requirements of 29 CFR 1910.120. The course covers review of 29 CFR 1910.120, overview of RCRA, hazardous material identification and toxicology, personal protective equipment and clothing, decontamination, air monitoring, site safety, and hazard identification.

b) RCRA Waste Management Facility Initial Training

The RCRA Waste Management Facility Training course is an initial 3-day course which covers HW liability, laws, and regulations; regulatory process; federal policies; hazardous properties; HW identification (lecture and exercise); land ban restrictions (lecture and exercise); generator standards; TSDF standards; development of unit-specific contingency plan; and other regulated wastes.

c) USDOT HAZMAT Initial Training

The USDOT HazMat training course is an initial 5-day course which covers applicability and introduction to Chapter 49 CFR, procedures for using Chapter 49 CFR, packaging, placarding, marking and labeling, shipping papers, hazardous substances and waste, carrier requirements, bulk packaging regulations, and flammable and combustible liquids.

d) OSHA/RCRA Refresher

The OSHA/RCRA Refresher training is required annually (29 CFR 1910.120 and 40 CFR 264.16(c)). This course covers the HW contingency plan and emergency procedures; inspections; emergency equipment maintenance; communication system; alarms; HM management; HW facilities and operations; hazardous communication standard (29 CFR 1910.1200); and RCRA facility compliance.

e) USDOT HAZMAT Refresher

This USDOT HAZMAT training is a 2-day course which covers USDOT policies and procedures for HM/HW shipments, including procedures for using 49 CFR and the hazardous material table; packaging, placarding, marking, and labeling; preparation of shipping papers including USEPA manifest; USEPA hazardous substances and waste regulation; and updates to regulations.

Attachment II.6
Contingency Plan

Table of Contents

Attachment II.6
Contingency Plan
40 CFR 270.14(b)(7) and 264 Subpart D

A. Emergency Notification

Refer to the Emergency Notification List (Table II.10) for phone number listings.

B. Introduction

1. Purpose

40 CFR 264.51; 264.53

The purpose of the Contingency Plan is to minimize hazards to human health or the environment from fires, explosions, or any unplanned, sudden or non-sudden release of hazardous wastes or hazardous waste constituents to air, soil, or surface water. A current copy of this plan is kept in the HWSF and the MAFB 341 CES/CEIEC office at all times and is provided to other MAFB public agencies and emergency services. The MAFB Fire Department also maintains a current copy of the Contingency Plan.

2. Facility Identification

Name: Hazardous Waste Storage Facility (HWSF)

Owner: MAFB, 341st Missile Wing

Operator: MAFB, 341st Missile Wing. Day-to-day operations performed by 341 CES/CEIEC

Description: The HWSF is a 2,400 square foot building (Building 1535) that is specially designed and constructed for temporary storage of HW

Location: The HWSF is located at 8035 Pole Yard Road MAFB, Great Falls, Montana 59402 at the north end of MAFB on Perimeter Road. Access to the facility is limited to one gate entering from Perimeter Road. All vehicles enroute to the HWSF enter MAFB through the Commercial gate located on the west side of MAFB, or alternately, through the Main Gate off 2nd Avenue North.

Figure II.3 shows the traffic routes used to access the HWSF upon entering the MAFB and how to get to and from the MAFB CAP from the HWSF.

3. Facility Operations

a) Primary Business

The HWSF receives HW from MAFB operations. HW is temporarily stored at the HWSF until offsite transportation and disposal by a USEPA authorized transporter and permitted TSDF.

b) Inspections

All operational, safety, and emergency equipment and the HWSF are inspected on a regular schedule. Scheduled inspections are performed as described in the Preparedness and Prevention Plan (Attachment II.4). The HWSF Inspection Log, Table II.5, or an equivalent, is used for HWSF inspections.

c) Surveillance

The HWSF operates from 0730 to 1600 hours 5 days per week. The building is locked and the area is secure. The HWSF is under MAFB Security Forces surveillance 24 hours per day, 7 days per week. Any unusual occurrences or observations noted during these patrols are reported to the MAFB Emergency Communications Center (ECC). The center in turn contacts the appropriate agency (i.e., fire department, building custodian, and base leadership).

d) Waste Types

HW handled at the facility includes the following:

- Waste acids/alkalis
- Solvents, strippers, and thinners (discarded and spent)
- Cyanide-bearing material
- Paints, cements, sealers, resins, and miscellaneous products (new and spent)
- Miscellaneous solids and sludges
- Pesticides (discarded and spent).

4. Mutual Aid Agreements

40 CFR 264.52(c)

MAFB has mutual aid agreements for fire and emergency medical services with the local community. A copy of the Contingency Plan is provided to all local emergency responders, as required by 40 CFR 262.53.

a) Fire Department

The MAFB Fire Department has various agreements with local and county fire departments acknowledging agreements required by AFI 32-2001, The Fire Protection Operations and Fire Prevention Program, and 40 CFR 264.52(c). Each agreement provides conditions to be followed upon dispatch of equipment and personnel and addresses reimbursement of expenses and losses.

b) Medical Services

MAFB has agreements with Benefis Healthcare for medical equipment decontamination, the Cascade City-County Health Department (CCHD) for emergency medical supplies, and with Great Falls Emergency Services.

c) Law Enforcement

No formal mutual aid law enforcement agreements exist. Any need for assistance is coordinated with MAFB Disaster Preparedness which does have an agreement with civilian disaster preparedness agencies.

5. Arrangements To Familiarize Response Personnel

40 CFR 264.37; 264.52(c)

a) MAFB Fire Department

The emergency response team from the MAFB Fire Department maintains familiarity with the HWSF through frequent visits. In addition to keeping familiar with the facility through periodic fire safety inspections, the MAFB Fire Department maintains the following information:

- Facility layout of the HWSF showing entrances, evacuation routes, and storage locations of hazardous material and waste
- Material lists of typical hazardous waste stored in the HWSF
- Computer access to current inventories of hazardous wastes in the HWSF

- Contingency Plan.

b) Off-Base Response Teams

Off-base fire and emergency response teams provide secondary support and will respond only after being briefed by qualified MAFB personnel on facility layout, evacuation routes, types of wastes handled, and special hazardous situations that may be encountered.

C. Emergency Response

1. Emergency Staff Coordination and Command

MAFB maintains a 24-hour, 7-day per week ECC for responding to emergency situations. In the event of an emergency at MAFB, the response will be in accordance with current guidelines in the Comprehensive Emergency Management Plan (CEMP) 10-2. The Emergency Operations Coordinator will coordinate emergency response procedures in the event of any fires, explosions, unplanned releases, spills, or other emergency situations occurring at the facility. In addition, he/she will be responsible for the following:

- Assurance of personnel safety
- Assessment of the nature, severity and materials involved in the situation
- Initiation of the Contingency Plan if appropriate and evacuation of the facility if necessary
- Notification of neighboring facilities/personnel as necessary
- Direction of containment and control operations
- Coordination of emergency agencies and authorities
- Initiation of cleanup operations.

2. Implementation of the Contingency Plan

The following emergencies would trigger implementation of the CEMP 10-2 for the HWSF:

- Fire/explosion
- Onsite and/or offsite release of hazardous wastes or hazardous waste constituents
- The occurrence of natural disasters.

A single call to the MAFB ECC will implement an emergency response action. All AF personnel are briefed on notifying the MAFB Fire Department in the event of an emergency. The MAFB ECC will take immediate action to notify appropriate authorities, respond to the incident, or notify security forces.

3. Emergency Response Procedures

40 CFR 264.56

a) Spill Identification

As first responder, the MAFB Fire Department will attempt to identify the location and type of HW within the HWSF. The Fire Chief must be provided a list of the HW present in the HWSF. A log sheet of HW present in the HWSF must be updated on the day any new hazardous waste is placed in storage and must be kept in a location that is readily accessible at all times by MAFB personnel, the MAFB Fire Department, and other emergency responders.

The Fire Chief may request assistance from the building custodians (custodians are responsible for knowing what HW are present). The HWPM is the building custodian for the HWSF. In the event of an emergency, the On-Scene Commander (OSC) or designated representative will direct an investigation to determine the nature of the material involved. Identification of the character, source, quantity, and extent of the released materials can be made through the following methods and sources of information:

- Eyewitness accounts (person discovering emergency)
- Visual inspection
- Source or origin of leak, fire, and/or explosion
- Type of HW stored
- Containers involved (labels and/or placards)
- Location of incident (HW storage area and/or other storage area)
- Records, waste tracking forms, manifests, and/or generators' waste profiles
- If necessary, chemical analysis
- If the emergency requires special protective equipment and material due to the nature of the hazardous material, the MAFB

Fire Department will dispatch the hazardous material response team to the site.

b) Spill Assessment

The OSC or Emergency Coordinator will immediately assess the situation to determine the appropriate emergency response actions including implementation of the Contingency Plan and any other base disaster plans necessary when public health or the environment are threatened. Neighboring facilities and personnel who may be in danger will be notified. In the event the emergency requires it, appropriate local, state, and federal agencies will be notified. The Emergency Coordinator or OSC will evaluate the severity and nature of the incident and is responsible for notifying the regulatory agencies.

c) Response Action Selection

Selection of response actions will be based on the following factors:

- The severity and nature of the incident (fire, explosion, or material release)
- The potential impact to the site and surrounding areas
- The current weather conditions (temperature, wind direction, and velocity).

4. MAFB Disaster Plans

Detailed MAFB disaster plans have been prepared to address all military and support operations at MAFB. These plans are reviewed and updated at least annually to incorporate any organizational, personnel, and/or contact information changes as well as any procedural modifications due to new rules or regulations. Since the HWSF is on MAFB property and stores HW from MAFB generators, the MAFB disaster plans apply to the HWSF. Therefore, this Contingency Plan incorporates by reference the provisions of the current updated version of the CEMP 10-2.

a) CEMP 10-2 – Comprehensive Emergency Management Plan

In the event of a hazardous material spill or incident, the MAFB Fire Department will be immediately notified and MAFB CEMP 10-2 will be implemented. The plan requires all personnel not immediately involved in response action to be evacuated and kept at least 500 feet away from the accident/incident site (upwind or crosswind). All incidents involving hazardous waste are considered major accidents.

5. MAFB Emergency Response Team Contacts

40 CFR 264.52(d); 264.55

Table II.10 provides a list of personnel to notify in the event of an emergency. This listing requires routine updating to ensure that all telephone numbers remain current. Radio notification may also be utilized in addition to telephone contacts. In the event of a HW emergency, the following personnel or organizations will be contacted as authorized by the Wing Commander:

- Mission Support Group Commander
- Base Fire Chief
- Base Civil Engineer
- Environmental Coordinator.

6. Emergency Response Equipment

40 CFR 265.52(e)

Current inventories of emergency response equipment are provided in the following tables:

- Table II.6 CES/CEIEC Spill Response Equipment Inventory
- Table II.7 Fire Department Response Equipment
- Table II.8 HAZMAT Vehicle 10 Response Equipment
- Table II.9 HWSF Response Equipment.

D. HWSF Contingency/Emergency Preparedness Plan

1. Purpose

The HWSF Contingency/Emergency Preparedness Plan documents the operational activities initiated in the event of an accidental fire, explosion or HW spill at the HWSF. This plan supplements those actions taken by MAFB Disaster Response Teams.

2. Emergency Response Actions

40 CFR 264.52(a)

a) Facility Personnel Actions

The following actions and procedures will be taken by facility personnel in response to fires, explosions, emergencies, or discharges of HW.

- Notify MAFB Fire Department by phone extension 911 or 406-731-3746 (if using offsite phone).
- Fight fire if non-hazardous and evacuate personnel from the immediate area
- Contain spill if proper protective equipment is available
- Notify the appropriate agencies if spill is a reportable quantity.

b) Evacuation Plan

In case of fire, explosion, or other hazard that threatens personnel, the Evacuation Plan will be implemented.

(1) Initial Evacuation: Non-essential personnel will evacuate to a safe area as determined by the OSC or the HWPM. Alarms will be sounded to evacuate the HWSF.

(2) Additional Evacuation: Additional evacuation needs are determined at the time of an incident. MAFB Fire Department personnel may be immediately dispatched to each building within a 500-foot-radius cordon area to notify personnel to evacuate the entire area immediately.

(3) Communication Equipment: MAFB Fire Department vehicles have public address system equipment and radio contact with the MAFB Disaster Response Force.

(4) Evacuation Drill: MAFB frequently practices personnel evacuations through disaster preparedness exercises.

3. Documentation

40 CFR 264.53; 264.56(i); 270.30(l)

a) Plan Locations

Copies of the Contingency Plan are located in the HWSF and the HWPM's office. The Contingency Plan will be updated as required by 40 CFR 264.54.

b) Inventory List Location

Hazardous Waste Logs are located in Building 1531 and electronically.

c) Twenty-Four Hour Reporting

The Installation Commander, through the Environmental Element, is responsible for notifying the National Response Center, USEPA Region 8, and DEQ of any noncompliance which may endanger health or the environment within 24 hours of becoming aware of the circumstance. This includes any releases that may cause an endangerment to public drinking water and/or a fire or explosion from the facility that could threaten the environment or human health outside of the facility. The notification shall include the following information:

- Name, address and telephone number of the owner/operator
- Name, address, and telephone number of the facility
- Date, time, and type of incident
- Name and quantity of material involved
- Extent of injuries
- An assessment of the actual or potential hazards to the environmental and human health outside the facility
- Estimated quantity and disposition of recovered material that resulted from the incident

A written submission will also be provided within 5 days of the time the permittee becomes aware of the circumstance. The submission will contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and

steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

Written notification of all HW spills will be provided to the following agencies:

- HQ AFGSC (Air Force Global Strike Command)
- Air Force Civil Engineering Center
- Regional Administrator, USEPA Region 8
- Director, USEPA, Region 8, Montana Office
- Director, DEQ, Waste Management and Remediation Division, Waste and Underground Tank Management Bureau

4. Employee Response

40 CFR 264.52(a)

a) Notification

Any employee discovering an emergency situation will first attend to personal safety, then if it is safe to do so, will attend to other employees requiring immediate assistance. The employee will also notify all facility personnel as required for assistance by means of alarm signals or telephone in accordance with MAFB CEMP 10-2.

b) Information

In all emergency situations the HWSF Emergency Coordinator or his/her alternate will be notified of the following:

- Location of the incident
- Nature of the incident
- Extent of the incident so additional response actions can be ascertained
- Injured or endangered employees.

Response regarding injured or endangered employees shall be as follows:

- Alert others who may be endangered, call for backup using voice, telephone, or intercom.

- Use appropriate protective clothing and equipment.
- Apply first aid (first aid kits are located in Building 1531 and 1535).
- Phone ECC if ambulance or medical assistance is needed.
- Immediately notify the proper chain of command.

c) Fires and Explosions

Employee response to incidents involving fire or explosion shall be as follows:

- Shout "Fire" warning.
- Alert others who may be endangered; call for backup using voice, telephone, or intercom.
- Cut off source if possible.
- Control small fires with extinguishers located throughout the facility.
- If fire is not readily and easily controlled, phone ECC. (In addition, the sprinklers system on the HWSF will be automatically activated and an alarm signal sent directly to the MAFB Fire Department.)
- Immediately notify the proper chain of command.

d) Spills and Releases

Employee response to any spill or release shall be as follows:

- Alert others who may be in danger, request backup using voice or telephone.
- Immediately notify the proper chain of command.
- Only attempt to contain minor spills or runoff if the waste is known to be safe by use of absorbent material and diking. (DO NOT JEOPARDIZE PERSONAL SAFETY.) Emergency responders will at the direction of the Incident Commander contain spills and prevent exposure to incompatible materials.

e) Releases to Air

Employee response to any release to air shall be as follows:

- Alert others who may be in danger; request backup using voice, telephone, or intercom.
- Move people from downwind.
- Immediately notify the proper chain of command.
- Do not attempt to control emissions by cutting off source and circumventing or containing vapor cloud without the assistance of the MAFB Fire Department. (DO NOT JEOPARDIZE PERSONAL SAFETY.)

f) Non-Permitted Discharge to Sewer

Employee response to any non-permitted discharge to a sewer shall be as follows:

- Immediately notify the proper chain of command.
- Record event noting quantity, source, and duration of release and notify 341 CES/CEIEC of the incident so proper notifications can be made. (DO NOT JEOPARDIZE PERSONAL SAFETY.)

g) Flooding Conditions

Employee response to flooding conditions shall be as follows:

- Alert others who may be in danger; call for backup using voice, telephone, or intercom.
- Immediately notify the proper chain of command.
- Use diking to prevent flooding of and around buildings and structures where necessary.
- Use portable pumps to remove excess water from secondary containment areas, pump to appropriate container. (DO NOT JEOPARDIZE PERSONAL SAFETY.)

h) Damaged Shipments

The damaged or leaking shipment control procedure will be initiated when further transportation of a container would present a hazard to public health or the environment, or if the shipment presents an unreasonable

hazard to facility operations or to facility personnel. Employee response to damaged shipments shall be as follows:

- Alert others who may be in danger; call for backup using voice, telephone, or intercom.
- Use appropriate protective clothing and equipment.
- Determine if leak can be stopped readily.
- Immediately notify the proper chain of command.
- Attempt to contain spill or runoff by use of absorbent materials and diking.

5. Emergency Coordinator's Actions

40 CFR, 264.56(a), (b), (c) and (d)

Whenever there is an imminent or actual emergency situation, whoever observes the situation must immediately activate internal facility alarms or communication systems to notify all facility personnel of the situation. The Environmental Coordinator will notify appropriate state or local agencies with designated response roles if their help is needed.

Notification must immediately identify the character, exact source, amount, and extent of any released material whenever there is a release, fire, or explosion. He/she may do this by observation or review of facility records or manifests and if necessary, by chemical analysis.

Assessment must be made of possible hazards to human health or the environment that may result from the release, fire, or explosion. If it is determined that the facility has had a release, fire, or explosion which could threaten human health or the environment outside the facility, he/she must ensure his findings are reported to the following:

- The Montana Disaster and Emergency Services Division (406-324-4777) and other local authorities (Fire and Police Departments) if assessment indicates that evacuation of local areas may be advisable. Help appropriate officials as required.
- Government official designated as the OSC for that geographical area or the National Response Center (phone number 800-424-8802). At a minimum, any report should include the following information:
  - Name and telephone number of reporter
  - Name and address of facility

- Time and type of incident (i.e., release, fire)
- Name and quantity of material involved
- Extent of injuries, if any
- The possible hazards to human health, or the environment, outside the facility.

6. Prevention of Recurrence

40 CFR 264.56(e) and (f)

a) Basic Prevention

During an emergency, all workers in the HWSF must take all reasonable measures to ensure that fires, explosions, and releases do not occur, recur, or spread to other hazardous waste at the facility. These measures include, where applicable:

- Stopping processes and operations
- Collecting and containing the released waste
- Removing or isolating containers.

b) Interruption of Operations

If the facility stops operations in response to a fire, explosion or release, the Environmental Coordinator must monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment wherever this is appropriate. The 341 CES/CEIEC must notify DEQ and other appropriate authorities prior to resuming operations in the affected area.

c) Incident Reporting

Any incident that requires implementing the Contingency Plan must be noted in the operating record. Details of the incident shall be submitted in writing to the DEQ Hazardous Waste Section Project Manager within 15 days of occurrence. Details of the incident shall include the following:

- Name, address, and telephone number of the facility
- Name, address, and telephone number of the operator or owner
- Date, time, and type of incident
- Name and quantity of materials involved

- The extent of injuries, if any
- An assessment of actual or potential hazard to human health or the environment, where applicable
- Estimated quantity and disposition of recovered material that resulted from the incident.

7. Post-Emergency Procedures

40 CFR 264.56(g), (h) and (i)

a) General Activity

After an emergency, the 341 CES/CEIEC must provide for treating, storing, or disposing of recovered waste, contaminated soil or surface water, or any other contaminated material that results from a release, fire, or explosion at the facility. The 341 CES/CEIEC is also responsible for initiating and overseeing post-emergency equipment replenishment, maintenance, and inspection prior to resuming operations in the affected area. In general, the 341 CES/CEIEC must ensure the following before operations are resumed:

Waste that may be incompatible with the released material is not treated, stored, or disposed until cleanup procedures are completed.

All emergency equipment listed in the Contingency Plan is cleaned and fit for its intended use.

b) Specific Actions

(1) Secondary Containment: Released material within the secondary containment areas will be pumped to suitable storage containers. Residual spillage will be cleaned up with absorbent.

(2) Leaking Containers: Leaking containers will be segregated and placed in overpack drums if necessary. (Onsite treatment will not occur at this facility.)

(3) Cleanup Materials: Spill residues and cleanup materials such as absorbents, diking material, and protective clothing will be consolidated for storage and offsite disposal.

(4) Fire Control or Flood Water: Water from fire control or flooding will be analyzed for discharge permit limits and any additional constituents that are suspected or known to be present prior to disposal.

(5) Verification of Completion: The 341 CES/CEIEC must notify DEQ and other appropriate authorities that the facility is in compliance with the HW Contingency Plan.

8. Location of Emergency Equipment

40 CFR 264.52(e)

The Preparedness and Prevention Plan (Attachment II.4) and Table II.9 list the type, location and description of emergency equipment maintained on site at the HWSF. Tables II.6 through II.9 show the various response equipment inventories (onsite and additional offsite response equipment). Figures II.7 and II.8 show the onsite locations of fire control equipment and emergency response material available to respond to an emergency at the HWSF:

- Table II.6: CES/CEIEC Spill Response Equipment Inventory
- Table II.7: Fire Department Response Equipment
- Table II.8: HAZMAT Vehicle 10 Response Equipment
- Table II.9: HWSF Response Equipment
- Figure II.7: Fire Control Equipment Locations
- Figure II.8: Emergency Equipment Locations.

9. Amendment to the Contingency Plan

40 CFR 264.54

The Contingency Plan will be reviewed at least annually and amended whenever the following conditions apply:

- The HWSF permit is revised.
- The Plan fails in an emergency.
- The facility changes in a way that materially increases the potential for fires, explosions, or releases of HW or HW constituents, or changes the response necessary in an emergency.
- The list of emergency coordinators changes.
- The list of emergency equipment changes.

Attachment II.7
Closure Plan

Table of Contents

Attachment II.7
Closure Plan
40 CFR 270.14(b)(13), 264 Subpart G, 264.197, and 264.280

A. Introduction

1. Description

40 CFR 264.112; 264.178; 270.14(b)(13)

This section is submitted in accordance with the requirements of 40 CFR 264.112 and 264.178 as incorporated by reference in the Administrative Rules of the State of Montana Title 17, Chapter 53, Subchapter 8. This plan identifies the steps necessary to close the HWSF at any point during its intended operating life. The plan also addresses the conditions and reasons under which partial closure will occur. Closure of the HWSF is not expected during the life of the permit. A post-closure plan under 40 CFR 264.118 is not required because the HWSF is not a disposal facility. All wastes will be removed at closure in accordance with clean closure standards.

2. Application

341 CES/CEIEC will maintain a copy on site of the approved Closure Plan and all revisions to the plan until the Certificate of Closure Completeness has been submitted and accepted by DEQ. The Site Manager or his authorized representative will notify DEQ at least 45 days prior to the date the storage facility expects to begin final closure. Upon completion of final closure, 341st Missile Wing will submit to DEQ a certification by MAFB and by an independent registered Professional Engineer (P.E.) that the facility has been closed in accordance with the specifications in the approved Closure Plan. In the event that future circumstances or decisions require MAFB to discontinue HW storage activities, the Closure Plan establishes procedures for final closure of the HWSF. Any modifications to the existing facility equipment, structures, instruments, or procedures related to the management of the facility will result in MAFB revising the Closure Plan accordingly. At a maximum, the HWSF will contain 22,400 gallons of hazardous waste. The Closure Plan lists the typical inventory of wastes in storage at any time during its operating life.

B. Closure Plan

40 CFR 264.112

1. Closure Performance Standard

40 CFR 264.111

This Closure Plan was designed to ensure that the HWSF will not require post-closure maintenance and controls, to minimize or eliminate threats to human

health and the environment, and to preclude escape of hazardous waste, hazardous waste constituents, leachate, contaminated rainfall, or waste decomposition products to the ground or surface waters or to the atmosphere. If there is evidence of any spills or leaks outside secondary containment areas (i.e., cracks in containment areas), samples will be taken and analyzed to determine the extent of contamination in the soil and, if necessary, in groundwater. If the HWSF is demolished as part of closure, an inspection for visible indications of contamination will be conducted beneath the building and soil samples collected and analyzed if warranted to quantify suspected soil contamination. Any contaminated soil will be excavated, removed, and disposed at an offsite USEPA-permitted HW disposal facility. Any contaminated groundwater, attributable to the handling of HW at the HWSF, will be treated so that any contamination resulting from the handling practices is maintained below local, state, and or federal limits specified for that contaminant. If necessary, the entire site will be regraded subsequent to closure to prevent erosion. It is not anticipated that soil and groundwater sampling will be needed.

2. Partial and Final Closure Activities

40 CFR 264.112(b)(5)

MAFB expects to perform final closure when all containers are removed for final disposal and no more containers will be stored.

Procedures for final closure of the storage facility, including removal, cleanup, and decontamination activities, are described in the Closure Plan. At a maximum, there will be 22,400 gallons of HW held at any one time during the operational life of the HWSF. The Closure Plan describes the typical inventory of waste in storage at any time during the operational life of the storage facility. MAFB will enter into a contractual agreement with a USEPA-permitted HW disposal company for ultimate disposal of the remaining inventory. Site decontamination and any necessary cleanup will be accomplished through either contracted services or by MAFB personnel. The HWSF will be utilized throughout its operating life; therefore, no partial closure is anticipated. If ever found to be necessary, partial closure would involve the same procedures as final closure.

3. Maximum Waste Inventory

40 CFR 264.112(b)(3)

The following list shows a typical inventory of HW in storage at any given time during the operating life of the HWSF:

a) Ignitable Wastes

- Acetone
- Ethanol

- Methanol
- Tertiary butanol
- Paint and paint-related materials.

b) Ignitable/Toxic Wastes

- Methyl ethyl ketone
- Toluene (spent)
- Xylene (spent)
- Spent solvents (other).

c) Corrosive Wastes

- Sulfuric acid (spent)
- Alodine solution (spent)
- Batteries and battery acid.

d) Toxic Wastes

- Formaldehyde
- 1,1,2-Trichloroethane
- 1,2,2-Trifluoroethane
- Trichloroethylene.

4. Inventory Removal and Disposal

40 CFR 264.112(b)(3)

Upon formal notification to proceed with HWSF closure, no further receipt of HW will be accepted. All HW remaining in inventory will be removed through a contractual agreement with a USEPA-permitted transporter and TSDF. If these actions cannot be accomplished within the time allotted for closure, the HW will be transferred to an operational DLA at another military facility with a TSDF permit that allows for receipt of wastes from offsite hazardous waste generators. The transfer would also be conditional of the chosen DLA TSDF's permitted acceptance of MAFB HWSF waste types.

5. Decontamination of Equipment

40 CFR 264.112(b)(4); 264.178

Following removal of all HW, all floors and drains will be washed with an appropriate solvent and/or surfactant solution in accordance with the type of hazardous property stored within the area. The solvent/surfactant wash residue will be collected, sampled, and analyzed in accordance with the sampling and analysis procedures prescribed in the WAP. All residues and debris will be containerized and handled as HW unless analysis shows the waste is non-

hazardous. Subsequent washings and collection of wash residue, including additional sampling and analysis, will be performed until analysis of the wash residue from all affected surfaces (floors, curbs, walls, and storage racks) indicates that contaminant levels are below regulatory cleanup levels. As an alternate or in addition to the wash residue method of decontamination verification, wipe (surface) sampling may be utilized as described below. All residues, either characteristic or listed, will be characterized as HW unless sampling and analysis is performed demonstrating the waste as non-hazardous. Verification of analysis will be supplied by an independent laboratory.

The HWSF decontamination will be conducted by personnel trained in HW operation and decontamination procedures. The services of such personnel will be obtained at closure notification through service contract procedures established at MAFB. The contractual agreement for services will identify the requirements necessary to manage the wash residues to meet regulatory cleanup levels and will include requirements for proper use of equipment and protective clothing. All equipment used to decontaminate the HWSF will be decontaminated using procedures similar to those used for washing the HWSF affected surfaces before removal from the site. After decontamination, the building will be reused or demolished, and landfilled as non-hazardous waste. If the HWSF is demolished, an inspection for visible indications of contamination will be conducted beneath the building and soil samples collected and analyzed if warranted to quantify suspected soil contamination.

a) Surface Sampling

(1) In situations where equipment and/or structures have been contaminated by leaks, spills, or drips of hazardous materials or hazardous wastes, surface (wipe) sampling may be used to sample non-porous material to verify that closure criteria have been achieved after waste removal or decontamination procedures have been completed. Examples of non-porous materials include structural steel (painted or unpainted) and epoxy-sealed concrete with completely intact sealant surfaces. MAFB will take into consideration current industry standards at the time of closure but anticipates that wipe sampling protocol will be in accordance with the general procedure described below:

- Select and measure an area of approximately 100 square centimeters in size on the equipment or structure to be tested. For areas suspected of widespread contamination, one sample per 100 square feet will be collected for organic contaminants and one sample per 1,000 square feet for inorganic contaminates.

- For analysis of constituents of concern, saturate a cotton gauze pad with:

    - Methanol for VOCs

- Hexane-acetone (1:1), or methylene chloride for semivolatile organic compounds
- Hexane for PCBs
- Dilute nitric acid (1:4 nitric acid to distilled water) for metals
- Dilute sodium hydroxide for cyanide.

- Wipe the saturated gauze over the entire sampling area repeatedly in a vertical direction, applying moderate pressure. Turn the gauze over and wipe repeatedly in a horizontal direction.
- Repeat the above procedure for each additional category of contaminant of concern with new gauze on a newly selected sampling area.
- Place each gauze in a separate jar with a Teflon seal and submit the samples for laboratory analysis.

(2) Contaminants of concern will be determined from one or more of the following sources:

- SDSs
- Hazardous waste inspection reports and compliance files
- Existing waste analysis records
- Manifests
- Other environmental permits in place at the facility, e.g., a wastewater permit
- If none of the above are available or adequate, analysis for constituents listed in Appendix IX of 40 CFR Part 264 would be considered.

(3) Again, MAFB will take into consideration current industry standards at the time of closure but anticipates that one of the following clearance criteria will be met to demonstrate that decontamination procedures have been adequate to remove all contaminants of concern:

- Contaminants of concern do not exceed background levels in all facility areas subject to closure or are non-detectable using the lowest published detection limit for analytical methods as published in U.S. Test Methods for Evaluating Solid Wastes,

Physical/Chemical Methods (SW-846) (third edition, 1986 and most recent updates).

- MAFB will conduct a clean closure in accordance with 40 CFR 264.111; all wastes will be removed from the unit and all equipment, structures, and surrounding soils shall be decontaminated or removed.

- In the event of the HWSF closure, the facility will be used for other hazardous waste operations such as a CAP depending on the hazardous waste generator status of MAFB.

b) Closure of Containers

The disposition of containers upon implementation of this Closure Plan is discussed above and will be verified by an independent registered P.E. All containers will be sealed and labeled prior to shipment in accordance with 40 CFR 261 and 262. Manifests resulting from the above disposition of wastes will be maintained by MAFB, 341 CES/CEIEC, 39 78th Street North, Malmstrom Air Force Base, Montana 59402.

c) Closure of Tanks

There are no tanks at the HWSF.

d) Closure of Waste Pile

There is no waste pile at the HWSF.

6. Schedule of Closure

40 CFR 264.112(b)(6); 264.113

a) Notification Timeline

If closing the facility, DEQ will be notified by submitting a Site ID form 8700-12 45 days prior to closing the facility and 90 days after closing the facility to certify that MAFB met closure performance standards. The final closure will be supervised and certified by an independent registered P.E. within 60 days of closure. Table II.11 presents an anticipated schedule of closure.

b) Waste Removal & Closure Activities

MAFB will dispose of any on-site hazardous or non-hazardous waste at the HWSF within 90 days of receiving the final volume of waste. MAFB will complete partial and final closure activities within 180 days after receiving the final volume of waste.

7. Extension of Closure Time

No extension for closure time is anticipated.

C. Post-Closure Plans

40 CFR 264.118

Post-closure plans are not required for a storage facility.

D. Notice of Deed and Notice To Local Authority

Notices of Deeds are not required for container/storage facilities.

E. Closure Cost Estimates

40 CFR 264, Subpart H

The Federal Government under 40 CFR 264.140(c) is exempt from the financial requirements of 40 CFR 264, Subpart H. The HWSF is owned and operated by MAFB, an agency of the United States government.

F. Original Permitted Storage Area

The original hazardous waste permitted storage area was used for HW storage from 1984 to 1994, prior to construction of the HWSF. The area was located on an asphalt pad, adjacent to the conforming storage building. Containers were stored inside CONEX boxes, a portable safety storage building, or in secondary containment pans that were exposed to the weather. References to this original HW permitted storage area were removed in the November 1995 RCRA Part B permit modification. Closure of the original HW permitted storage area was considered to be a partial closure of the HWSF.

Figure II.1.
Regional Map

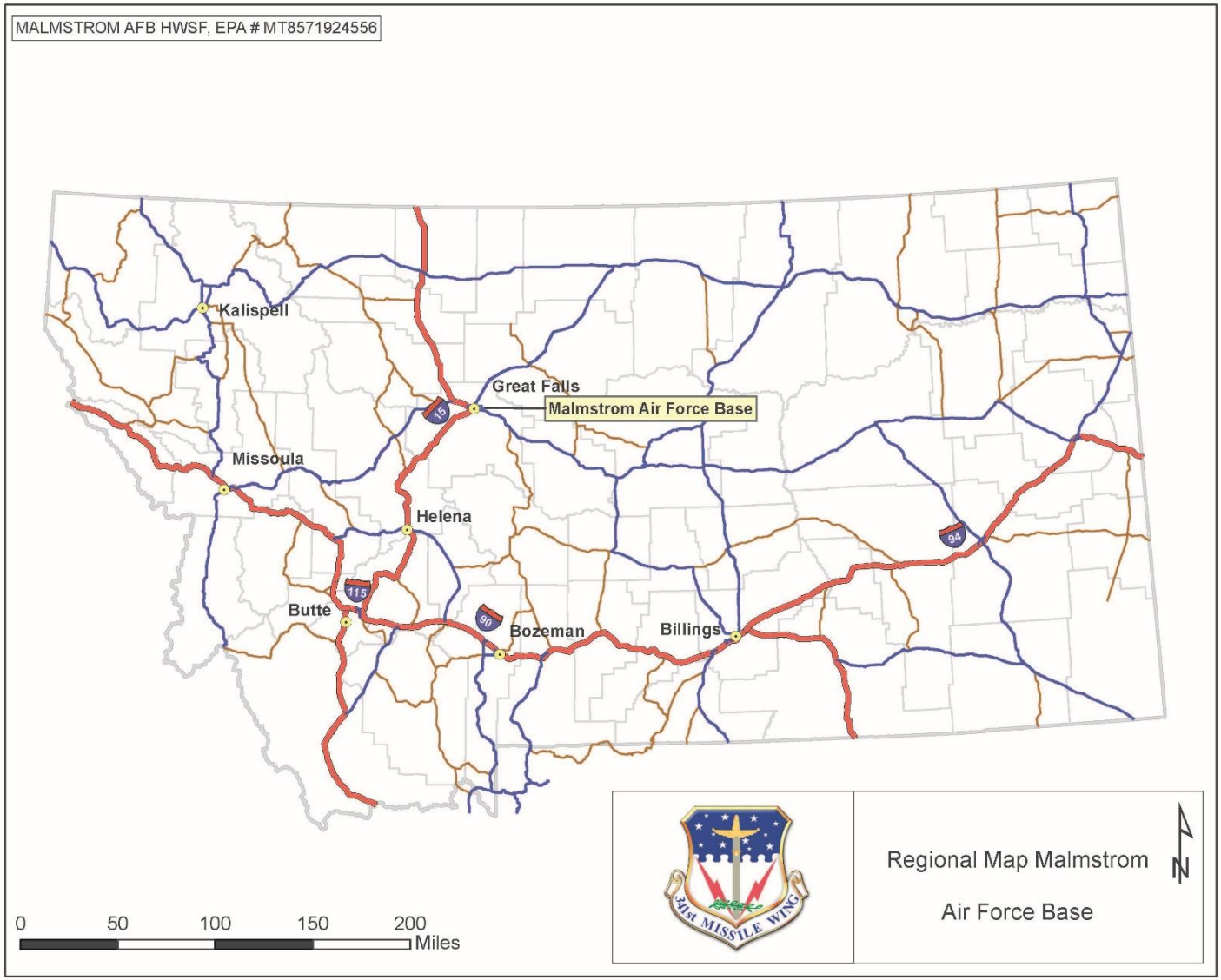


Figure II.2.
Vicinity Map

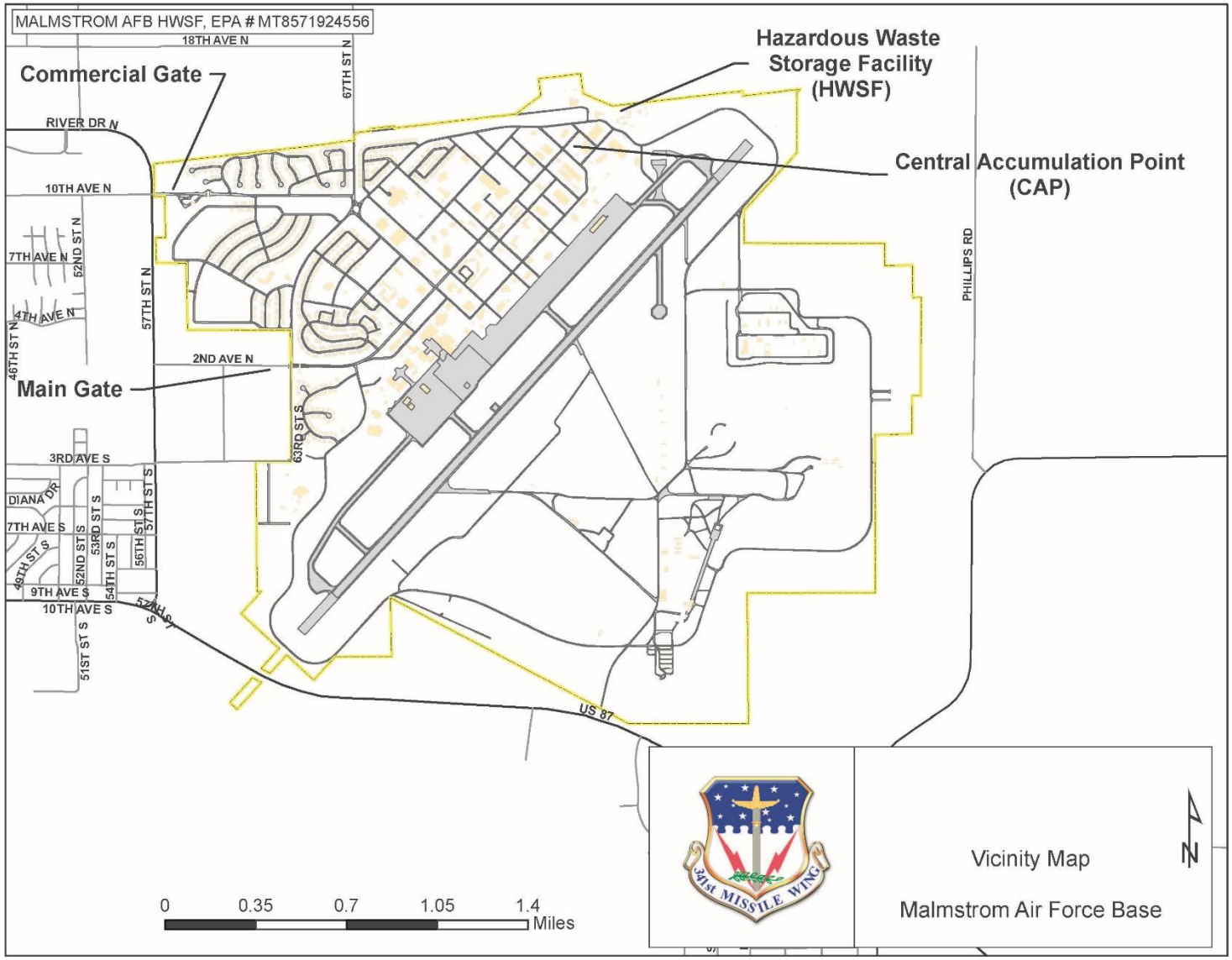


Figure II.3.
HWSF Location Map and Vehicle Routes

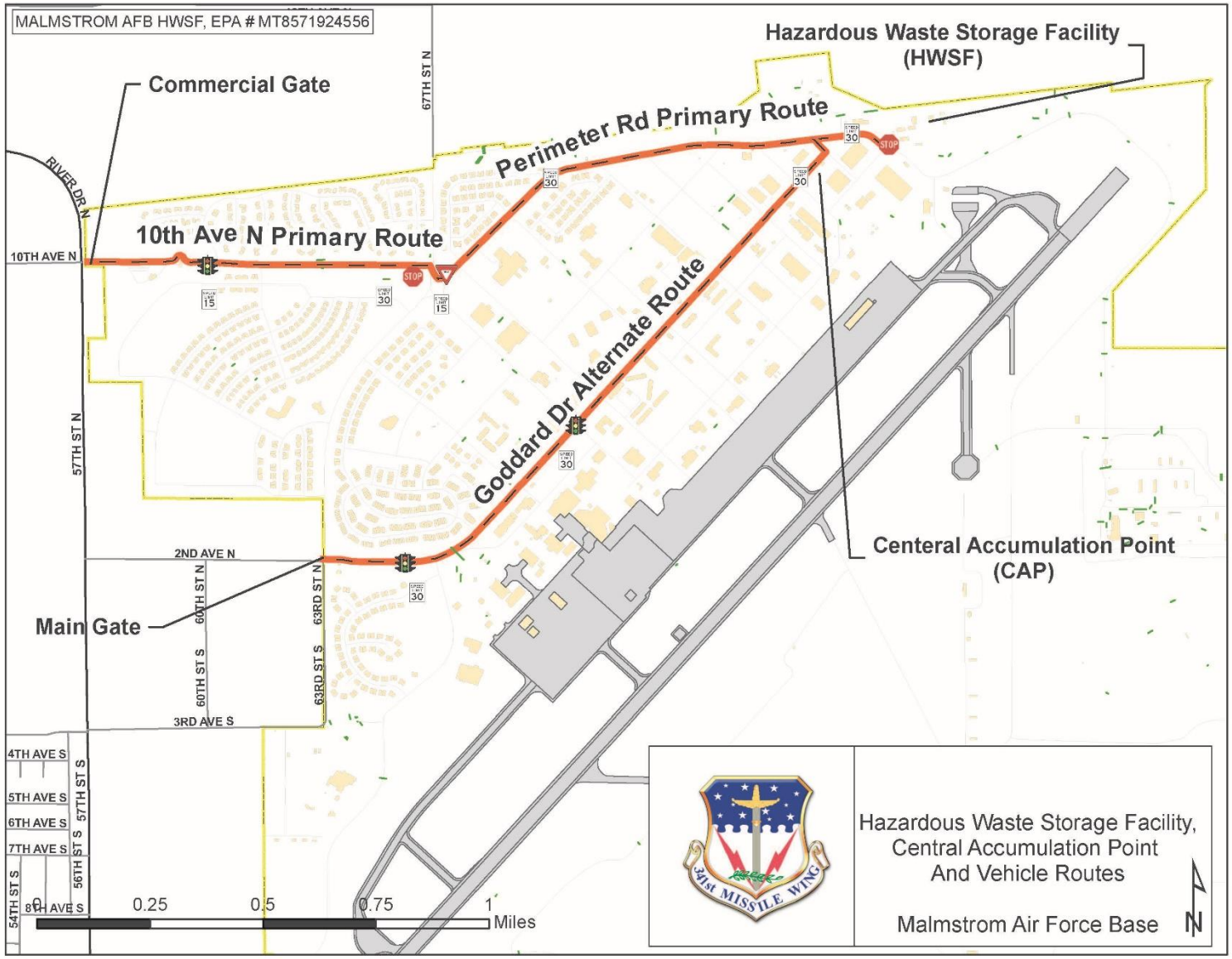


Figure II.4.
HWSF Site Plan

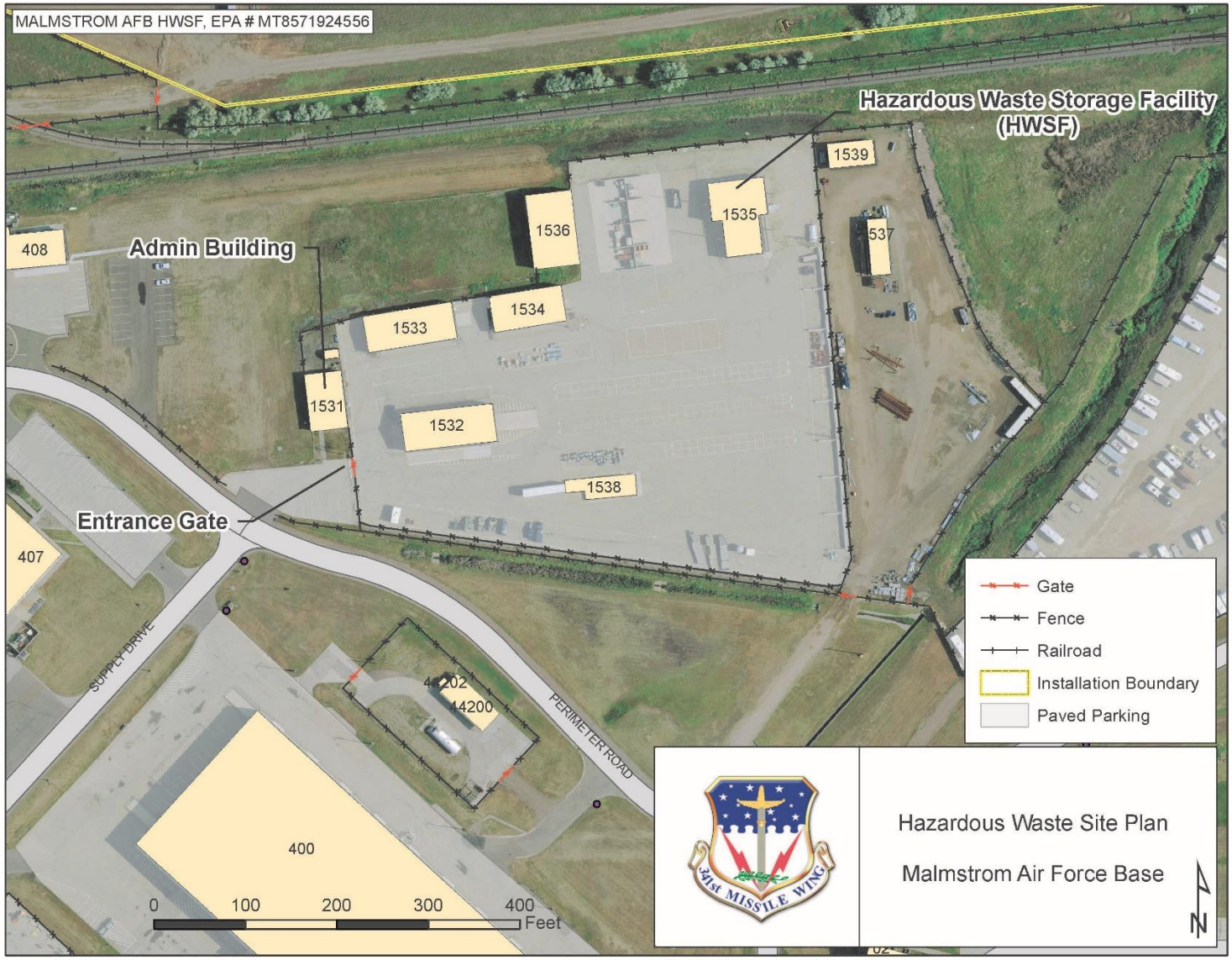


Figure II.5.
HWSF Building Plan

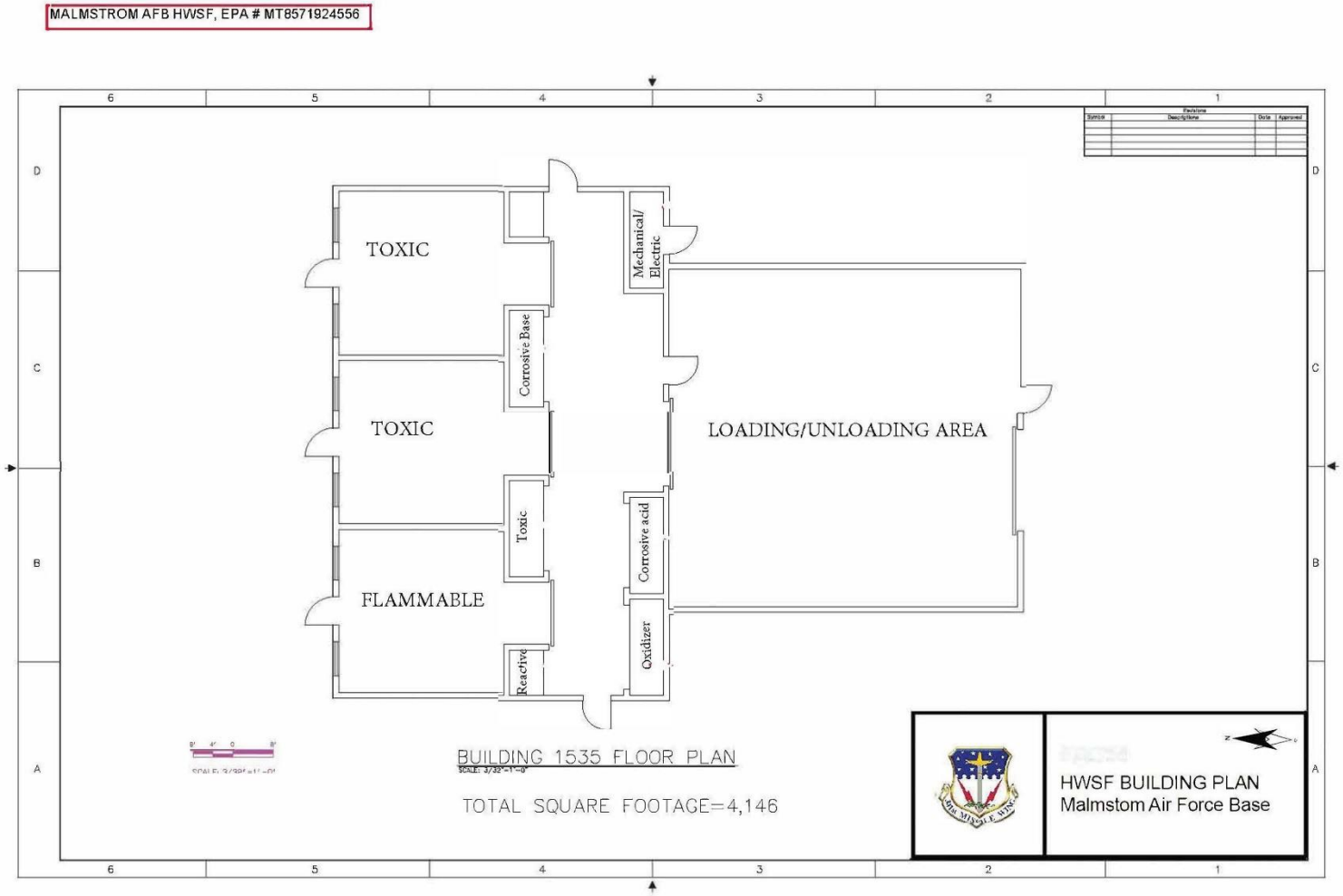


Figure II.6.
Telephone Locations

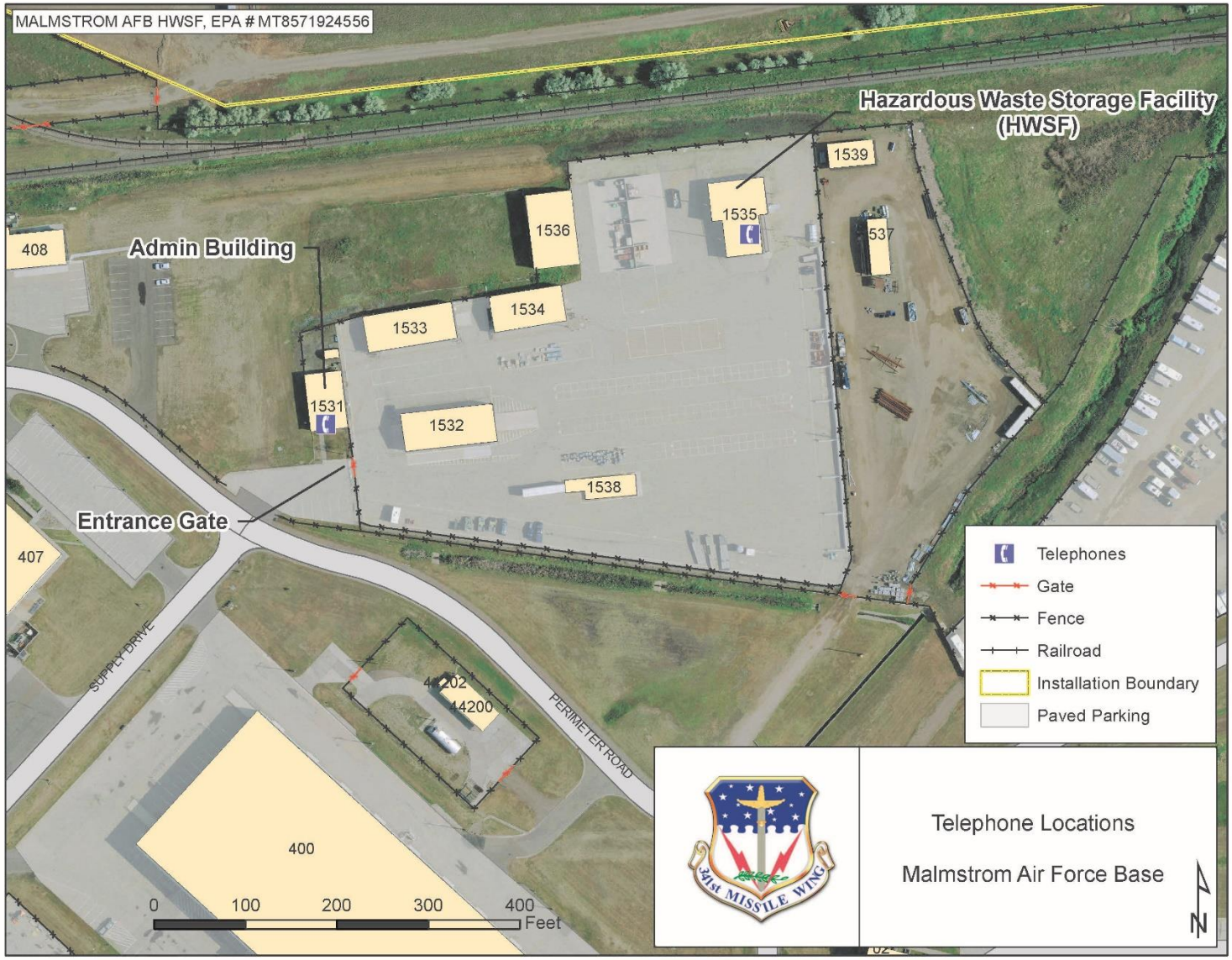


Figure II.7.
Fire Control Equipment Locations

Figure II.8.
Emergency Equipment Locations

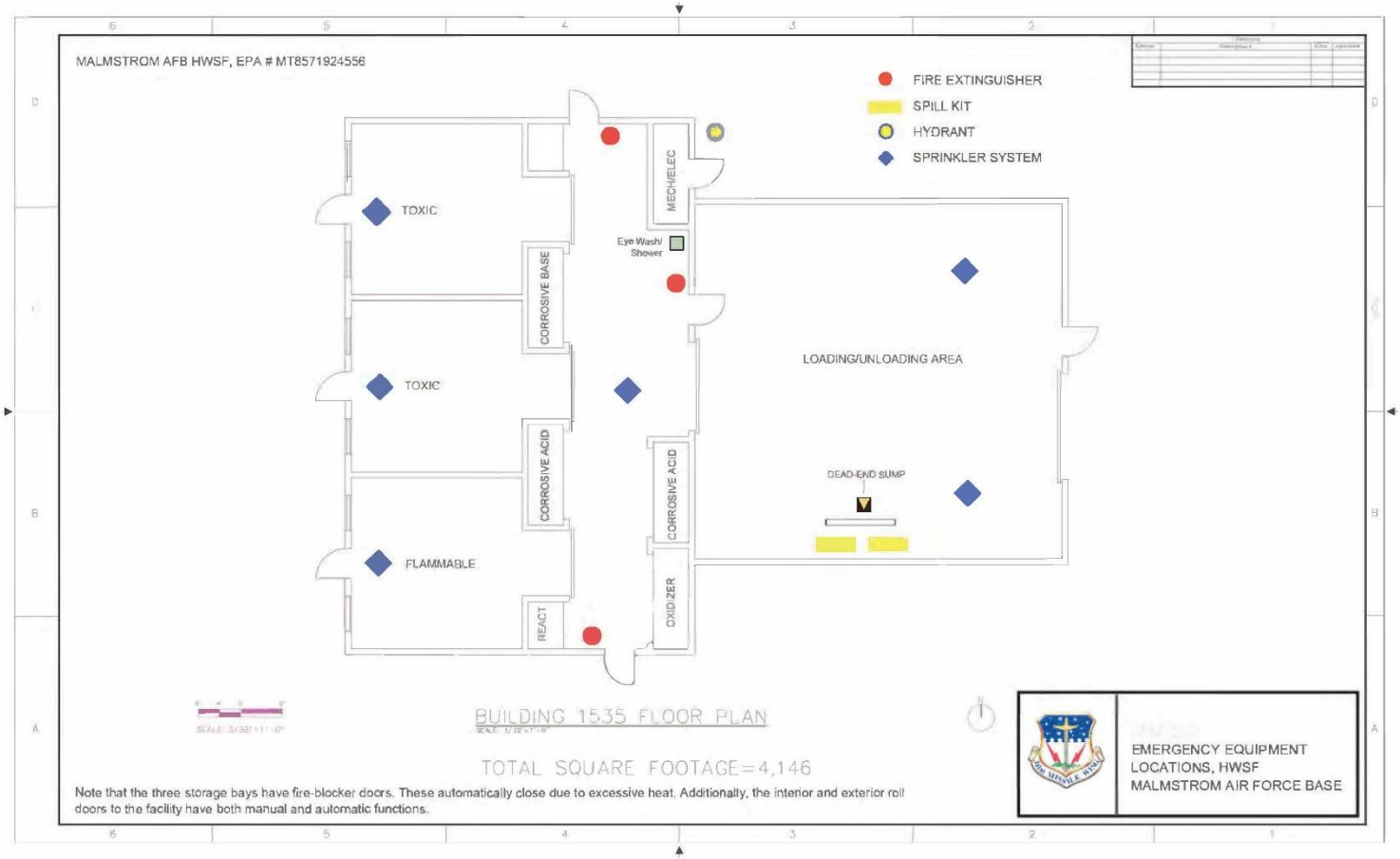


Table II.1.
DLA Form 2511 – Hazardous Waste Profile Sheet

RESET PRINT

HAZARDOUS WASTE PROFILE SHEET

Prescribed by: DOD 4160.21-M
Sponsor: Disposition Services

NOTE: Explosives, Shock Sensitive, Pyrophic, Radioactive, and Etiological Waste are not normally accepted by the DLA Disposition Services Site. **Contact your DLA Disposition Services Site for further guidance if your waste meets any of these categories.**

PART I

A. GENERAL INFORMATION	1. GENERATOR'S NAME:	WASTE PROFILE NO.:

2. FACILITY ADDRESS:	3. ZIP CODE	4. GENERATOR USEPA ID:	5. GENERATOR STATE ID:
6. TECHNICAL CONTACT:	7. TITLE:	8. PHONE:	

B. WASTE INFORMATION	1. NAME OF WASTE:

2A. US EPA WASTE CODE:	2B. DEMIL CODE: ☐A ☐B ☐C ☐D ☐E ☐F ☐G ☐P ☐Q
2C. STATE/LOCAL/HOST-NATION WASTE CODES:	
3. PROCESS GENERATING WASTE:	
4. PROJECTED ANNUAL VOL.:	5. MODE OF COLLECTION:
6. IS THIS WASTE A DIOXIN LISTED WASTE AS DEFINED IN 40 CFR 261.31?	☐YES ☐NO
7. IS THIS WASTE RESTRICTED FROM LAND DISPOSAL? *(40 CFR 268)*	☐YES ☐NO
HAS AN EXEMPTION BEEN GRANTED?	☐YES ☐NO
DOES THE WASTE MEET APPLICABLE TREATMENT STANDARDS ALREADY? *(If Yes, Enter Reference Standards in Part II, Block 6)*	☐YES ☐NO

PART II

1. MATERIAL CHARACTERIZATION *(Optional - Unless otherwise indicated)*

COLOR:	DENSITY:	BTU/LB:	
TOTAL SOLIDS:	ASH CONTENT	LAYERING ☐Multilayered ☐Bilayered	☐Single Phase

PHYSICAL STATE *(Mandatory)* ☐Solid ☐Liquid ☐Semi-Solid ☐Gas ☐Other

2. RCRA CHARACTERISTICS (Check all that apply) ☐ IGNITABLE (D001) ☐ CORROSIVE (D002) ☐ REACTIVE (D003)

☐ WATER REACTIVE ☐ CYANIDE REACTIVE ☐ SULFIDE REACTIVE FLASH POINT: _____ PH: _____

☐ HIGH TOC (≥ 10%) ☐ LOW TOC (< 10%) TREATMENT GROUP: ☐ WASTEWATER ☐ NON-WASTEWATER

☐ TOXICITY CHARACTERISTIC (D004-D043) ☐ CORRODES STEEL

3. CHEMICAL/MATERIAL COMPOSITION *(List all components and contaminants, including PCB's and any applicable F-Listed and Underlying Hazardous Constituents)*

CAS#	COMPONENT Be as descriptive as possible. Chemical names or generic descriptions, e.g. 'sludge', paint solids, 'water', etc. are acceptable.	CONCENTRATION	RANGE

DLA FORM 2511, NOV 2016 **(Formerly DRMS Form 1930)** Page 1 of 4 **PDF (DLA)**

Table II.1.
DLA Form 2511 – Hazardous Waste Profile Sheet

RESET PRINT

HAZARDOUS WASTE PROFILE SHEET (Continued)

Prescribed by: DOD 4160.21-M
Sponsor: Disposition Services

3. MATERIAL COMPOSITION/UNDERLYING HAZARDOUS CONSTITUENTS

CAS#	COMPONENT Be as descriptive as possible. Chemical names or generic descriptions, e.g. 'sludge', paint solids, 'water', etc. are acceptable.	CONCENTRATION	RANGE

RANGE TOTAL MUST EQUAL AT LEAST 100%

4. SHIPPING INFORMATION:

DOT HAZARDOUS MATERIAL? ☐YES ☐NO (If "NO" skip to block 5)

PROPER SHIPPING NAME:

HAZARD CLASS: | U.N. OR N.A. NO.: | PACKING GROUP:

ADDITIONAL DESCRIPTION:

METHOD OF SHIPMENT ☐BULK ☐NON-BULK OTHER: _____

DOT REPORTABLE QTY (RQ) _____ LBS (REF: 49 CFR 72.101, Appendix A)

EMERGENCY RESPONSE GUIDE EDITION: | EMERGENCY RESPONSE NO.:

5. SPECIAL HANDLING INFORMATION

6.GENERATOR CERTIFICATION: ☐ CHEMICAL ANALYSIS (Attach Test Results) ☐ USER KNOWLEDGE (Attach Supporting Documents) (Explain how and why these documents comply with RCRA requirements.

CERTIFICATION:

I, _____ HEREBY CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS IS TO THE BEST OF MY KNOWLEDGE AN ACCURATE REPRESENTATION OF THE WASTE TURNED IN TO THE DLA DISPOSITION SERVICES SITE. ALL KNOWN OR SUSPECTED HAZARDS HAVE BEEN DISCLOSED.

_____ DATE: _____
Signature of Generator's Representative

DLA FORM 2511, NOV 2016 **(Formerly DRMS Form 1930)** Page 2 of 4 **PDF (DLA)**

Table II.1.
DLA Form 2511 – Hazardous Waste Profile Sheet

RESET PRINT

HAZARDOUS WASTE PROFILE SHEET

Prescribed by: DOD 4160.21-M
Sponsor: Disposition Services

INSTRUCTIONS:

PART I

A. GENERAL INFORMATION (Required)
WASTE PROFILE NUMBER - A unique number assigned to this waste stream for future reference. The preferred format is a Generator DoDAAC + five digit serial number assigned by either the Generator or the DLA Disposition Service Site. any variation from this format must be approved by your DLA Disposition Service Site.
1. GENERATOR NAME - Enter the name of the generating facility. (Should match official name associated with the EPA ID number).
2. FACILITY ADDRESS - Enter the address of generating facility listed in block A1.
3. ZIP CODE - Enter the generating facility's five or nine-digit Zip Code.
4. GENERATOR USEPA ID - Enter the12-character, alpha-numeric descriptor issued by the USEPA to the facility identified in block A.1. (If not applicable, enter "NONE")
5. GENERATOR STATE ID - Enter the descriptor issued by the Resident State to the facility identified in block A.1.
6. TECHNICAL CONTACT - Enter the name of the person to contact for more information about this waste.
7. TITLE - Enter the Technical Contact's official title. (e.g. "HW-Manager", Shop Chief, etc.).
8. PHONE - Enter the Technical Contact's telephone number.

B. WASTE INFORMATION (Required)
1. Enter a name that is generally descriptive of this waste (e.g., paint wastes, oil water separator, sludge, PCB-contaminated dirt, etc.)
2A. USEPA WASTECODE(S) - List all that apply. If non-RCRA, enter "NONE".
2B. DEMIL CODES - Check applicable Demil Code.
2C. STATE/LOCAL/HOST NATION WASTE CODE(S) - List all that apply. If not applicable, enter "NONE".
3. PROCESS GENERATING WASTE - List the specific process/operation or source that generates this waste (e.g., paint-booth spray, PCB spill, metal plating operation, etc.).
4. PROJECTED ANNUAL GENERATIONS - The quantity of waste projected for turn-in annually, (preferably in pounds, but other units of measure may be used, e.g., gallons, kilograms, etc.)
5. MODE OF COLLECTION - Describe the method used to collect and store this waste stream (e.g. drums, tanks, etc.)
6. DIOXIN WASTE - Storage of Dioxin wastes requires special attention. If this waste is a USEPA-listed Dioxin waste, indicate "YES" and contact your DLA Disposition Service representative for further instructions.
7. A. IS THIS WASTE RESTRICTED FROM LAND DISPOSAL? - Check "YES" or "NO"
B. HAS AN EXEMPTION BEEN GRANTED? - If "YES", explain in PART II, block 6, at "Explain how and why these documents comply with RCRA requirements".
C. DOES THIS WASTE MEET APPLICABLE TREATMENT STANDARDS ALREADY? - If "YES", explain in Part II, block 6, at "Explain how and why these documents comply with RCRA requirements".

PART II

1. MATERIAL CHARACTERIZATION *(Optional unless otherwise indicated)*
1. COLOR - Describe the color of the waste *(e.g., blue, clear, varies, etc.)*
2. DENSITY - The specific gravity of water is 1.0. Most organics are less than 1.0. Chlorinated solvents, most inorganics, and paint sludge are greater than 1.0.
3. BTU/LB - This entry may be required if you request that this waste be used as a fuel substitute.
4. ASH CONTENT - This entry may be required if you request recovery of used oil.
5. TOTAL SOLIDS - Content can be expressed as either a weight percentage, or dry-weight concentration *(mg/kg)*.
6. LAYERING - Select applicable entry. Multi-layered means more than two layers *(e.g., oil/water/solvent/sludge).*
Bilayered means the waste is comprised of two layers which may or may not be the same phase *(e.g., oil/water, solvent/sludge).*
Single phase means the waste is homogeneous.
7. PHYSICAL STATE - If the choices do not apply, a description should be entered after "Other".

2. RCRA CHARACTERISTICS *(Required as applicable)*
IGNITABLE - Check this box if the waste meets the criteria list at 40 CFR 261.21.
FLASH POINT - For liquids, list the flash point, *regardless of whether the waste is ignitable (D001) or NOT.*
TOTAL ORGANIC CARBON (TOC) - Required for Ignitable Liquids
CORROSIVE - Check this box if the waste is corrosive as defined in 40 CFR 261.22.
- If applicable, include the PH reading in the space provided (40 CFR 261.22(a)(1).
- If applicable, check the "Corrodes Steel" box. (40 CFR261.22(a)(2)
REACTIVE - Indicate if the waste is reactive as defined in 40 CFR 261.23. If so, indicate the reason by checking the appropriate box. If other than one of the reasons provided, explain n detail as Part II, "Special Handling Requirements."
TOXICITY CHARACTERISTICS - If the waste exhibits the characteristic of toxicity, as defined in 40 CFR 261.24, check this box, and include the contaminant level in Part II, block 3.

DLA FORM 2511, NOV 2016 **(Formerly DRMS Form 1930)** Page 3 of 4 **PDF (DLA)**

Table II.1.
DLA Form 2511 – Hazardous Waste Profile Sheet

RESET PRINT

HAZARDOUS WASTE PROFILE SHEET

Prescribed by: DOD 4160.21-M
Sponsor: Disposition Services

3. CHEMICAL/MATERIAL COMPOSITION (Required as applicable)
CAS # - Chemical Abstract Number (Optional) May be used instead of the chemical name in the "Component" block.
COMPONENT - List all chemical and material contaminants.
- *Examples of chemical components and contaminants.*
"PCB's" "methanol", "oil", "endrin"," sodium chloride", "napthalene, gasoline, etc.
applicable F-listed constituents, e.g., for waste numbers F001-F005. For certain characteristic waste numbers, D001-D043, you have to examine the waste components for UHCs. Look in 40 CFR, Table 268.40. If the treatment standard given includes the words *"and meet 268.48 standards"*., then you must indicate any UHCs present in the waste (if they are present above the levels specified in part 268.48.
- Examples of material components and contaminants: water, dirt, sand, paint sludge, rags, etc.

CONCENTRATION - Use this column for constituents of concern which do not exceed 10,000 ppm (1%). Include the concentration level in ppm or mg/L.
RANGE - For components comprising greater than or equal to 1% of the total waste stream, estimate the range (in percent) in which the component is present. The total maximum values of the components must be greater than, or equal to 100%, including chemical and material components.

4. SHIPPING INFORMATION - Refer to 49 CFR to complete this part.
NOTE: Information provided in this portion of the waste profile is not meant to constitute a standard USDOT certificate given by a shipper offering a package to a transporter, but is needed to identify any other health and safety hazards, which are not readily apparent from the basic waste description.

5. SPECIAL HANDLING INFORMATION - Describe those hazards which you know or reasonably believe are or may be associated with short term or prolonged human exposure to this waste (29 CFR 1920.1200). If known, please identify any carcinogens present in this waste of 0.1% 29 CFR 1910.1200(d)(4). Failure to make an entry in this part is considered to be a representation that you neither know nor believe that there are any adverse human health effects associated with exposure to this waste.

6. GENERATOR CERTIFICATION (Required)
CHEMICAL ANALYSIS - Attach a copy, if applicable *(see Note below)*.
USER KNOWLEDGE - User knowledge is approriate when it can be documented (e.g., in-out logs, published information, MSDS, process production information, etc.). There is room provided to explain "what" and "why" user knowledge is used in lieu of analysis.
CERTIFICATION - Include the PRINTED NAME of the person providing the Certification Signature.
SIGNATURE - An authorized representative of the generator must sign and date this certification on the completed Hazardous Waste Profile Sheet.
DATE - Date Signed by Certifier*.

* This Hazardous Waste Profile Sheet *(HWPS)* may be used for subsequent turn-ins of the same waste stream, for a period of one year. If a turn-in date is more than one year past the Certification Date listed, the generator must either re-certify the HWPS, or provide a new HWPS, with the current date. See instructions at DoDM 4160.21-V2, Enclosure 7, 5. d. 2.

If you require assistance completing this form, please contact your local DLA Disposition Service Site.

DLA FORM 2511, NOV 2016 **(Formerly DRMS Form 1930)** Page 4 of 4 **PDF (DLA)**

Table II.2.
Land Disposal Restriction & Certification Form – Restricted Waste Notification

CleanEarth

Land Disposal Restriction & Certification Form

Generator Name: Malmstrom AFB U.S. EPA ID #: MT8571924556

Generator Address: 341 CES/CEIE, 39 78th. Street North, Malmstrom AFB, MT. 59402

Manifest Document #: State Manifest Document #:

Waste Analysis Available: ☐ Yes ☐ No

Manifest Line	Profile Number	RCRA Waste Codes (List all that apply or "None" if wastestream is not regulated)	Subcategory (See table 2)	NWW or WW	California List Wastes (See Table 3)	Regulated Constituents (See Tables 1 and 4)	Certification (Choose from A through N)

(A) THIS RESTRICTED WASTE REQUIRES TREATMENT TO THE APPLICABLE STANDARD. This waste must be treated to the applicable performance based treatment standard set forth in 40 CFR 268 Subpart C, 268.32 Subpart D, 268.40 or RCRA Section 3004 (d) prior to land disposal.

(B) THIS HAZARDOUS DEBRIS IS SUBJECT TO THE ALTERNATIVE TREATMENT STANDARDS OF 40 CFR 268.45.

(C) THIS RESTRICTED WASTE HAS BEEN TREATED TO THE PERFORMANCE STANDARDS. I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation process used to support this certification and base this certification upon my inquiry of those individuals immediately responsible for obtaining this information. I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR Part 268 Subpart D, and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine or imprisonment.

(D) THIS RESTRICTED WASTE, FOR WHICH THE TREATMENT STANDARD IS EXPRESSED AS A SPECIFIED TECHNOLOGY, HAS BEEN TREATED BY THE CERTIFIED TECHNOLOGY. I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.42. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

(E) THIS RESTRICTED WASTE CAN BE LAND DISPOSED WITHOUT TREAMENT. I certify under the penalty of law that I have personally examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

Page 1 of _____

Table II.2.
Land Disposal Restriction & Certification Form – Restricted Waste Notification

Generator: _____ Manifest Document #: _____

(F) THIS RESTRICTED DEBRIS HAS BEEN TREATED IN ACCORDANCE WITH 40 CFR 268.45. I certify under penalty of law that the debris has been treated in accordance with the requirements of 40 CFR 268.45. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

(G) THIS LAB PACK DOES NOT CONTAIN ANY WASTES IDENTIFIED AT APPENDIX IV TO PART 268. I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack contains only wastes that have not been excluded under Appendix IV to 40 CFR part 268 and that this lab pack will be sent to a combustion facility in compliance with the alternative treatment standards for lab packs at 40 CFR 267.42(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment.

(H) THIS RESTRICTED WASTE HAS BEEN TREATED TO REMOVE THE HAZARDOUS CHARACTERISTIC. I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet universal treatment standards. I am aware that there are significant penalties for submitting a false certification, including he possibility of a fine and imprisonment.

(I) THIS RESTRICTED WASTE HAS BEEN TREATED TO REMOVE THE HAZARDOUS CHARACTERISTIC AND HAS BEEN TREATED FOR UNDERLYING HAZARDOUS CONSTITUENTS. I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous constituents, as defined in 268.48 Universal Treatment Standards. I am aware there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

(J) THIS RESTRICTED WASTE IS SUBJECT TO AN EXEMPTION FROM LAND DISPOSAL. This waste is subject to an exemption from a prohibition on the type of land disposal method utilized for the waste (such as, but not limited to, a case-by-case extension under 40 CFR Part 268.5, an exemption under 40 CFR 268.6, or a nationwide capacity variance under 40 CFR 269 Subpart C).

(K) THIS RESTRICTED WASTE WITH TREATMENT STANDARDS EXPRESSED AS CONCENTRATIONS IN THE WASTE PERSUANT TO 268.43, IF COMPLIANCE WITH THE TREATMENT STANDARDS IN SUBPART D OF THIS PART IS BASED IN PART OR IN WHOLE ON THE ANALYTICAL DETECTION LIMIT ALTERNATIVE IN 268.439(c). I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining information, I believe that the nonwastwater organic constituents have been treated by incineration in units operated in accordance with 40 CFR Part 264 Subpart O, or 40 CFR Part 265 Subpart O, or by combustion in fuel substitution units operating in accordance with the applicable technical requirements, and I have been unable to detect that nonwastewater organic constituents despite having used best good faith efforts to analyze for such constituents. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

(L) THIS DECHARACTERIZED WASTE CONTAINS UNDERLYING HAZARDOUS CONSTITUENTS THAT REQUIRE FURTHER TREATMENT TO MEET UNIVERSAL TREATMENT STANDARDS. I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR 268.40 to remove the hazardous characteristics. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

(M) THIS WASTE HAS BEEN TREATED IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR 268.40 TO REMOVE THE HAZARDOUS CHARACTERISTICS AND THE UNDERLYING HAZARDOUS CONSTITUENTS, AS DEFINED IN 268.2(I) HAVE BEEN TREATED ON-SITE TO MEET THE 268.48 UNIVERSAL TREATMENT STANDARDS. I certify under penalty of law that the above is true. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

(N) THIS CONTAMINATED SOIL ☐ ***DOES*** ☐ ***DOES NOT*** CONTAIN LISTED HAZARDOUS WASTE AND ☐ ***DOES*** ☐ ***DOES NOT*** EXHIBIT A CHARACTERISTIC OF HAZARDOUS WASTE AND ☐ ***IS SUBJECT TO*** ☐ ***COMPLIES WITH*** THE SOIL TREATMENT STANDARDS AS PROVIDED BY 268.49(c) OR THE UNIVERSAL TREATMENT STANDARDS. I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and believe that it has been maintained and operated properly so as to comply with the treatment standards specified in 40 CFR 268.49 without impermissible dilution of the prohibited wastes. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

I hereby certify under penalty of law that all information submitted on this and all associated documents is complete, accurate and true to the best of my knowledge.

Generator Signature: _____ Title: _____

Printed Name: _____ Date: _____

Please use one Land Disposal Restriction & Certification form per manifest

Page 2 of _____

Table II.2.
Land Disposal Restriction & Certification Form – Restricted Waste Notification

CleanEarth

Land Disposal Restriction & Certification Form
(Continuation Sheet)

Generator: _____ Manifest Document #: _____

Manifest Line	Profile Number	RCRA Waste Codes (List all that apply or "None" if wastestream is not regulated)	Subcategory (See table 2)	NWW or WW	California List Wastes (See Table 3)	Regulated Constituents (See Tables 1 and 4)	Certification (Choose from A through N)

Please use one Land Disposal Restriction & Certification form per manifest.

Page_____of ____

Table II.2.
Land Disposal Restriction & Certification Form – Restricted Waste Notification

Table 1 - Underlying Hazardous Constituents (w/ AES Z-Codes)

Z001 A2213
Z002 ACENAPHTHYLENE
Z003 ACENAPHTHENE
Z004 ACETONE
Z005 ACETONITRILE
Z006 ACETOPHENONE
Z007 2-ACETYLAMINOFLOURENE
Z008 ACROLEIN
Z009 ACRYLAMIDE
Z010 ACRYLONITRILE
Z011 ALDICARB SULFONE
Z012 ALDRIN
Z013 4-AMINOBIPHENYL
Z014 ANILINE
Z015 ANTHRACENE
Z016 ARAMITE
Z017 ALPHA-BHC
Z018 BETA-BHC
Z019 DELTA-BHC
Z020 GAMMA-BHC
Z021 BARBAN
Z022 BENDIOCARB
Z023 BENDIOCARB PHENOL
Z024 BENOMYL
Z025 BENZENE
Z026 BENZ(A)ANTHRACENE
Z027 BENZAL CHLORIDE
Z038 BENZO(B)FLORANTHENE
Z029 BENZO(K)FLUORANTHENE
Z030 BENZO(G,H,I)PERYLENE
Z031 BENZO(A)PYRENE
Z032 BROMODICHLOROMETHANE
Z033 METHYL BROMIDE (BROMOMETHANE)
Z034 4-BROMOPHENYL PHENYL ETHER
Z035 N-BUTYL ALCOHOL
Z036 BUTYLATE
Z037 BUTYL BENZYL PHTHALATE
Z038 2-SEC-BUTYL-4,6-DINITROPHENOL (DINOSEB)
Z039 CARBARYL
Z040 CARBENZADIM
Z041 CARBOFURAN
Z042 CARBOFURAN PHENOL
Z043 CARBON DISULFIDE
Z044 CARBON TETRACHLORIDE
Z045 CARBONSULFAN
Z046 CHLORDANE (ALPHA AND GAMA ISOMERS
Z047 P-CHLOROANILINE
Z048 CHLOROBENZENE
Z049 CHLOROBENZILATE
Z050 2-CHLORO-1,3-BUTADIENE
Z051 CHLORODIBROMOMETHANE
Z052 CHLOROETHANE
Z053 BIS(2-CHLOROETHOXY) METHANE
Z054 BIS(2-CHLOROETHYL) ETHER
Z055 CHLOROFORM
Z056 BIS (2-CHLOROISO-PROPYL) ETHER
Z057 P-CHLORO-M-CRESOL
Z058 2-CHLOROMETHYL VINYL ETHER
Z059 CHLOROMETHANE
Z060 2-CHLORONAPHTHANENE
Z061 2-CHLOROPHENOL
Z062 3-CHLOROPROPYLENE
Z063 CHRYSENE
Z064 0-CRESOL
Z065 M-CRESOL
Z066 P-CRESOL
Z067 M-CUMENYL METHYLCARBAMATE
Z069 CYCLOHEXANONE
Z070 1,2-DIBROMO-3-CHLOROPROPANE
Z071 ETHYLENE DIBROMIDE (1,2-DIBROMOETHANE)
Z072 DIBROMOMETHANE
Z073 2,4-0(2,4-DICHLOROPHENOXY-ACETIC ACID)
Z074 O,P'-DDD
Z075 P,P'-DDD
Z076 O,P'-DDE
Z077 P,P'-DDE
Z078 O,P'-DDT
Z079 P,P'-DDT
Z080 DIBENA(A,H)ANTHRACENE
Z081 DIBENZ(A,E)PYRENE
Z082 M-DICHLOROBENZENE
Z083 0-DICHLOROBENZENE
Z084 P-DICHLOROBENZENE
Z085 DICHLORODIFLOURO-METHANE
Z086 1,1-DICHLOROETHANE
Z087 1,2-DICHLOROETHANE
Z088 1,1-DICHLOREOTHANE
Z089 TRANS-1,2-DICHLORO-ETHYLENE
Z090 2.4-DICHLOROPHENOL
Z091 2,6-DICHLORPHENOL
Z092 1,2-DICHLOROPROPANE
Z093 CIS-1,3-DICHLORO-PROPYLENE
Z094 TRANS-1,3-DICHLORO-PROPYLENE
Z095 DIELDRIN
Z096 DIETHLENE GLYCOL, DICARBAMATE
Z097 DIETHYL PHTHALATE
Z098 2,4-DIMETHYL PHENOL
Z099 DIMETHYL PHTHALATE
Z100 DIMETILAN
Z101 DI-N-BUTYL PHTHALATE
Z102 1,4-DINITROBENZENE
Z103 4,6-DINITRO-O-CRESOL
Z104 2,4-DINITROPHENOL
Z105 2,4-DINITROTOLUENE
Z106 2,6-DINITROTOLUENE
Z107 DI-N-OCTYL PHTHALATE
Z108 P. DIMETHYLAMINOAZO-BENZENE
Z109 DI-N-PROPYLNITROSAMINE
Z110 1,4-DIOXANE
Z111 DIPHENYLAMINE
Z112 DIPHENYLNITROSAMINE
Z113 1,2-DIPHENYLHYDRAZINE
Z114 DISULFOTON
Z115 DITHIOCARBAMATES (TOTAL)
Z116 ENDOSULFAN1
Z117 ENDOSULFAN 11
Z118 ENDOSULFAN SULFATE
Z119 ENDRIN
Z120 ENDRIN ALDEHYDE
Z121 EPTC
Z122 ETHYL ACETATE
Z123 ETHYL CYANIDE-(PROPANENITRILE)
Z124 ETHYLBENZENE
Z125 ETHYL ETHER
Z126 (BIS(2-ETHYL HEXYL) PHTHALATE
Z127 ETHYL METHACRYLANE
Z128 ETHYLENE OXIDE
Z129 FAMHUR
Z130 FLUORANTHENE
Z131 FLOURENE
Z132 FORMETANATE HYDROCHLORIDE
Z133 FORMPARANATE
Z134 HEPTACHLOR
Z135 HEPTACHLOR EPOXIDE
Z136 HEXACHLOROBENZENE
Z137 HEXACHLORO-BUTADIENE
Z138 HEXACHLORO-CYCLOPENTADIENE
Z139 HxCDDs(ALL HEXACHLORO-DIBENZO-O-DIOXINS
Z140 HxCDFx (ALL HEXACHLORO-DIBENZO-FURANS)
Z141 HEXACHLOROETHANE
Z142 HEXACHLOROPROPYLENE
Z143 IODOMETHANE
Z145 ISOBUTYL ALCOHOL
Z146 ISODRIN
Z147 ISOLAN
Z148 ISOSAFROLE
Z149 KEPONE
Z150 METHACRYLONITRILE
Z151 METHANOL
Z152 METHAPYRILENE
Z153 METHIOCARB
Z154 METHOMYL
Z155 METHOXYCHLOR
Z156 3-METHYLCHOLANTHRENE
Z157 4,4-METHYLENE BIS (2-CHLOROANILINE)
Z158 INDENO(1,2,3-C,D)PYRENE
Z159 METHYLENE CHLORIDE
Z160 METHYL ETHYL KETONE
Z161 METHYL ISOBUTYL KETONE
Z162 METHYL METHACRYLATE
Z163 METHYL METHANSULFONATE
Z164 METHYL PARATHION
Z165 METOLCARB
Z166 MEXACARBATE
Z167 MOLINATE
Z168 NAPHTHALENE
Z169 2-NAPTHYLAMINE
Z170 0-NITROANLINE
Z171 P-NITROANLINE
Z172 NITROBENZENE
Z173 5-NITRO-0-TOLUIDINE
Z174 0-NITROPHENOL
Z175 P-NITROPHEN0L
Z176 N-NITROSODIETHLAMINE
Z177 N-NITROSODIMETHYLAMINE
Z178 N-NITROSO-DI-N-BUTYLAMINE
Z179 N-NITROSOMETHYL-AMINE
Z180 N-NITROSOMORPHOLINE
Z181 N-NITROSOPIPERIDINE
Z182 N-NITROSOPYRROLIDINE
Z183 OXAMYL
Z184 PARATHION
Z185 TOTAL PCS's (SUM OF ALL ISOMERS OR ALL AROCLORS)
Z186 PEBULATE
Z187 PENTACHLOROBENZENE
Z188 PeCDDs (ALL PENTACHLORO-DIBENZO-P-DIOXINS)
Z189 PeCDFs (ALL PENTACHLORO-DIBENZO-FURANS
Z190 PENTACHLOROETHANE
Z191 PENTACHLORO-NITROBENZENE
Z192 PENTACHLOROPHENOL
Z193 PHENACETIN
Z194 PHENANTHRENE
Z195 PHENOL
Z196 O-PHENYLENE-DIAMINE
Z197 PHORATE
Z198 PHTHALIC ACID (CAS 100-21-0)
Z199 PHTHALIC ANHYDRIDE (CAS 85-44-9)
Z200 PHYSOSTIGMINE
Z201 PHYSOSTIGMINE SALICYLATE
Z202 PROMECARB
Z203 PRONAMIDE
Z204 PROPHAM
Z205 PROPOXUR
Z206 PROSULFOCARB
Z207 PYRENE
Z208 PYRIDINE
Z209 SAFROLE
Z210 SILVEX(2,4,6-TP)
Z211 2,4,5-T (2,4,5-TRICHLOROPHENOXY-ACETIC ACID)
Z212 1,2,4,5-TETRACHLORO-BENZENE
Z213 TCDDs(ALL TETRACHLORO-DIBENZO-P-DIOXINS)
Z214 TCDFs (ALL TETRACHLORO-DIBENZO-FURNANS)
Z215 1,1,1,2-TETRACHLORO-ETHANE
Z216 1,1,2,2-TETRACHLORO-ETHANE
Z217 TETRACHLOROETHYLENE
Z218 2,3,4,6-TETRACHLORO-PHENOL
Z219 THIODICARB
Z220 THIOPHANATE-METHYL
Z221 TIRPATE
Z222 TOLUENE
Z223 TOXAPHENE
Z225 BROMOFORM (TRIBROMOMETHANE)
Z226 1,2,4-TRICHLORO BENZENE
Z227 1,1,1-TRICHLORO-ETHANE
Z228 1,1,2-TRICHLORO-ETHANE
Z229 TRICHLOROETHYLENE
Z230 TRICHLOROMONO-FLUOROMETHANE
Z231 2,4,5-TRICHLOROPHENOL
Z232 2,4,6-TRICHLOROPHENOL
Z233 1,2,3-TRICHLOROPROPANE
Z234 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE
Z235 TRIETHYLAMINE
Z236 TRIS-(2,3-DEBROMOPROPYL PHOSPHATE
Z237 VERNOLAGE
Z238 VINYL CHLORIDE
Z239 XYLENES-MIXED ISOMERS (SJM OF O-M- AND P-XYLENE CONCENTRATIONS
Z240 ANTIMONY
Z241 ARSENIC
Z242 BARIUM
Z243 BERYLLIUM
Z244 CADMIUM
Z245 CHROMIUM (TOTAL)
Z246 CYANIDES (TOTAL)
Z247 CYANIDES (AMENABLE)
Z248 FLOURIDE
Z249 LEAD
Z250 MERCURY-NONWASTE-WATERS FROM RETORT
Z251 MERCURY (ALL OTHERS)
Z252 NICKEL
Z253 SELENIUM (NOT UHC-TC=UHC)
Z254 SILVER
Z255 SULFIDE*
Z256 THALLIUM
Z257 VANADIUM*
Z258 ZINC*

Table II.2.
Land Disposal Restriction & Certification Form – Restricted Waste Notification

TABLE 2 - WASTE CODES WITH SUBCATEGORIES

Waste Codes	Subcategory Number	Subcategory
D001	1	High TOC ignitable liquids
D001	2	Low TOC ignitable liquids managed in CWA/CWA equivalent/Class 1 SDWA systems
D001	3	Low TOC ignitable liquids managed in non-CWA/non-CWA equivalent/non Class 1 SDWA systems
D002	4	Corrosive waste managed in CWA/CWA equivalent/Class 1 SDWA systems
D002	5	Corrosive waste managed in non-CWA/non-CWA equivalent/non-Class 1 SDWA systems
D003	6	Water reactive
D003	7	Reactive cyanides
D003	8	Reactive sulfides
D003	9	Other reactive wastes
D006	10	Characteristic for cadmium based on extraction procedure
D006	11	Cadmium-containing batteries
D008	12	Characteristic for lead based on extraction procedure
D008	13	Lead acid batteries
D009	14	Low mercury (<260 ppm total mercury)
D009	15	High mercury (>260 ppm total mercury)
F003 F005	16	Wastes that contain only one or more of the following solvents: carbon disulfide, cyclohexanone and/or methanol
F005	17	Contains only 2-nitropropane
F005	18	Contains only 2-Ethoxyethanol
F025	19	Light ends
F025	20	Spent filters/aids and desiccants
K006	21	Anhydrous
K006	22	Hydrated
U151	23	Nonwastewaters that contain >260 ppm total mercury
U151	24	All U151 wastewaters
K071	25	Nonwastewaters that are residues from RMERC
K071	26	Nonwastewaters that are not residues from RMERC
K071	27	All K071 wastewaters
P047	28	4,6-Dinitro-o-cresol
P047	29	4,6-Dinitro-o-cresol salts
P065	30	Nonwastewaters, not incinerator or RMERC residues
P065	31	Nonwastewaters from RMERC with less than 260 ppm mercury
P065	32	Nonwastewaters from incinerator residues with less than 260 ppm mercury
P065	33	All P065 wastewaters
P092	34	Nonwastewaters, not incinerator or RMERC residues
P092	35	Nonwastewaters from RMERC with less than 260 ppm mercury
P092	36	Nonwastewaters from incinerator residues with less than 260 ppm mercury
P092	37	All P092 wastewaters
U240	38	2,4-D (2,4-Dichlorophenoxyacetic acid)
U240	39	2,4-D (2,4-Dichlorophenoxyacetic acid) salts and esters

TABLE 3 - CALIFORNIA LIST WASTES

1) PCB > or = 50 ppm
2) Halogenated Organic Carbon (HOC's) > or = 1000 mg/l
3) Nickel > or = 134 mg/l
4) Thallium > or = 130 mg/l

TABLE 4 - REGULATED CONSTITUENTS FOR F001 - F005

5) Acetone
6) Benzene
7) N-Butyl Alcohol
8) Carbon Disulfide
9) Carbon Tetrachloride
10) Chlorobenzene
11) Cresols (o, m or p isomers)
12) Cresylic Acid
13) Cyclohexanone
14) 1,2-Dichlorobenzene
15) Ethyl Acetate
16) Ethyl Benzene
17) Ethyl Ether
18) Isobutanol (isobutyl alcohol)
19) Methanol
20) Methylene Chloride
21) Methyl Ethyl Ketone
22) Methyl Isobutyl Ketone
23) Nitrobenzene
24) Pyridine
25) Tetrachloroethylene
26) Toluene
27) 1,1,1 Trichloroethane
28) 1,1,2 Trichloroethane
29) 1,1,2 Trichloro 1,2,2 Trifluoroethane
30) Trichloroethylene
31) Trichlorofluoroethane
32) Xylene (Total)

Table II.2.
Land Disposal Restriction & Certification Form – Restricted Waste Notification

Land Disposal Restriction Form
2005 Revision
Instructions for Completion

1) Enter the number of pages used, not including the Table 1 through Table 4 Attachments. This will need to be entered on each page.

2) Enter the name of the generator, as it appears on the manifest, on each page of the land ban.

3) Enter the generator's EPA ID number on page 1.

4) Enter the generator's address, as it appears on the manifest, on page 1.

5) Enter the manifest document number on each page. Note that federal regulations require that this be a **5-digit** alpha-numeric on hazardous waste manifests.

6) Enter the state manifest document, if any, on page 1.

7) Check the appropriate box on page 1 indicating whether waste analysis has been performed.

8) Indicate the manifest line for each line of hazardous waste on the manifest; i.e., 11a, 28d(2), 28c(5), etc.

9) Indicate the profile number for each line. Waste should not be shipped until the profile is approved, recertified as needed, and any addenda submitted have been approved by the profile committee.

10) Indicate the appropriate RCRA waste codes for each line item or "none" for non-hazardous waste.

11) Indicate any subcategory codes from Table 2 which apply to these waste codes. If none apply, put N/A in this box.

12) Indicate whether the material is a wastewater (ww) or non-wastewater (nww). A wastewater is any material which contains < 1% by weight total organic carbon and < 1% by weight total suspended solids [40 CFR 268.2(f)].

13) Indicate whether the waste contains any of the California list materials from Table 3. Note that neither Morgantown nor Calvert City is permitted to accept PCB waste greater than 50 ppm. If the material is manifested to either AES facility, there should **never** be a 1 listed in this column.

14) Indicate regulated solvents and underlying hazardous constituents for each line item from Tables 4 and 1 respectively.

- For each F001 through F005 code you must indicate at least one solvent from Table 4 which matches that waste code. Note that the F001 and F002 solvents are the same. F001 should apply only when those solvents have been used in
  degreasing operations. Any other use for the solvents should result in the use of F002.

- If there are no D001-D043 codes on the line item, do not list any UCHs. If the material has a D001 code and is not an oxidizer, do not list any UHCs. If the material has a D001(ox)-D043, list any Z code from Table 1 which applies. Note that any material for which there is already a waste code attached is not a UHC. For example, if the material has a D008 code for lead, you do not need to list Z249 in this box.

15) Place an "A" in the certification box for all wastes bearing EPA codes. Place an "N/A" in this box for all wastes which do not have an EPA waste code. Other certification may apply in special circumstances. Please contact Corporate Compliance before using any code other than "A".

16) Have the generator fill out the appropriate items at the bottom of page 2 and ensure that one copy of the land ban remains with the generator and one copy accompanies the load.

Table II.3.
DD Form 1348-1A – Issue Review/Release Document

Table II.4.
Generic Chain of Custody Record

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Page _____ of _____

Account Information *(Billing information)*

Company/Name		
Contact		
Phone		
Mailing Address		
City, State, Zip		
Email		
Receive Invoice ☐Hard Copy ☐Email	Receive Report ☐Hard Copy ☐Email	
Purchase Order	Quote	Bottle Order

Report Information *(if different than Account Information)*

Company/Name
Contact
Phone
Mailing Address
City, State, Zip
Email
Receive Report ☐Hard Copy ☐Email
Special Report/Formats: ☐ LEVEL IV ☐NELAC ☐ EDD/EDT *(contact laboratory)* ☐ Other_____

Comments

Project Information

Project Name, PWSID, Permit, etc.	
Sampler Name	Sampler Phone
Sample Origin State	EPA/State Compliance ☐ Yes ☐ No

URANIUM MINING CLIENTS MUST indicate sample type
☐ Unprocessed Ore
☐ Processed Ore (Ground or Refined) **CALL BEFORE SENDING
☐ 11(e)2 Byproduct Material (Can ONLY be Submitted to ELI Casper Location)

Matrix Codes

A -	Air
W -	Water
S -	Soils/ Solids
V -	Vegetation
B -	Bioassay
O -	Oil
DW -	Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

Sample Identification *(Name, Location, Interval, etc.)*	Collection Date	Collection Time	Number of Containers	Matrix *(See Codes Above)*	Analysis Requested										See Attached	RUSH TAT	ELI LAB ID *Laboratory Use Only*
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	

ELI is REQUIRED to provide preservative traceability. If the preservatives supplied with the bottle order were **NOT** used, please attach your preservative information with this COC.

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Relinquished by (print)	Date/Time	Signature	**Received by Laboratory (print)**	**Date/Time**	**Signature**

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number *(cash/check only)*

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-01/21 v.4

Table II.4.
Generic Chain of Custody Record

Instructions for Completing the Chain of Custody (COC)

Important Information

- Please contact Energy Laboratories PRIOR to sample submittal if services are other than standard.
- RUSH Turn Around Time (TAT) - Contact Energy Laboratories PRIOR to sample submittal to confirm that RUSH TAT is available for the requested analysis. Additional charges will apply.
- Sample Disposal - Energy Laboratories, when applicable, will dispose of all non-hazardous samples. Routinely, hazardous samples will be returned at the client's expense. If requested, Energy Laboratories will dispose of hazardous samples at client's expense.

A: Account Information

- This is the primary contact who will be invoiced for work done and will receive a report.
- Request to receive a hard copy and/or an email of the invoice and report.
- Please provide a PO number if one is required for billing purposes.
- Provide a quote and/or bottle order number if applicable.

B: Report Information

- Only required if information is different from the Account Information. This contact will only be receiving a report.
- Request for the contact to receive the report by hard copy and/or email.
- Indicated if a special format of the report is required. Contact

C: Comments

- Include any additional notes, requirements or requests.

D: Project Information

- Include project name, sample state, and whether the sample is for EPA/ state compliance.
- Include sampler name and phone number.
- All mining clients must indicate sample type.

E: Sample Information

- **Sample Identification**—A unique identifier for each sample being submitted.
- **Collection**—Date and time of sample collection.
- **Matrix**—Identify what type of sample is being submitted. See Matrix Codes for types.
- **Analysis Requested**—List the required analysis and place a check in the column for the samples requiring the analysis. Include an attachment for extended lists.
- **RUSH TAT**—Only mark if pre-approval is confirmed through Energy Laboratories. Additional charges will apply.

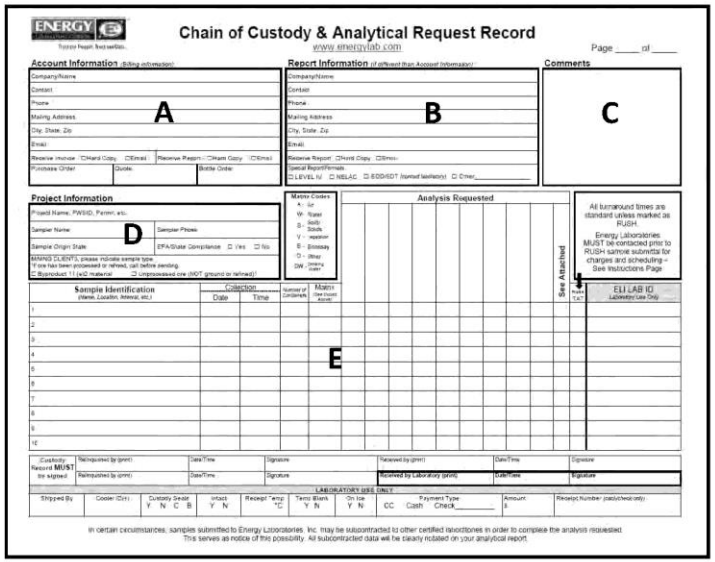


Table II.5.
HWSF Inspection Log

TSDF Inspection Log							
Date/Time	Malmstrom Hazardous Waste Storage Facility (TSDF) Bldg. 1535					Signature of Inspector	
Safety and Emergency Equipment	Type of Problem	SAT	UNSAT	N/A	Location and Problems Observed	Date and Nature of Corrective Actions	Frequency
Face Shield & chemical goggle	Broken, dirty or missing						Weekly
Protective clothing	Holes, worn, missing						Weekly
Spill Supplies	Saturated, contaminated, quality						Weekly
Empty drums/containers	Corrosion, structural integrity						Weekly
Emergency eyewash/shower	Water pressure, leaking, flushed						Weekly
Main heater	Not operating						Weekly
Electric heater in H 03	Not operating						Weekly
Non sparking shovel, tools, bung wrench	Missing, damaged						Weekly
Fire extinguishers	Not charged, mounted properly						Monthly
Fire alarm system	Not operating						Monthly
Telephone system	Not operating						Monthly
First Aid kit	Items out of stock, outdated, missing						Monthly
Broom, mops	Missing, damaged						Weekly
Security							
Warning signs	Illegible, missing						Weekly
Security lights	Not operating						Weekly
Building doors, locks, fence, and gates	Locks missing, unlocked, signs of tampering						Weekly
Building Load/Unload Area							
General debris and refuse	General housekeeping, obstructions						Weekly, Daily when in use
Odor, fumes	Detectable by smell, eye or nose irritation						Weekly, Daily when in use

Table II.5.
HWSF Inspection Log

Building condition, foundation, containment, ramps, roof, and walls	Structural integrity, e.g., erosion uneven settlement, cracks, etc.						Weekly, Daily when in use
Lighting	Bulbs missing, burned out, broken fixtures						Weekly, Daily when in use
Evidence of spills/staining	Spills, releases, corrosion						Daily when in use
Container Storage Area							
Containers	Corrosion, structural defects						Weekly
Container integrity	Open lids, bung tight, leaking contents						Weekly
Container labeling	Improper identification, date and waste code missing or incorrect, readable						Weekly
Container placement	Sufficient aisle space, clearance						Weekly
Segregation of incompatible waste	Waste stored improperly						Weekly
Identification of storage area	Posted correctly e.g. Flammable, Acid, Toxic						Weekly
Pallets	Intact no broken						Weekly
Floor, containment, roof, wall condition	Structural integrity, e.g., erosion uneven settlement, cracks, etc.						Weekly
Comments							

Table II.6.
Civil Engineer Squadron, Environmental Compliance (CES/CEIEC) Spill Response Equipment Inventory

CIVIL ENGINEERING SQUADRON (CES) SPILL RESPONSE EQUIPMENT INVENTORY					
MATERIAL	**SIZE**	**QUANTITY**	**LOCATION**	**CUSTODY**	**CONDITION**
Sand bags(full)	1.5 cf	500-1000	Bldg 407	CES	Varies
Sand bags (empty)	1.5 cf	10,000	Bldg 407	CES	Good/New
Portable Pumps	385 gpm	8	Bldg 407, 220, 370	CES	Good
Front End Loader	1.5 cy	4*	CE Yard	CES	Good
Dump Truck	5 Tons	4*	CE Yard	CES	Good
Grader		1*	CE Yard	CES	Good
Self-Contained Breathing Gear		9	FD Vehicle	FD	Good
Protective Clothing		1 set each	FD Vehicle	FD	Good
Suits		1 set each	FD Vehicle	FD	Good
Boots		1 set each	FD Vehicle	FD	Good
Gloves		1 set each	FD Vehicle	FD	Good
HAZMAT Response Equipment		1 set	Bldg 349	FD	Good/New
Misc Hand Tools		Several	CE Yard	CES	Good
* Available quantity may vary with tasking to missile fields, etc. CES = 341 Civil Engineering Squadron cf = cubic feet FD = 341 Civil Engineering Squadron Fire Department Inventory conducted 7/28/2021					

Table II.7.
Fire Department Response Equipment

MAFB FIRE DEPARTMENT RESPONSE EQUIPMENT		
TYPE UNIT/APPARATUS	**OPERATOR**	**CALL SIGN**
C/A Command and Control Vehicle	Fire Chief	Chief #1
C/A Command and Control Vehicle	Asst Chief	Chief #2
P-30 Rescue Vehicle	Rescue Squad	Rescue #3
Pumper	Engine Company	Eng. #4
Pumper	Engine Company	Eng. #5
Utility Vehicle/Support	X-Man	Hazmat #6
Utility Vehicle/Support	X-Man	Hazmat #7
Utility Vehicle/Support	X-Man	Hazmat #8
P-34 Crash Truck	Crash Crew	Crash #9
P-34 Crash Truck	Crash Crew	Crash #10
P-28 Hazmat Vehicle	X-Man	Squad #11
P-26 Water Tender	X-Man	Tender #12
Crash Truck	Crash Crew	Crash #14
Wildland Brush Truck	X-Man	Brush #20
DECON Trailer	X-Man	Decon
Rehab Trailer	X-Man	Rehab
Tech Rescue Trailer	X-Man	Tech Rescue
Note: X-Man = Cross Staffing Units/Apparatus		

Table II.8.
HAZMAT Vehicle 10 Response Equipment

HAZMAT VEHICLE 10 RESPONSE EQUIPMENT		
TEAM	**ITEM**	**QUANTITY**
CEF- DECON TRAILER	POOL,CONTAMINENT	8
CEF- DECON TRAILER	PUMP, DRUM, TRANSFER, ELECTRIC, 55 GAL	1
CEF- DECON TRAILER	SIGNS, ENTRY, CONTROL ZONES	1
CEF- DECON TRAILER	SOLUTION, DECON	4
CEF- DECON TRAILER	SUMP PUMP	1
CEF- DECON TRAILER	STOOL, OPEN BACK	8
CEF-ENGINE 4	DETECTOR, HAZMAT, MULTI GAS, FIVE GAS	1
CEF-ENGINE 4	DETECTOR, HAZMAT, MULTI GAS, THREE GAS	1
CEF-ENGINE 5	DETECTOR, HAZMAT, MULTI GAS, FIVE GAS	1
CEF-ENGINE 5	DETECTOR, HAZMAT, MULTI GAS, THREE GAS	1
CEF-HAZMAT TRAILER	BLOCKER,DRAIN	4
CEF-HAZMAT TRAILER	KIT,CHLORINE A, CYLINDERS	1
CEF-HAZMAT TRAILER	KIT,CHLORINE B, ONE TON CYLINDERS	1
CEF-HAZMAT TRAILER	KIT,CHLORINE C, TANK CAR VALVES	1
CEF-HAZMAT TRAILER	MODELING, PLUME, ALOHA	1
CEF-HAZMAT TRAILER	MODELING, PLUME, CAMEO	1
CEF-HAZMAT TRAILER	MODELING, PLUME, MARPLOT	1
CEF-HAZMAT TRAILER	STATION, WEATHER, PORTABLE	1
CEF-HAZMAT TRAILER	TYVEC SUIT HAZMAT	38
CEF-HAZMAT TRAILER	FAN,MISTING, PORTABLE	1
CEF-HAZMAT TRAILER	TAPE, CHEMICAL RESISTANT	11
CEF-HAZMAT TRAILER	CLAMP,DOME	2
CEF-HAZMAT TRAILER	BOOTS, CHEMICAL RESISTANT, DISPOSABLE, UNIVERSAL SIZING	25
CEF-HAZMAT TRAILER	FOOTWARE,DISPOSABLE	25
CEF-HAZMAT TRAILER	ASSORTED RUBBER PLUGS & PATCHES	4
CEF-HAZMAT TRAILER	DRAEGER CMS ANALYSER	1
CEF-RECSUE 3	DETECTOR, HAZMAT, MULTI GAS, THREE GAS	1
CEF-RECSUE 3	DRAEGER CMS ANALYSER	1
CEF-WELLS CARGO	WIRE, GROUNDING, BONDING	1
EM EQUIPMENT	AHURA FIRST DEFENDER	1
EM EQUIPMENT	EVIDENCE/SAMPLE COLLECTION KIT	1
EM EQUIPMENT	FILTER, MSA CBRN	10
EM EQUIPMENT	HAZMAT, BOOTS - CHEMICAL RESISTANT	49
EM EQUIPMENT	TAPE, DUCT, ROLL	1
EM EQUIPMENT	GLOVES, CHEMICAL RESISTANT, BUTYL, L	58
EM EQUIPMENT	GLOVES, CHEMICAL RESISTANT, BUTYL, M	5
EM EQUIPMENT	GLOVES, CHEMICAL RESISTANT, BUTYL, S	3
EM EQUIPMENT	GLOVES, CHEMICAL RESISTANT, BUTYL, XL	2
EM EQUIPMENT	GLOVES, CHEMICAL RESISTANT, BUTYL, XL	65
EM EQUIPMENT	GLOVES, CHEMICAL RESISTANT, NITRILE, L	3
EM EQUIPMENT	GLOVES, CHEMICAL RESISTANT, NITRILE, M	1
EM EQUIPMENT	GLOVES, CHEMICAL RESISTANT, NITRILE, XL	2
EM EQUIPMENT	AIR HOSES	12
EM EQUIPMENT	LEVEL A SUIT	1
EM EQUIPMENT	TYVEK SUITS	16
EM EQUIPMENT	OVERPACK SPILL KIT (SM)	1
EOD EQUIPMENT	TACTICAL IED KIT (TIK.1)	1
FD EQUIPMENT	HALIGAN TOOL	1
FD HAZMAT	HAZMAT, LEVEL A, SUIT, MEDIUM	1
FD HAZMAT	KIT, RESPONSE, SAMPLING, SMALL AREA	1

Table II.8.
HAZMAT Vehicle 10 Response Equipment

HAZMAT VEHICLE 10 RESPONSE EQUIPMENT		
TEAM	**ITEM**	**QUANTITY REQUIRED**
FD HAZMAT	KIT, RESPONSE, SAMPLING, SMALL AREA	1
FD HAZMAT	KIT,M291, SKIN DECONTAMINATION	168
FD HAZMAT	KIT,M295, EQUIPMENT DECONTAMINATION	168
FD HAZMAT	NEUTRALIZER,ACIDS/BASES	3
FD HAZMAT	PAPER, M8, CHEMICAL AGENT LIQUID DETECTOR	2
FD HAZMAT	PAPER, M9, CHEMICAL AGENT LIQUID DETECTOR	2
FD HAZMAT	SAMPLER,DRUM	2
FD HAZMAT	TESTER, SUIT, HAZMAT	1
FD HAZMAT	TESTER, SUIT, HAZMAT	1
FD HAZMAT	TESTER, SUIT, HAZMAT	1
FD HAZMAT	TOOLS, AXES AND PRY BARS	1
FD HAZMAT	MATERIAL, ABSORBENT, INERT	6
FD HAZMAT	PHOTO IONIZATION DETECTOR	1
FD HAZMAT	PHOTO IONIZATION DETECTOR	1
FD HAZMAT	HAZMAT, CAMERA (DIGITAL STYLE)	1
FD HAZMAT	NON SPARKING TOOL SET	1
FD HAZMAT	TAPE, CHEMICAL RESISTANT	5
FD HAZMAT	DRUM, POLY, SALVAGE, SCREW LID, OVERPACK, 65 GAL	2
FD HAZMAT	TOOLS, HAZMAT, ASSORTMENT	1
FD HAZMAT	STRIPS, CHEMICAL INDICATION	2
FD HAZMAT	BAG, DRY ABSORBENT, OILS, COOLANTS, SOLVENTS AND WATER	31
FD HAZMAT	CONTAINERS,SAMPLING	2
FD HAZMAT	COVERALLS, HAZMAT, FIRE RETARDENT	25
FD HAZMAT	STRAP, CHIN, HARD HAT, ADJUSTABLE	22
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, L	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, M	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, M	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, S	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, TRAINING, M	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, XXL	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, XXL	1
FD HAZMAT	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, XXL	1
FD PPE	KIT,M295, EQUIPMENT DECONTAMINATION	1
FD PPE	HAZMAT, NFPA FIREFIGHTERS HANDBOOK OF HAZARDOUS MATERIALS	1

Table II.8.
HAZMAT Vehicle 10 Response Equipment

HAZMAT VEHICLE 10 RESPONSE EQUIPMENT		
TEAM	**ITEM**	**QUANTITY REQUIRED**
FD PPE	HAZMAT, WATER BLADDER - 500 GALLON	1
UNASSIGNED	SUIT, HAZMAT, LEVEL A, VAPOR, NFPA, TRAINING, M	1
FD HAZMAT	Deluxe Drum Plug Wrench	2
FD HAZMAT	Chemtex Coverall W/Hood SZ Large Level C	8
FD HAZMAT	Chemtex Coverall W/Hood SZ Medium Level C	2
FD HAZMAT	Chemtex Coverall W/Hood SZ X-Large Level C	5

Table II.9.
HWSF Response Equipment

HWSF RESPONSE EQUIPMENT		
ITEM	**QUANTITY**	**LOCATION**
85-Gallon Overpack	1 each	On-site, Bldg 1535
55-Gallon Overpack	1 each	On-site, Bldg 1535
Absorbent	10-15 per year	On-site, Bldg 1535
Non Sparking Shovel	1 each	On-site, Bldg 1535
Push Broom	1 each	On-site, Bldg 1535
Drum Lifter (55 Gallons)	1 each	On-site, Bldg 1535
Bung Wrench	1 each	On-site, Bldg 1535
Spill Kit (acids)	1 each	On-site, Bldg 1535
Spill Kit (solvents & hydrocarbons)	1 each	On-site, Bldg 1535
Note: Bldg = Building Inventory conducted 7/26/2021		

Table II.10.
Emergency Notification List

EMERGENCY NOTIFICATION LIST

PERSONNEL	On-Duty Extension	Off-Duty Phone
Mission Support Group Commander - Primary On-Scene Coordinator (OSC)	406-731-3791	406-731-3746 / 406-731-3745
MAFB Civil Engineer (1st Alternate OSC) Secretary	406-731-6188	406-731-3746 / 406-731-3745 Base Emergency Communications Center
Emergency Service Call (Fire Dispatch)	406-731-6206	406-731-3746 / 406-731-3745
MAFB Fire Department-On base MAFB Fire Department-Off base MAFB Fire Chief (2nd Alternate OSC)	911 911 406-731-3745 / 406--731-3746	911 911 911
Chief, Environmental Compliance 341 CES/CEIEC	406-731-6115	406-731-3746 / 406-731-3745
Bioenvironmental Engineer	406-731-4409	406-731-3746 / 406-731-3745
Disaster Preparedness	406-731-6694 / 406-731-6695	406-731-3746 / 406-731-3745
Security Forces	911	406-731-3746 / 406-731-3745
Liquids Fuels Maintenance Tech	406-731-6339	406-731-3746 / 406-731-3745
Staff Judge Advocate/Legal Officer (main office)	406-731-2878	406-731-3746 / 406-731-3745
Public Affairs Office	406-731-4050	406-731-3746 / 406-731-3745
Safety Office	406-731-6712	406-731-3746 / 406-731-3745
MAFB Clinic	911	406-731-3746 / 406-731-3745
Logistics Readiness Squadron	406-731-6325	406-731-3746 / 406-731-3745
Weather Squadron	406-731-2710	406-731-3746 / 406-731-3745
Photographic Laboratory	406-731-4539	406-731-3746 / 406-731-3745
CES Unit Control Center (UCC)	406-731-6199 / 406--731-6200	406-731-3746 / 406-731-3745
HQ AFGSC	DSN 692-5979	
City of Great Falls Fire Marshal (Emergency Response Only)	406-727-8070 911	
City/County Health Department	406-454-7050	

Table II.11.
Closure Schedule

MALMSTROM AFB HWSF, EPA # MT8571924556

CLOSURE SCHEDULE

ACTIVITY	DAYS											
	0	20	40	60	80	100	140	160	180	200	220	240
1. Receipt of final volume of HW												
2. Removal/Disposal of final waste inventory												
3. Decontamination of HWSF and completion of closure												
4. Certification Submittal to the MDEQ												

Table II.12.
TMO DD Form 1149

SHIPPING CONTAINER TALLY ——— 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT

1. FROM: *(Include ZIP Code)*	SHEET NO.	NO. OF SHEETS	5. REQUISITION DATE	6. REQUISITION NUMBER
	7. DATE MATERIAL REQUIRED *(YYYYMMDD)*			8. PRIORITY
2. TO: *(Include ZIP Code)*	9. AUTHORITY OR PURPOSE			
	10. SIGNATURE			11a. VOUCHER NUMBER & DATE *(YYYYMMDD)*
3. SHIP TO - MARK FOR	12. DATE SHIPPED *(YYYYMMDD)*			b.
	13. MODE OF SHIPMENT			14. BILL OF LADING NUMBER
	15. AIR MOVEMENT DESIGNATOR OR PORT REFERENCE NO.			
4. APPROPRIATIONS DATA				AMOUNT

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIEL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CON-TAINER (f)	CON-TAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
								$0.00
								$0.00
								$0.00
								$0.00
								$0.00

16. TRANSPORTATION VIA AMC OR MSC CHARGEABLE TO	17. SPECIAL HANDLING

18. RECAPITULATION OF SHIPMENT	ISSUED BY	TOTAL CON-TAINERS	TYPE CON-TAINER	DESCRIPTION	TOTAL WEIGHT	TOTAL CUBE
	CHECKED BY					
	PACKED BY					
				← TOTAL →		

19. RECEIPT				
CONTAINERS RECEIVED EXCEPT AS NOTED	DATE *(YYYYMMDD)*	BY	SHEET TOTAL $0.00	
QUANTITIES RECEIVED EXCEPT AS NOTED	DATE *(YYYYMMDD)*	BY	GRAND TOTAL $0.00	
POSTED	DATE *(YYYYMMDD)*	BY	20. RECEIVER'S VOUCHER NO.	

DD FORM 1149, JAN 2016 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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Table II.12.
TMO DD Form 1149

SHIPPING CONTAINER TALLY 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

REQUISITION AND INVOICE/SHIPPING DOCUMENT *(Continuation Sheet)*

SHEET NO.	NO. OF SHEETS	6. REQUISITION NUMBER	11a. VOUCHER NUMBER AND DATE	b. VOUCHER NUMBER AND DATE

ITEM NO. (a)	FEDERAL STOCK NUMBER, DESCRIPTION, AND CODING OF MATERIEL AND/OR SERVICES (b)	UNIT OF ISSUE (c)	QUANTITY REQUESTED (d)	SUPPLY ACTION (e)	TYPE CON-TAINER (f)	CON-TAINER NOS. (g)	UNIT PRICE (h)	TOTAL COST (i)
								$0.00
								$0.00
								$0.00
								$0.00
								$0.00
								$0.00
								$0.00
								$0.00
								$0.00
							SHEET TOTAL	$0.00

DD FORM 1149C, JAN 2016 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

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Module III
Facility-Wide Corrective Action

Table of Contents

Attachments

Module III
Corrective Action

III. Framework for Corrective Action

The framework for corrective action requirements in this Module is based upon the guidance contained in the Federal Registers dated July 27, 1990 (55 FR No. 145, pp 30797-30884), and May 1, 1996 (61 FR No. 85, pp 19431-19464), both titled Corrective Action for Releases From Solid Waste Management Units at Hazardous Waste Management Facilities, as amended in the Federal Register dated October 7, 1999 (64, FR No. 194, pp 54604-54607).

The guidance encourages a facility-specific approach to corrective action. The Permittee may proceed with corrective action using a phase-by-phase approach or use alternative approaches, such as combining corrective action phases, grouping areas of contamination, prioritizing areas for remediation, or other facility-specific approaches. Any approach taken will be dependent upon site-specific conditions and remediation objectives. The corrective action approaches must be developed through work plans and reports that must be submitted to DEQ for approval.

III.A. Applicability

III.A.1. *General*

The Permittee must institute corrective action as necessary to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit (SWMU), area of concern (AOC), or from any other source of contamination at the facility, regardless of the time at which waste was placed in such unit. [§ 75-10-406(7), MCA, and 40 CFR 264.101(a)]

III.A.2. *Off-Site*

The Permittee must implement corrective actions beyond the facility property boundary, where necessary to protect human health and the environment, unless the Permittee demonstrates to the satisfaction of DEQ 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. On-site measures to address such releases will be determined on a case-by-case basis. [§ 75-10-406(7), MCA, and 40 CFR 264.101(c)]

III.A.3. *Specifics*

The conditions of this Module apply to:

III.A.3.a. The SWMUs and AOCs identified in Attachment III.1 of this Module;

III.A.3.b. Newly discovered SWMUs and AOCs discovered during the course of ground water monitoring, field investigations, environmental audits, or by other means; and

III.A.3.c. Newly identified releases from previously identified SWMUs or AOCs discovered during the course of ground water monitoring, field investigations, environmental audits, or by other means.

III.A.4. *Description and Status of SWMUs and AOCs*
Attachment III.1 lists and describes the status of SWMUs and AOCs that have been identified by DEQ and the Permittee.

III.A.4.a. DEQ will update Attachment III.1a when changes to the status of SWMUs and/or AOCs occur or when new SWMUs and/or AOCs are identified. DEQ will send revisions to Attachment III.1a to the Permittee for inclusion in all copies of the permit.

III.A.5. *Reportable Spills and Releases*
Spills and releases reported to DEQ under the Comprehensive Environmental Cleanup and Responsibility Act (§ 75-10-701, et seq., MCA); Montana Hazardous Waste Act (§ 75-10-401, et seq., MCA); The Montana Solid Waste Management Act (§ 75-10-201, et seq., MCA); Montana Underground Storage Tank Act (§ 75-11-501, et seq., MCA); and the Montana Water Quality Act (§ 75-5-101, et seq., MCA) which are not remediated within a reasonable timeframe may be determined by DEQ to be a new SWMU or AOC under Condition III.D, or a release from an existing SWMU or AOC under Condition III.E.

III.A.5.a. DEQ will notify the Permittee of its determination in writing. If DEQ determines that additional investigation is needed, the Permittee shall be required to prepare a RCRA Facility Investigation (RFI) Work Plan as outlined in Condition III.E.2 or III.G.1.

III.A.6. *Compliance Schedule*
The Permittee shall follow the Compliance Schedule of Attachment III.6. [40 CFR 264.101(b)]

III.A.7. *Modifications*
Permit modifications to Module III include selection of any corrective measures as outlined in Conditions III.H.2 and III.J and any subsequent significant changes to any selected corrective measures previously incorporated into this permit by modification.

III.B. **Status of Corrective Action at Permit Issuance**
SWMU and AOC status at the time of this permit issuance is shown in Attachment III.1a. Oversight authority for five SWMUs has been transferred to DEQ cleanup authority under the Montana Underground Storage Tank Act.

III.C. **Financial Assurance**

MAFB is a federally owned facility and is exempt from financial assurance requirements for costs of closure and/or post-closure care of the permitted unit (HWSF) required in Module II and corrective action activities required in Module III. [40 CFR 264.140(c)]

III.D. **New SWMUs and AOCs – Notification and Assessment Requirements**

III.D.1. *Notification*

The Permittee shall notify DEQ in writing within fifteen (15) calendar days of discovery of any new SWMU or AOC. The notification must include, at a minimum, the following:

III.D.1.a. The location of the SWMU or AOC;

III.D.1.b. The available information pertaining to the nature of the wastes, including hazardous constituents, at the SWMU or AOC;

III.D.1.c. The known extent and magnitude of the release; and

III.D.1.d. The medium/media affected.

III.D.2. *Assessment Report*

If further investigation of a newly identified SWMU or AOC is required by DEQ, the Permittee must prepare and submit to DEQ, within sixty (60) calendar days of DEQ request, a written assessment report. At a minimum, this assessment report must include the following information:

III.D.2.a. The location on a topographic map of appropriate scale showing the newly identified SWMU or AOC in relation to other SWMUs and AOCs, buildings, and other relevant features;

III.D.2.b. Designation of the type and function of the SWMU or AOC;

III.D.2.c. General dimensions, capacities, and structural description (including any available plans/drawings);

III.D.2.d. Dates of operation;

III.D.2.e. Specification of all wastes (including any available data on hazardous constituents) that have been managed at the location; and

III.D.2.f. All available information pertaining to any release of hazardous waste or hazardous constituents (including ground water, surface water, and soil analytical results).

III.D.3. *DEQ Action*

III.D.3.a. Based on the results of the assessment report, DEQ will determine the need for further investigations of the SWMU or AOC. If DEQ determines additional investigation is needed, the Permittee will be required to prepare an RFI Work Plan as outlined in Condition III.G.1.

III.D.3.b. If DEQ requires further investigation of a newly identified SWMU or AOC and the Permittee is currently implementing an RFI Work Plan, the newly identified SWMU or AOC may be included in that Work Plan. The Permittee shall prepare an addendum to the RFI Work Plan for investigation of the newly identified SWMU or AOC. The addendum must meet the requirements of Condition III.G.1.

III.E. **Existing SWMUs and AOCs – Notifications and Assessment Requirements**

III.E.1. *Notification*

Within fifteen (15) calendar days of discovery, the Permittee must notify DEQ in writing of any newly discovered release(s) of hazardous waste or hazardous constituents at previously identified units including SWMUs and AOCs identified in Condition III.A.4 discovered during the course of ground water monitoring, field investigations, environmental audits, or other means. The newly discovered releases may be from SWMUs and AOCs identified in Condition III.A.4 for which further investigation and/or corrective action was not previously required. The notification must include, at a minimum, the following:

III.E.1.a. The location of the SWMU or AOC;

III.E.1.b. The available information pertaining to the nature of the wastes, including hazardous constituents, at the SWMU or AOC;

III.E.1.c. The known extent and magnitude of the release; and

III.E.1.d. The medium/media affected.

III.E.2. *DEQ Action*

III.E.2.a. If DEQ determines that further investigation of the SWMU or AOC is needed, the Permittee shall be required to prepare an RFI Work Plan as outlined in Condition III.G.1.

III.E.2.b. If DEQ requires further investigation and the Permittee is currently implementing an RFI Work Plan, the newly identified release may be included in that Work Plan. The Permittee shall prepare an addendum to the RFI Work Plan for investigation of the newly identified release at an existing SWMU or AOC. The addendum must meet the requirements of Condition III.G.1.

III.F. **New Detections in Analytical Results**

III.F.1. *Notification*

During activities undertaken as part of any future investigation, the Permittee shall notify DEQ within fifteen (15) calendar days after the Permittee's receipt or its representative's receipt of analytical results that detect any hazardous waste or hazardous constituent that were previously not detected. The new detections may be from either documented or unidentified sources.

III.F.2. *Department Action*

DEQ may require further investigation of the new detections reported in Condition III.F.1.

III.G. **RCRA Facility Investigation (RFI)**

III.G.1. *Work Plan(s)*

III.G.1.a. Applicability

As directed by DEQ under circumstances set forth in Conditions III.D and III.E, the Permittee shall prepare and submit an RFI Work Plan(s). The Permittee shall submit the RFI Work Plan(s) within a timeframe specified by DEQ.

III.G.1.b. Contents

The RFI Work Plan(s) should, at a minimum, address the elements as outlined in Attachment III.2 and must include:

III.G.1.b.i. Schedules and a cost estimate for implementation and completion of specific actions necessary to determine the nature and extent of releases;

III.G.1.b.ii. The potential pathways of contaminant releases to the air, land, surface water, and ground water; and

III.G.1.b.iii. The risks to human health and the environment associated with the releases.

III.G.1.c. Deviations

The Permittee shall provide sufficient justification and/or documentation to exclude particular units, media, or pathways associated with a unit (i.e., ground water, surface water, soil, subsurface gas, or air). Such deletions of a unit, medium, or pathway from the RFI(s) are subject to the approval of DEQ. The Permittee should also provide sufficient written justification for any omission or deviation from the elements outlined in Attachment III.2. Such omissions or deviations are subject to the approval of DEQ. In addition, the RFI Work Plan(s) must include all investigations necessary to ensure compliance with 40 CFR 264.101.

III.G.1.d. Risk Assessment

III.G.1.d.i. Contents: The Permittee shall include in the RFI Work Plan(s) a baseline risk assessment work plan as required in Attachment III.2. The baseline risk assessment should include the elements outlined in Attachments III.2 and III.3.

III.G.1.d.ii. Deviation: The Permittee may provide written justification for changes in the submittal schedule and contents of the baseline risk assessment. The Permittee may deviate from the requirements of submitting a baseline risk assessment with the RFI Work Plan(s) if prior written approval is obtained from DEQ.

III.G.1.e. DEQ Action
The RFI Work Plan(s) must be approved in writing by DEQ prior to implementation. DEQ's letter approving the RFI Work Plan(s) will specify the start date of the RFI Work Plan(s) schedule.

III.G.1.e.i. If DEQ does not approve the RFI Work Plan(s), DEQ shall either:

III.G.1.e.i.1. Notify the Permittee in writing of the RFI Work Plan(s)'s deficiencies and specify a due date for submission of a revised RFI Work Plan(s); or

III.G.1.e.i.2. Revise the RFI Work Plan(s) and notify the Permittee of the revisions and the start date of the schedule within the approved RFI Work Plan(s).

III.G.2. *Implementation*
The Permittee shall implement the RFI in accordance with the approved Work Plan(s).

III.G.3. *Notification*
The Permittee shall notify DEQ of investigation activities such as drilling, boring, or sampling undertaken pursuant to the RFI Work Plan(s), no less than fourteen (14) calendar days prior to implementation. Notification shall be made by electronic mail to the Hazardous Waste Section Project Manager for the Malmstrom facility.

III.G.4. *Progress Reports*
The Permittee shall provide DEQ with RFI progress reports. The reporting schedule for the RFI progress reports must be established in the RFI Work Plan(s); however, progress reports must be submitted at least quarterly. RFI progress reporting will commence upon DEQ approval of the RFI Work Plan(s). Subsequent changes to the frequency and scope of the RFI progress reports must be approved in writing by DEQ. The progress reports must contain at a minimum the following information:

III.G.4.a. A description of the portion of the RFI completed;

III.G.4.b. Summaries of findings;

III.G.4.c. Summaries of all deviations from the approved RFI Work Plan(s) during the reporting period;

III.G.4.d. Summaries of all problems or potential problems encountered during the reporting period;

III.G.4.e. Projected work for the next reporting period; and

III.G.4.f. Copies of daily reports, inspection reports, laboratory/monitoring data, and other pertinent information.

III.G.5. *Draft and Final Reports*

III.G.5.a. Schedule

The Permittee shall prepare and submit to DEQ a draft and final RFI Report(s) for the investigations conducted pursuant to the Work Plan(s).

III.G.5.a.i. The Draft RFI Report(s) must be submitted to DEQ for review in accordance with the schedule in the approved RFI Work Plan(s).

III.G.5.a.ii. The Final RFI Report(s) must be submitted within forty-five (45) calendar days after receipt of DEQ's comments on the Draft RFI Report(s), unless an alternative schedule is approved in writing by DEQ.

III.G.5.b. Contents

III.G.5.b.i. General: The RFI Report(s) must include an analysis and summary of all required investigations of those units included in the RFI Work Plan(s). The summary must describe the type and extent of contamination, including sources and migration pathways, and a description of actual or potential human or ecological receptors.

III.G.5.b.ii. Risk Assessment: The RFI Report(s) must include a baseline risk assessment for both ecological and human receptors unless DEQ has approved in writing a deviation. The human health baseline risk assessment must include, but is not limited to, a residential exposure scenario. The baseline risk assessment should address the elements outlined in Attachment III.3. The Permittee should provide written justification for any omissions or deviations from the elements outlined in Attachment III.3.

III.G.5.b.iii. Background Information: The RFI Report(s) must describe the extent of contamination (qualitative and quantitative) in relation to background levels. Background levels must be indicative of the area surrounding the facility and must not be impacted by facility operations.

III.G.5.b.iv. Data Quality: The Permittee shall ensure that the data generated during the investigation are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a Corrective Measures Study (CMS), if necessary.

III.G.5.c. DEQ Action

III.G.5.c.i. DEQ will review the Draft RFI Report(s) and approve the Draft RFI Report(s) and specify that the Final RFI Report(s) must be submitted pursuant to Condition III.G.5.a.ii, or disapprove the Draft RFI Report(s). If DEQ disapproves the Draft RFI Report(s), DEQ will notify the Permittee in writing of the Draft RFI Report's deficiencies and specify a due date for submission of a revised Draft RFI Report(s).

III.G.5.c.ii. DEQ will review the Draft and/or Final RFI Report(s) and notify the Permittee of the need for further investigative action, the need for implementing Interim Measures as set forth in Condition III.H., and/or the need for a CMS as set forth in Condition III.I.

III.G.5.c.iii. DEQ will notify the Permittee if DEQ determines, upon review of the RFI Report(s), that no further action is required for SWMUs and AOCs described in the RFI Report(s).

III.G.6. *Ground Water Monitoring*

Ground water monitoring must continue as outlined in the RFI Work Plan(s) unless:

III.G.6.a. Altered by implementation of a DEQ-approved Corrective Measures Implementation (CMI) Work Plan(s) pursuant to Condition III.K., or

III.G.6.b. A DEQ-approved revision is made to the RFI Work Plan(s) at the Permittee's or DEQ's request during the period between completion of the RFI Report(s) and the implementation of the CMI Work Plan(s).

III.H. **Interim Measures (IM)**

III.H.1. *Work Plan(s)*

III.H.1.a. Applicability

Upon notification by DEQ, the Permittee shall prepare and submit an IM Work Plan(s) for any unit that poses an immediate or potential threat to human health or the environment. The IM Work Plan(s) must be submitted within thirty (30) calendar days of receipt of such notification. If DEQ determines that immediate action is required, DEQ or an authorized representative may verbally direct the Permittee to act prior to the Permittee's receipt of DEQ's written notification. Interim measures may be conducted concurrently with other investigations required under the terms of this permit.

III.H.1.b. Contents

The IM Work Plan(s) must ensure that the interim measures are designed to mitigate any immediate or potential threat(s) to human health or the environment. The IM Work Plan(s) should address, at a minimum, the elements listed in Attachment III.5. The Permittee must provide sufficient written justification for

any omissions or deviations from the minimum requirements in Attachment III.5. Such omissions or deviations are subject to written approval of DEQ.

III.H.1.c. DEQ Action
The IM Work Plan(s) must be approved in writing by DEQ prior to implementation. DEQ shall specify the starting date of the IM Work Plan(s) schedule in its written approval.

III.H.1.c.i. If DEQ disapproves the IM Work Plan(s), DEQ shall either:

III.H.1.c.i.1. Notify the Permittee in writing of the IM Work Plan(s)'s deficiencies and specify a due date for submitting a revised IM Work Plan(s); or

III.H.1.c.i.2. Revise the IM Work Plan(s) and notify the Permittee of the revisions and the start date of the schedule within the approved IM Work Plan(s).

III.H.2. *Public Participation*
DEQ may require a permit modification in accordance with Condition I.K. for the proposed IM to allow public participation on the Draft IM Work Plan(s).

III.H.3. *Implementation*
The Permittee shall implement the interim measures in accordance with the approved IM Work Plan(s).

III.H.4. *Notification*
The Permittee shall notify DEQ of investigation activities (such as drilling, boring, or sampling) or remedial activities undertaken pursuant to the IM Work Plan(s) no less than fourteen (14) calendar days prior to implementation. Notification must be made by electronic mail to the Hazardous Waste Section Project Manager for the MAFB facility.

III.H.4.a. The Permittee shall notify DEQ as soon as possible of any planned changes, deletions or additions to the IM Work Plan(s). Notification must be made by electronic mail to the Hazardous Waste Section Project Manager for the MAFB facility. Such changes, deletions, or additions are subject to DEQ approval.

III.H.5. *Progress Reports*
The Permittee shall provide DEQ with IM progress reports. The reporting schedule for the IM progress reports must be established in the IM Work Plan(s); however, progress reports must be submitted at least quarterly. Subsequent changes to the frequency and scope of the IM progress reports must be approved by DEQ. The IM progress reports must contain at a minimum the following information:

III.H.5.a. A description of interim measures implemented and/or completed;

III.H.5.b. Summaries of progress and/or results;

III.H.5.c. Summaries of deviations from the approved IM Work Plan(s), and problems encountered during the reporting period;

III.H.5.d. Projected work for the next reporting period; and

III.H.5.e. Copies of all daily reports, inspection reports, laboratory/monitoring data, and other pertinent information.

III.H.6. *Final Report(s)*
The Permittee shall prepare and submit an IM Final Report(s) to DEQ within forty-five (45) calendar days after completion of interim measures. The IM Report(s) must contain at a minimum the following information:

III.H.6.a. A description of interim measures implemented;

III.H.6.b. Summaries of results;

III.H.6.c. Summaries of all problems encountered; and

III.H.6.d. Summaries of accomplishments and/or effectiveness of interim measures.

III.I. **Corrective Measures Study (CMS)**

III.I.1. *Work Plan(s)*

III.I.1.a. Applicability

III.I.1.a.i. The Permittee shall prepare and submit to DEQ a draft CMS Work Plan(s) for units that require a CMS. The Work Plan(s) must be submitted after notification by DEQ that a CMS is required, within a timeframe specified by DEQ. The CMS Work Plan(s) must be developed to meet the requirements of Condition III.I.1.b.

III.I.1.a.ii. As necessary, units requiring interim measures may be addressed in a CMS Work Plan and Report.

III.I.1.b. Contents

III.I.1.b.i. The CMS Work Plan(s) should, at a minimum, address the elements in Attachment III.4. The CMS Work Plan(s) must include schedules of implementation and completion of specific actions necessary to complete a CMS.

III.I.1.b.ii. The Permittee shall provide justification and/or documentation for any unit deleted from the CMS Work Plan(s). Such deletions of a unit are subject to the written approval of DEQ. The CMS must be conducted in accordance with the approved CMS Work Plan(s).

III.I.1.b.iii. The Permittee should provide sufficient written justification for any omissions or deviations from the minimum requirements of Attachment III.4. Such omissions or deviations are subject to the written approval of DEQ.

III.I.1.b.iv. The scope of the CMS Work Plan(s) must include all investigations necessary to ensure compliance with 40 CFR 264.101.

III.I.1.c. DEQ Action
The CMS Work Plan(s) must be approved in writing by DEQ prior to implementation. DEQ shall either approve or disapprove in writing the CMS Work Plan(s).

III.I.1.c.i. If DEQ disapproves the CMS Work Plan(s), DEQ shall either:

III.I.1.c.i.1. Notify the Permittee in writing of the CMS Work Plan(s)'s deficiencies and specify a due date for submitting a revised CMS Work Plan(s); or

III.I.1.c.i.2. Revise the CMS Work Plan(s) and notify the Permittee of the revisions and the start date of the schedule within the approved CMS Work Plan(s).

III.I.2. *Implementation*
The Permittee shall implement the CMS according to the schedules specified in the CMS Work Plan(s).

III.I.3. *Notification*
III.I.3.a. The Permittee shall notify DEQ of investigation activities (such as drilling, boring, or sampling) or remedial activities undertaken pursuant to the CMS Work Plan(s), no less than fourteen (14) calendar days prior to implementation. Notification must be made by electronic mail to the Hazardous Waste Section Project Manager for the MAFB facility.

III.I.4. *Draft and Final Report(s)*
III.I.4.a. Schedule
The Permittee shall prepare and submit to DEQ a draft and final CMS Report(s) for the study conducted pursuant to the approved CMS Work Plan(s).

III.I.4.a.i. The Draft CMS Report(s) must be submitted to DEQ in accordance with the schedule in the approved CMS Work Plan(s).

III.I.4.a.ii. The final CMS Report(s) must be submitted to DEQ within forty-five (45) calendar days after receipt of DEQ's comments on the draft CMS Report(s), unless an alternative schedule is approved by DEQ.

III.I.4.b. Contents
The CMS Report(s) must include an evaluation of each remedial alternative and present all information gathered under the approved CMS Work Plan(s),

including a summary of any bench scale or pilot test conducted. The CMS Final Report(s) must contain adequate information to enable DEQ to make a decision on remedy selection, as described under Condition III.J.

III.I.4.c. DEQ Action

III.I.4.c.i. DEQ will review the Draft CMS Report(s), approve the Draft CMS Report(s), and specify that the Final CMS Report(s) must be submitted pursuant to Condition III.I.4.a.ii, or disapprove the Draft CMS Report(s). If DEQ does not approve the Draft CMS Report(s), DEQ shall notify the Permittee in writing of any deficiencies and specify a due date for submittal of a revised Draft CMS Report(s).

III.I.4.c.ii. DEQ may require the Permittee to further evaluate additional remedies or particular elements of one or more proposed remedies.

III.I.4.c.iii. The Permittee will be notified if DEQ determines, upon review of the CMS Report(s), that no further action is warranted for the unit(s) described in the CMS.

III.J. **Remedy Approval and Permit Modification**

III.J.1. *Approval*

DEQ shall select corrective action remedies for the site. DEQ may select a remedy from the Final CMS Report(s), reject any alternative in the Final CMS Report(s), or prescribe a different remedial alternative or remedy performance standard. DEQ will base its selection, at a minimum, on protection of human health and the environment, including site-specific human and ecological receptors, existing law and regulations, and guidance. The remedy and justification for selection of the remedy will be presented in a document called a Statement of Basis.

III.J.2. *Permit Modification*

After selection of a remedy, DEQ will initiate a permit modification to incorporate into the permit the remedy and the Statement of Basis in accordance with 40 CFR 270.41. The Permittee shall implement the requirements of Condition III.K when DEQ issues the permit modification incorporating the selected remedy.

III.K. **Corrective Measures Implementation (CMI)**

III.K.1. *Work Plan(s)*

III.K.1.a. Applicability

The Permittee shall prepare and submit a Draft CMI Work Plan(s) following modification of the permit to incorporate the selected remedy. The Draft CMI Work Plan(s) must be submitted within ninety (90) calendar days after finalization of the permit modification.

III.K.1.b. Contents
The CMI Work Plan must at a minimum address the elements listed in Condition III.K and Attachment III.5. The Permittee should provide sufficient written justification for any omissions or deviations from the minimum requirements in Attachment III.5.

III.K.1.c. DEQ Action
The CMI Work Plan(s) must be approved in writing by DEQ prior to implementation. The letter approving the CMI Work Plan(s) must specify the start date of the CMI Work Plan(s) schedule.

III.K.1.c.i. If DEQ does not approve the CMI Work Plan(s), DEQ shall either:

III.K.1.c.i.1. Notify the Permittee in writing of the CMI Work Plan(s)'s deficiencies and specify a due date for submitting a revised CMI Work Plan(s); or

III.K.1.c.i.2. Revise the CMI Work Plan(s) and notify the Permittee of the revisions and the start date of the schedule within the approved CMI Work Plan(s).

III.K.2. *Implementation*
The Permittee shall implement the approved CMI Work Plan(s) in accordance with the schedule specified in the Work Plan(s).

III.K.3. *Institutional and Land Use Controls*
The Permittee shall maintain an institutional and land use control plan. The following requirements must be included in the plan and implemented by the Permittee:

III.K.3.a. The institutional and land use control plan must describe procedures used by the Permittee to ensure proper land use controls are established and maintained for SWMUs and AOCs listed in Attachment III.1a, while those SWMUs and AOCs are under the ownership of the United States Air Force.

III.K.3.b. The institutional and land use control plan must include procedures for implementation of institutional and land use controls when ownership of SWMUs and AOCs listed in Attachment III.1a is transferred. Procedures when ownership is transferred must include the following:

III.K.3.b.i. Deed Notices
The Permittee shall place a notation on all instruments of conveyance such as deeds or contracts for deed for SWMUs and/or AOCs. The notation must include the following:

III.K.3.b.i.1. Notice provisions to subsequent purchasers and lessees that the SWMU and/or AOC has been used to manage and dispose of hazardous waste and, as applicable, use of the land is restricted;

III.K.3.b.i.2. Notice that any state-required institutional or land use control or condition on the land must be maintained;

III.K.3.b.i.3. Notice that any state required engineering controls must be maintained for the duration of required remediation;

III.K.3.b.i.4. Notice of any restrictions placed on the Facility pursuant to Condition III.K.3.b. Such notice must include a precise statement of DEQ's and the Permittee's intentions with regard to the scope and duration of the restrictions. Where applicable, such notice must also include a statement that particular restrictions placed on the Facility "run with the land"; and

III.K.3.b.i.5. Notice, in precise and easily understandable language, specifying the activities and uses that will be allowed and the specific activities and uses that will be prohibited.

III.K.3.b.ii. Restrictions on Deed Notices
Where applicable, deed notices under Conditions III.K.3.a and III.K.3.b. shall include the following restrictions:

III.K.3.b.ii.1. A requirement for notification to be sent by the owner of the Facility to purchasers, lessees, and tenants disclosing the existence of residual chemicals of concern;

III.K.3.b.ii.2. A requirement that the Facility's owner and successors and assigns give notice in all deeds, mortgages, leases, subleases, and rental agreements that, as applicable, there are residual chemicals of concern on the Facility;

III.K.3.b.ii.3. A requirement for advance notice to DEQ of any sale, lease, or other conveyance of the Facility;

III.K.3.b.ii.4. A requirement for notice in the deed notifying prospective purchasers that the Facility has been used to manage and dispose of hazardous waste, and that, as applicable, its use is restricted (notice must specify the restricted use); and

III.K.3.b.ii.5. Restrictions of the property to land uses selected as part of the corrective measure(s). Should the property be used for purposes other than the land uses selected as part of the corrective measure(s), the owner must ensure the property is reevaluated to determine whether additional remediation is needed to provide an adequate level of protection to human health and the environment and ensure that any necessary remediation takes place.

III.K.3.c. Survey Plat

III.K.3.c.i. No later than sixty (60) days after DEQ approval of the completion of corrective measure(s) set forth in Condition III.L., the Permittee shall submit to the local zoning authority or the authority with jurisdiction over local land use, to DEQ,

and to the county planner or equivalent, a survey plat indicating the location and dimension of the SWMUs and AOCs with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a Professional Land Surveyor. The plat must be filed with the local zoning authority or the authority with jurisdiction over local land use and must contain a note prominently displayed which states the owner's or operator's obligation, in accordance with Conditions III.K.3.a and III.K.3.b., to restrict any future land use and continue any required remediation and/or post-completion care. The plat and restriction notice must also be attached to all instruments of conveyance such as deeds or contracts for deeds,

III.K.3.c.ii. The Permittee shall submit to DEQ, within thirty (30) calendar days after filing the survey plat, a certification signed by the Permittee that the Permittee has filed the survey plat as specified in Condition III.K.3.c.

III.K.3.d. Notice to Government Authority

III.K.3.d.i. The Permittee shall provide notice to DEQ a minimum of ten (10) calendar days prior to completion of any land transaction.

III.K.3.e. Permit Continuation

III.K.3.e.i. Activity and land use limitations are considered to be part of the facility-wide corrective actions for the Facility and, therefore, land use controls must continue through the duration of this permit and subsequent permits or other enforcement mechanisms as allowed under the Montana Hazardous Waste Act.

III.K.4. *Notification*

III.K.4.a. The Permittee shall notify DEQ of investigation activities (such as drilling, boring, or sampling) or remedial activities undertaken pursuant to the CMI Work Plan(s), no less than fourteen (14) calendar days prior to implementation. Notification must be made by electronic mail to the Hazardous Waste Section Project Manager for the MAFB facility.

III.K.4.b. The Permittee shall give verbal notice to DEQ as soon as possible of any planned changes, deletions or additions to the CMI Work Plan(s). Verbal notification must be followed by formal written notification. Changes, deletions, or additions to the CMI Work Plan are subject to DEQ approval.

III.K.4.c. For significant changes, the Permittee shall submit an amended CMI Work Plan(s) to DEQ for approval. The amended CMI Work Plan(s) must include, but is not limited to, a description of changes to the selected remedy and justification of the change(s).

III.K.5. *Remedy Changes*

Changes to the selected remedy after permit modification may be made upon written approval from DEQ. DEQ may determine an additional permit

modification is necessary if proposed changes to the selected remedy are substantial enough to warrant public participation.

III.K.6. *Progress Reports*

III.K.6.a. For SWMU SW-3 (LF-19, Landfill Northeast of the Weapons Storage Area), the Permittee shall provide DEQ with the following reports and work plans within the stated timeframes:

III.K.6.a.i. Sampling event work plans must be submitted to DEQ for approval at least 90 days prior to scheduled start of work;

III.K.6.a.ii. Sampling Event and Monitoring Reports must be submitted within sixty (60) days of receipt by MAFB of laboratory analytical results;

III.K.6.a.iii. All other work plans must be submitted to DEQ for approval at least 90 days prior to scheduled start of work; and

III.K.6.a.iv. All other reports must be submitted to DEQ sixty (60) days following completion of work.

III.K.6.b. For all other CMI Work Plans, the Permittee shall provide DEQ with progress reports on implementation of the CMI Work Plan(s). The reporting schedule for the CMI progress reports must be established in the CMI Work Plan(s); however, reports must be submitted at least quarterly. Subsequent changes to the frequency and scope of the CMI progress reports must be approved by DEQ.

III.K.6.c. All CMI reports in Conditions III.K.6.a and III.K.6.b must contain at a minimum the following information:

III.K.6.c.i. A description of corrective measure implemented and/or completed;

III.K.6.c.ii. Summaries of progress and/or results;

III.K.6.c.iii. Summaries of deviations from the approved CMI Work Plan(s), and problems encountered during the reporting period;

III.K.6.c.iv. Projected work for the next reporting period; and

III.K.6.c.v. Copies of all daily reports, inspection reports, laboratory/monitoring results, and other pertinent information.

III.L. **Completion of Corrective Measures**

III.L.1. *Applicability*

Conditions under this section (III.L.) apply to completion of corrective measures at the SWMUs and AOCs identified in Condition III.A. The conditions may apply to completion of corrective measures for a specific SWMU or AOC, a

specific group of SWMUs and/or AOCs, or all SWMUs and AOCs on a facility-wide basis.

III.L.2. *Corrective Measures Completion Certification Report for SWMUs and AOCs*
The Permittee shall prepare and submit a Corrective Measures Completion Certification Report to DEQ within forty-five (45) days of completion of corrective measures conducted under Condition III.K.

III.L.2.a. Report Requirements
The Corrective Measures Completion Certification Report must include, but not be limited to, the following information:

III.L.2.a.i. A description of all corrective measures completed;

III.L.2.a.ii. Summaries of results and documentation of attainment of performance requirements;

III.L.2.a.iii. Summaries of all problems encountered;

III.L.2.a.iv. Summaries of accomplishments and/or effectiveness of corrective measures;

III.L.2.a.v. Copies of all instruments of conveyance with notices required by Conditions III.K.3.a and III.K.3.b; and

III.L.2.a.vi. Certification that corrective measures have been completed in accordance with the approved CMI Work Plan(s) as per Condition III.K., and/or Interim Measures Work Plan(s) as per Condition III.H., and institutional and land use controls have been implemented as per Condition III.K.3.

III.L.2.a.vi.1. The certification must be signed by the Permittee and by an independent, registered Professional Engineer(s) skilled in the appropriate technical discipline(s). Documentation supporting the independent Professional Engineer(s) certification must be furnished to DEQ upon request until DEQ approval of the Corrective Measures Completion Certification Report.

III.L.2.b. DEQ Approval
DEQ shall review the Corrective Measures Completion Certification Report. If necessary, DEQ shall notify the Permittee in writing of any deficiencies and specify a due date for submitting a revised report. DEQ shall approve the Corrective Measures Completion Certification Report when all deficiencies have been addressed to its satisfaction.

III.L.3. *SWMU and AOC Status After Corrective Measures Completion*
After approval of the Corrective Measures Completion Certification Report, SWMUs and AOCs associated with the completed corrective measures are

removed from further permit action unless releases are discovered from those units as set forth in Condition III.E or new information warrants additional action.

III.L.4. *Facility-Wide Completion Certification Report*
Within 60 days of completion of corrective measures for all SWMUs and AOCs listed in Attachment III.1a, the Permittee shall submit a report certifying corrective measures have been completed for the entire facility. The completion report must include, but not be limited to, the following:

III.L.4.a.i. List of SWMUs and AOCs where corrective measures have been completed;

III.L.4.a.ii. Summary of remedies, including corrective measures completion date;

III.L.4.a.iii. Description of institutional and land use controls implemented according to Condition III.K.3.

III.L.4.a.iv. Certification that corrective measures have been completed in accordance with the approved CMI Work Plan(s) as per Condition III.K., and/or Interim Measures Work Plan(s) as per Condition III.H., and institutional and land use controls have been implemented as per Condition III.K.3.

III.L.4.b. DEQ Approval
DEQ shall review the Facility-Wide Completion Certification Report. If necessary, DEQ shall notify the Permittee in writing of any deficiencies and specify a due date for submitting a revised report. DEQ shall approve the Facility-Wide Completion Certification Report when all deficiencies have been addressed to its satisfaction.

III.L.5. *Permit Modification on Completion of Facility Wide Corrective Actions*
After approval of the Facility-Wide Completion Certification Report, DEQ will initiate a modification to incorporate the completion certification into the permit. The permit modification shall be in accordance with 40 CFR 270.41.

III.L.6. *Additional Actions after Approval of Facility-Wide Completion Certification*
III.L.6.a. DEQ shall not require further corrective action after approval of the Facility-Wide Completion Certification Report, unless:

III.L.6.a.i. DEQ or the Permittee becomes aware of information that demonstrates potential or actual releases of hazardous wastes or hazardous constituents at or from the Facility may impact human health or the environment, and/or

III.L.6.a.ii. DEQ or the Permittee find that data or information used as a basis for approval of the certification of completion of facility-wide corrective action was insufficient for site characterization or remedy selection, or analytical data was not adequately validated and, as a result, it was determined that the selected remedy(ies) did not achieve the goal of preventing, mitigating, and/or remediating releases of

hazardous wastes or hazardous constituents at or from the Facility to protect human health or the environment.

III.M. **Modification of the Corrective Action Compliance Schedule**

If at any time DEQ determines that modification of the Compliance Schedule (Attachment III.6) is necessary, DEQ may initiate a modification to the schedule in accordance with the procedures contained in 40 CFR 270.41. The Permittee may also submit a request for modification in accordance with 40 CFR 270.42.

III.N. **Plan and Report Requirements**

III.N.1. All plans and schedules are subject to approval by DEQ prior to implementation. The Permittee shall revise and implement all submittals and schedules as specified by DEQ.

III.N.2. Work plans, reports, and other required documentation must be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by DEQ based on the Permittee's demonstration that sufficient justification for the extension exists.

III.N.3. The Permittee shall submit an amended RFI Work Plan or Plans to DEQ if the Permittee or DEQ determines that an Assessment Report required under Condition III.D.2. or RFI Work Plan required under Condition III.G. no longer satisfies requirements under this Permit or 40 CFR 264.101.

III.N.3.a. DEQ will notify the Permittee in writing of its determination.

III.N.3.b. The amended RFI Work Plan(s) must be submitted to DEQ within ninety (90) calendar days of the Permittee's determination or DEQ's written notification.

III.N.4. All reports must be signed and certified in accordance with 40 CFR 270.11.

III.N.5. The Permittee shall provide one hard copy and one electronic copy of all work plans and reports to the Montana Department of Environmental Quality and one electronic copy of all work plans and reports to the Environmental Protection Agency, Region 8, unless otherwise specified.

III.N.5.a. Documents sent to DEQ should be addressed to the current Hazardous Waste Program project manager for the Malmstrom Air Force Base.

III.N.5.b. Documents sent to EPA Region 8 should be addressed to the Program Director, Resource Conservation and Recovery Program, or a person designated by the EPA Region 8 Program Director.

Attachment III.1
Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs)

III.1a SWMU and AOC List and Current Status
III.1b SWMU and AOC Location Map
III.1c Summary of Corrective Measures
III.1d Final Remedy Decision – LF-19, Landfill Northeast of the Weapons Storage Area

Attachment III.1a
SWMU and AOC List and Current Status

SWMU/AOC	IRP Number	SWMU/AOC Name	Date Identified	CCR/RFI Status	CMS Status	CMI Status
SWMU FT-1	Site FT-1	Fire Training Area	11/1989	C	C	C
SWMU PS-1	Site ST-2	Yellowstone Pipeline	11/1989	C/NFA	NR	NR
SWMU PS-5	Site ST-6	ARRS Hanger	11/1989	C/NFA	NR	NR
SWMU IS-1	Site OT-7	VOQ/Chapel Area	11/1989	C/NFA	NR	NR
SWMU IS-2	Site OT-8	Building 439 RFI Ovens	11/1989	C/NFA	NR	NR
SWMU IS-3	Site SS-9	Pole Yard Storage Area	11/1989	C	C	C
SWMU WW-1	Site SD-10	Open Storm Ditch	11/1989	C	C	NR
SWMU OS-1	Site SS-14	Acorn/Chestnut Streets PCB Incident	11/1989	C	C	C
SWMU SW-l	Site SS-15	Drum Disposal Site East of DRMO	11/1989	C	C	C
SWMU SW-4	Site OT-16	Conventional Munitions Disposal Site	11/1989	C	C	C
SWMU SW-5	Site SS-17	Drum Disposal Site South of Weapons Storage Area	11/1989	C/NFA	NR	NR
SWMU SW-2	Site LF-18	Flightline Landfill	11/1989	C	NR	NR
SWMU SW-3	Site LF-19	Landfill NE of Weapons Storage Area	11/1989	C	C	IP
SWMU SS-22	Site SS-22	Old Taxiway Landfarm	09/1992	C/NFA	NR	NR
SWMU SS-23	Site SS-23	Building 435 Aeration Slab	09/1992	C/NFA	NR	NR
SWMU SS-24	Site SS-24	Wherry Housing Pesticides	11/1992	C	C	C
AOC-26	AOC-26	Contamination North of Building 870	10/1997	C/NFA	NR	NR
SWMU SS-27	SWMU SS-27	Contractor Storage Area	10/1998	C	C	C
AOC-28	AOC-28	Perimeter Road Outfall Ditch	04/1999	C/NFA	NR	NR
AOC-30	AOC-30	.38 Caliber Training Range	6/2002	C/IMC /NFA	NR	NR
AOC-31	AOC-31	.38 Caliber Range Debris	6/2002	C/NFA	NR	NR
AOC-32	AOC-32	Former Skeet Range	2/28/2017	C	C	NR

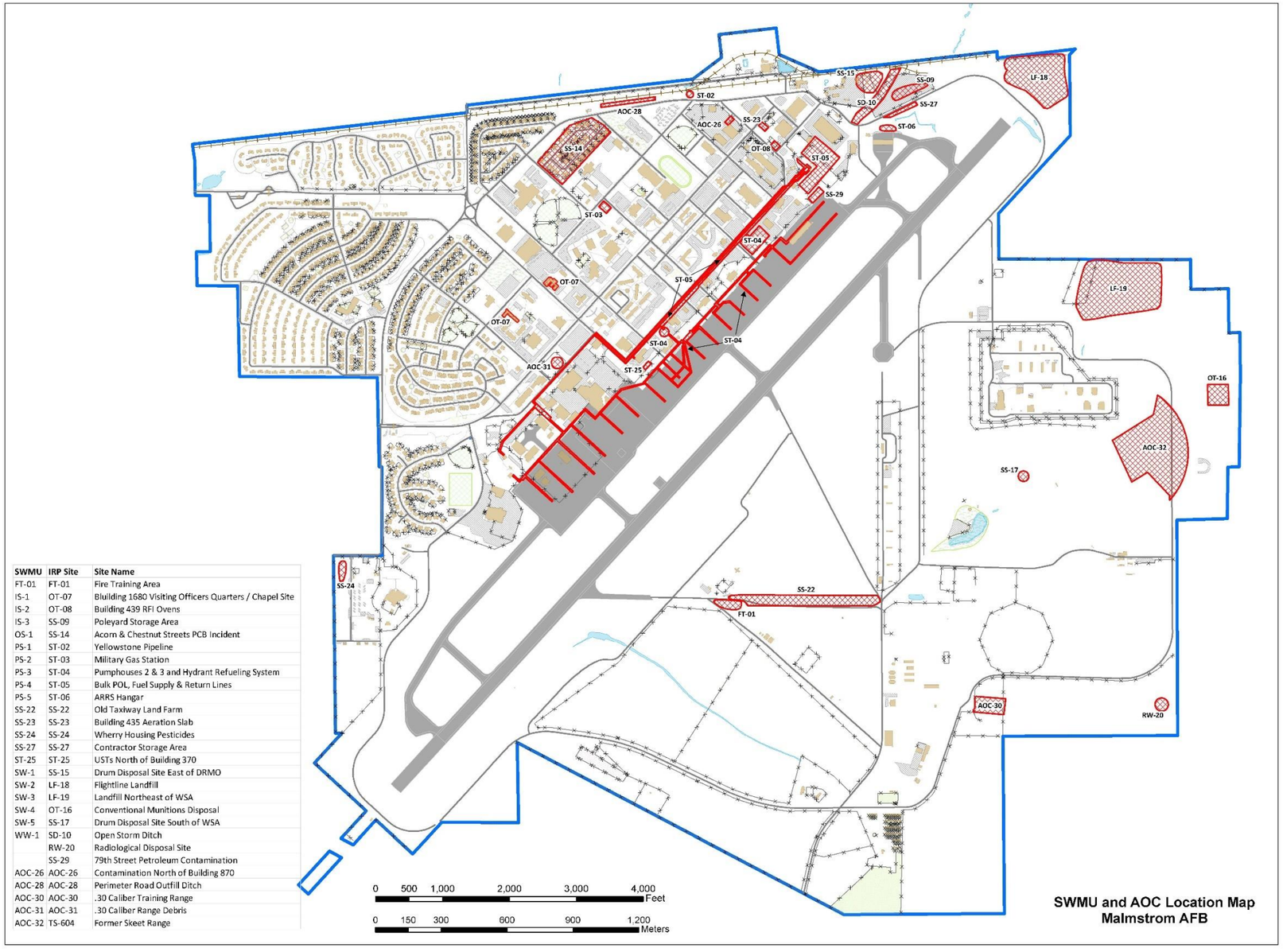
SWMUs and AOCs Transferred to DEQ Cleanup Authority Under the Montana Underground Storage Tank Act

SWMU/AOC	IRP Number	SWMU/AOC Name	Date Identified	Status
SWMU PS-2	Site ST-3	Military Gas Station	11/1989	T
SWMU PS-3	Site ST-4	Pumphouse 2 & 3 and Hydrant Refueling System	11/1989	T
SWMU PS-4	Site ST-5	Bulk POL Storage and Fuel Supply & Return Lines	11/1989	T
SWMU ST-25	Site ST-25	USTs North of Building 370	08/1994	T^{NFA}
AOC-29	Site SS-29	79th Street Petroleum Contamination	10/1998	T

Legend:

C: Complete
CCR: Current Conditions Report or RCRA Facility Assessment
CMI: Corrective Measures Implementation
CMS: Corrective Measure Study
IMC: Interim Measures completed
IP: In Progress
IRP: Installation Restoration Program
NFA: No further action required
NR: Not required
RFI: RCRA Facility Investigation
T: Transferred to DEQ cleanup authority under the Montana Underground Storage Tank Act
T^{NFA}: Transferred to DEQ cleanup authority under the Montana Underground Storage Tank Act. No further remedial action required
UST/USTs: Underground Storage Tank/Underground Storage Tanks

Attachment III.1b
SWMU and AOC Location Map



SWMU	IRP Site	Site Name
FT-01	FT-01	Fire Training Area
IS-1	OT-07	Bluilding 1680 Visiting Officers Quarters / Chapel Site
IS-2	OT-08	Building 439 RFI Ovens
IS-3	SS-09	Poleyard Storage Area
OS-1	SS-14	Acorn & Chestnut Streets PCB Incident
PS-1	ST-02	Yellowstone Pipeline
PS-2	ST-03	Military Gas Station
PS-3	ST-04	Pumphouses 2 & 3 and Hydrant Refueling System
PS-4	ST-05	Bulk POL, Fuel Supply & Return Lines
PS-5	ST-06	ARRS Hangar
SS-22	SS-22	Old Taxiway Land Farm
SS-23	SS-23	Building 435 Aeration Slab
SS-24	SS-24	Wherry Housing Pesticides
SS-27	SS-27	Contractor Storage Area
ST-25	ST-25	USTs North of Building 370
SW-1	SS-15	Drum Disposal Site East of DRMO
SW-2	LF-18	Flightline Landfill
SW-3	LF-19	Landfill Northeast of WSA
SW-4	OT-16	Conventional Munitions Disposal
SW-5	SS-17	Drum Disposal Site South of WSA
WW-1	SD-10	Open Storm Ditch
	RW-20	Radiological Disposal Site
	SS-29	79th Street Petroleum Contamination
AOC-26	AOC-26	Contamination North of Building 870
AOC-28	AOC-28	Perimeter Road Outfill Ditch
AOC-30	AOC-30	.30 Caliber Training Range
AOC-31	AOC-31	.30 Caliber Range Debris
AOC-32	TS-604	Former Skeet Range

Attachment III.1c
Summary of Corrective Measures
Malmstrom Air Force Base

Introduction:
This is a brief summary of corrective measures taken at SWMUs and AOCs. Records regarding these activities are available at MAFB or DEQ. Unless otherwise noted, individual SWMU/AOC summaries are based on the Statement of Basis included in the June 20, 2001, reissuance of MAFB hazardous waste permit #MTHWP-01-01, and the final remedy decision for LF-19, Landfill Northeast of the Weapons Storage Area (SWMU SW-3), dated May 19, 2006.

Note: Four SWMUs and one AOC were transferred to DEQ's cleanup authority under the Montana Underground Storage Tank Act. These units are listed in Attachment III.1a and described in the following summary.

1. SWMU FT-1, Fire Training Area (FT-01)
2. SWMU PS-1, Yellowstone Pipeline (ST-02)
3. SWMU PS-2, Military Gas Station (ST-03)
4. SWMU PS-3, Pumphouses 2 & 3 and Hydrant Refueling System (ST-04)
5. SWMU PS-4, Bulk POL Storage and Fuel Supply & Return Lines (ST-05)
6. SWMU PS-5, ARRS Hangar (ST-06)
7. SWMU IS-1, VOQ/Chapel Area (OT-07)
8. SWMU IS-2, Building 439 RFI Ovens (OT-08)
9. SWMU IS-3, Pole Yard Storage Area (SS-09)
10. SWMU WW-1, Open Storm Ditch (SD-10)
11. SWMU OS-1, Acorn/Chestnut Streets PCB Incident (SS-14)
12. SWMU SW-1, Drum Disposal Site East of DRMO (SS-15)
13. SWMU SW-4, Conventional Munitions Disposal Site (OT-16)
14. SWMU SW-5, Drum Disposal Site South of Weapons Storage Area (SS-17)
15. SWMU SW-2, Flightline Landfill (LF-18)
16. SWMU SW-3, Landfill Northeast of Weapons Storage Area (LF-19)
17. SWMU SS-22, Old Taxiway Landfarm (SS-22)
18. SWMU SS-23, Building 435 Aeration Slab (SS-23)
19. SWMU SS-24, Wherry Housing Pesticides (SS-24)
20. SWMU ST-25, USTs North of Building 370 (ST-25)
21. AOC-26, Contamination North of Building 870
22. SWMU SS-27, Contractor Storage Area (SS-27)
23. AOC-28, Perimeter Road Outfall Ditch
24. AOC-29, 79th Street Petroleum Contamination (SS-29)
25. AOC-30, .38 Caliber Training Range
26. AOC-31, .38 Caliber Range Debris
27. AOC-32, Former Skeet Range (TS604)

1. SWMU FT-1, Fire Training Area (FT-01)

SWMU FT-1 consists of an approximately one-acre site used for 30 years as a crash and fire rescue training facility. Contamination was caused by routine releases of petroleum products from tanks, trucks, and temporary unlined storage ponds, and from flushing of non-combusted fuels from the burn area with high-pressure water. Investigations at this site revealed that soil was contaminated with petroleum and lead. Contamination in the area extended to a depth of 10 feet. One soil boring showed petroleum contamination at a depth of 45 feet. No contaminated groundwater was discovered during the investigations.

Corrective Measures: **Complete, Hazardous Waste Program (HWP)**

MAFB stopped using the fire training area and constructed a new facility for fire training activities. Contaminated soils with lead concentrations in excess of 400 ppm or Total Petroleum Hydrocarbons (TPH) in excess of 500 ppm were excavated. These values are believed to provide adequate protection for a residential risk scenario. Soils contaminated only with petroleum were land farmed at the MAFB licensed landfarm. 2,500 cubic yards of petroleum-contaminated soils were excavated. Soils with lead contamination or petroleum and lead contamination were sent to a licensed Subtitle D facility. 400 cubic yards of lead-contaminated soils were excavated. The excavated area was filled with clean soil, compacted, graded and reseeded.

2. SWMU PS-1, Yellowstone Pipeline (ST-02):

This unit is an underground pipeline, approximately two to four feet below ground surface and three inches in diameter, which formerly transported JP-4 across the base. The line was taken out of service in 1974. Reportedly the pipeline was ruptured in 1983 and 1,260 gallons of JP-4 were released near the family campground (RV Park). Contaminated soil was removed when the leaking pipe was repaired in 1983. There are no records describing how or where the contaminated soils were disposed. Since then, the pipeline has been drained of all fluid and cement grouted per DEQ Underground Storage Tank Storage Permit No. 97-0493 for Facility No. 07-13767.

No constituents of concern exceeded reporting limits for soil samples. Groundwater wells could not be developed at this site.

Corrective Measures: **Not Required, HWP**

Since there were no constituents of concern in excess of reporting limits, no further investigation or corrective measures were required.

3. SWMU PS-2, Military Gas Station (ST-03):

This unit is a petroleum release site. Investigations found soil contamination exceeding Montana Risk Based Corrective Action (RBCA) standards along with contaminated groundwater. 1,2-dichloroethane (1,2-DCA), a once-common anti-knock additive in leaded gasoline, has been found at concentrations that pose an unacceptable risk to human health or the environment.

Corrective Measures: **Transferred to DEQ cleanup authority under the Montana Underground Storage Tank Act (MUSTA)**
This unit is managed by the DEQ Contaminated Site Cleanup Bureau. Petroleum-impacted soil has been excavated. However, 1,2-DCA is still present in soil above RBCA screening levels and is present in groundwater at concentration exceeding DEQ-7 Numerical Groundwater Standards. Remedial efforts including dual phase extraction and targeted excavation have been proposed to address the residual soil and groundwater contamination.

4. SWMU PS-3, Pumphouse 2 & 3 and Hydrant Refueling System (ST-04):
This unit is now being managed by the Montana Department of Environmental Quality Contaminated Site Cleanup Bureau.

This unit is a petroleum release site. Investigations found contaminated groundwater and soil contamination exceeding Montana Underground Storage Tank (UST) standards.

Corrective Measures: **Transferred to DEQ cleanup authority under MUSTA**
The petroleum release at Pumphouse 2 was resolved July 10, 2020, following excavation of petroleum impacted soil. Groundwater contaminant concentrations were below DEQ-7 numeric groundwater standards.

Investigations at Pumphouse 3 (PH3) indicate groundwater impacts exceed the DEQ-7 numeric groundwater standard for benzene. Per- and polyfluoroalkyl substances (PFAS) have also been detected in groundwater at PH3. Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS) concentrations exceed DEQ-7 groundwater standards. Remedial efforts at PH3 have been postponed until the PFAS contamination can be addressed.

Investigations at the Hydrant Refueling System (HRS) have discovered petroleum impacted soil exceeding RBCA screening levels at numerous locations. Petroleum impacted groundwater has been limited to the northeastern end of the HRS. Dual phase extraction has been proposed to remediate the soil and groundwater contamination at the northeastern end of the HRS.

5. SWMU PS-4, Bulk POL Storage and Fuel Supply & Return Lines (ST-05):
This unit is now being managed by the Montana Department of Environmental Quality Contaminated Site Cleanup Bureau.

This unit is a petroleum release site. Investigations found soil and groundwater contamination exceeding Montana RBCA standards.

Corrective Measures: **Transferred to DEQ cleanup authority under MUSTA**
Petroleum impacted soil and groundwater have been encountered near the Bulk Petroleum, Oil, and Lubricant (POL) Storage tanks. A bio-sparge system was installed to remediate the petroleum impacted soil. Groundwater contamination exceeding DEQ-7

standards is still present, and there is free hydrocarbon product in one of the ground water monitoring wells (MW-7).

Investigations at the Fuel Supply Lines have reported petroleum impacted soil exceeding RBCA screening levels at three locations. Petroleum impacted groundwater has been reported near Pumphouse 2 (different than Pumphouse 2 at SWMU PS-3 above), which is one of three locations of soil contamination (MW-18). Additional investigations will be conducted at the three locations along the Fuel Supply Lines to determine the magnitude and extent of petroleum contamination.

6. SWMU PS-5, ARRS Hangar (ST-06):

This unit is an aircraft hangar that was used for storage and minor maintenance of jet aircraft and helicopters. Small spills of fuel and cleaning solvents occurred as part of routine maintenance activities. Helicopters were cleaned on the building's parking ramp. Floors were cleaned by high-powered water spray. Fluids were flushed to a vegetated slope north of the facility pavement.

Some volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were detected in soils and sediments around the facility. Concentrations were either below regulatory screening levels or did not pose an unacceptable risk when modeled.

Corrective Measures: **Not Required, HWP**
Since there were no constituents of concern posing unacceptable risk, no further investigation or corrective measures were required.

7. SWMU IS-1, VOQ/Chapel Area (ST-07):

This site is the Visiting Officers Quarters (VOQ) and the Chapel. In 1983, odors and black sludge were reported in the basement of the VOQ. Soon after the initial report, similar complaints were received regarding the Chapel. Analytical results showed concentrations of methane and hydrogen sulfide. It was determined that the material was related to sanitary sewage problems. Groundwater taken from a basement soil boring had no contaminants of concern. Soil samples at the VOQ showed signs of laboratory contamination and 1,2-dichlorobenzene. The 1,2-dichlorobenzene was below health-based limits and may have been related to storage of cleaning materials in the basement. No contaminants were detected in soil borings from the Chapel basement.

Corrective Measures: **Not Required, HWP**
Since 1985, no additional reports of ooze or odors have been made. Air and soil findings were consistent with a sewer leak. No further investigations or corrective measures were required.

8. SWMU IS-2, Building 439 RFI Ovens (OT-08):

This unit is a maintenance shop and its associated radio frequency interference (RFI) filter testing ovens. The filters that were tested in the ovens contained oil with PCBs. A drip pan under the oven would capture releases of oil. Building 439 and the ovens have

been demolished and removed. An electrical substation is now on the site. Soil and groundwater in the area are inaccessible due to the substation. There were no confirmed releases of PCBs.

Corrective Measures: **Not Required, HWP**
Since there was no confirmed release of oil or PCBs, no further investigation or corrective measures were required.

9. SWMU 18-3, Pole Yard Storage Area (SS-09):

This unit is an approximately two-acre area where drums of waste and electrical equipment were historically stored. Contents of the drums were unknown. Soil sampling revealed PCB contamination in excess of action levels. No other constituents were found. PCB contamination was found to a depth of two feet. Groundwater samples did not contain contaminants above action levels.

Corrective Measures: **Complete, HWP**
All soils with PCB concentrations in excess of 1.6 mg/kg were excavated and shipped to a RCRA-licensed incinerator. A total of 2,777 tons of PCB contaminated soil were removed and disposed. Clean soil and gravel were placed, graded, and compacted. The site is fenced and used to store recreational vehicles.

10. SWMU WW-1, Open Storm Ditch (SD-10):

This unit is a storm drainage ditch in the northeast corner of the base. Precipitation runoff from runways and shop areas drain to this ditch. The ditch is concrete lined except for an approximately 100-yard section at the facility boundary. This short section at the facility boundary resembles a naturally vegetated stream and provides a small amount of attractive wetland habitat for migratory birds. An oil/water separator was installed at the downstream exit of the concrete lined portion of the ditch. The oil/water separator has since been removed.

Investigations of soils, sediments and surface water in this SWMU found low concentrations of selenium, pesticides and semi-volatile organic compounds in the soils and sediments. A risk assessment concluded that contaminant concentrations posed no risk to human health but there were unacceptable ecological risks to macroinvertebrates. A Phase II RCRA Facility Investigation was conducted in 2014 to determine if contamination was present at concentrations that may pose risks to human health or the environment. PCBs and pesticides were identified in soils and identified for removal. A subsequent removal action was conducted in 2015, which focused on removing previously identified contamination and restoring the site for unlimited use and access. A completion report was submitted to DEQ in 2016 confirming successful contaminant removal and site restoration and recommended no further corrective action or land use restriction needed. DEQ concurred with those recommendations in a letter dated April 7, 2016.

Corrective Measures: **Not Required, HWP**
EPA consulted with the United States Fish and Wildlife Service regarding appropriate corrective measures for the unit. Remediation of the sediments and soils would effectively destroy the wildlife habitat. The Agencies decided that preservation of the habitat was more desirable than remediation of trace amounts of pesticides, semi-volatile compounds and selenium. Concentrations are so low that it is expected the pesticides and organic compounds will biodegrade over time. The ditch banks were over-seeded with native grasses to control the spread of noxious weeds, stabilize sediments and enhance the diversity of the habitat. The area has been fenced to protect the wetland habitat. Following the 2015 remedial action and the 2016 remedial action completion report, DEQ determined the Air Force's decision to cease additional corrective action or land use restrictions was protective and consistent with other permit-related remedial activities.

11. SWMU OS-1, Acorn/Chestnut Streets PCB Incident (SS-14):

In 1984, lightning struck an electrical substation on the base. PCBs were released during the subsequent explosion. Most of the release struck buildings, roadways and a grassy area.

Corrective Measures: **Complete, HWP**
In 1984 (pre-HSWA permit) all impacted soils were removed and disposed at a licensed landfill, and building exteriors were decontaminated. Confirmatory sampling found no PCBs in excess of regulatory limits.

12. SWMU SW-1, Drum Disposal Site East of DRMO (SS-15):

This unit is an approximately two-acre site where drums of waste were historically stored. Contents of the drums are unknown. Soil sampling revealed PCB contamination in excess of action levels. No other constituents were found. PCB contamination was found to a depth of three feet. Groundwater samples did not contain contaminants above action levels.

Corrective Measures: **Complete, HWP**
All soils with PCB concentrations in excess of 1.6 mg/kg were excavated and shipped to a RCRA-licensed incinerator. A total of 1,133 tons of contaminated soils were removed and disposed. The site was backfilled with clean soil and gravel and fenced. The site is used to store engineering materials.

13. SWMU SW-4, Conventional Munitions Disposal Site (OT-16):

This unit was used for disposal of conventional munitions by open burning or open detonation. There is a burn pit, a detonation area and a residue disposal pit associated with operations. This unit stopped operating in approximately 1994. Due to the unique risks associated with this site, investigations had been limited to surface soil sampling. Surface soil concentrations of cadmium were above risk base screening levels.

Corrective Measures: **Complete, HWP**
Surface soils with concentrations of cadmium in excess of 3.0 mg/kg were excavated and disposed at a licensed Subtitle D landfill. The open burn, open detonation, and residue disposal pits were excavated and the soil screened to remove any unexploded ordnance. Soils excavated from the pits were analyzed for explosives and metals. Pit walls and floors were sampled after excavation to confirm clean up. A total of 1,670 cubic yards of soil were excavated. A total of 995 tons of soil was disposed at the local Subtitle D landfill. The site was backfilled, graded and reseeded.

14. SWMU SW-5, Drum Disposal Site South of Weapons Storage Area (SS-17):

Fifteen drums containing waste were buried at this unit to form the core of a berm embankment for a corner of the motorcycle club's track. Nine of the drums were full in 1982 when they were discovered. The drums contained solvents, paint wastes and petroleum products. Hazardous constituents included toluene, xylene, 2-butanone, and aliphatic hydrocarbons. The remaining six drums were empty at the time of discovery. All drums were removed subsequent to their discovery in 1982. Soil samples were analyzed for aromatic volatile organic compounds, semi- volatile organic compounds, total petroleum hydrocarbons and 13 metals. No organic chemicals exceeded reporting limits, and no metals exceeded background concentrations. Groundwater was not found in any of the monitoring wells.

Corrective Measures: **Not Required, HWP**
Results show that there is no residual contamination at this site. No further investigations or corrective measures were taken.

15. SWMU SW-2, Flightline Landfill (LF-18):

This unit is a 22-acre landfill located at the northeast end of the primary runway at MAFB. The landfill operated from 1942 to 1950. Construction and industrial wastes were accepted for disposal, which reportedly included plating sludge, spent filtrates, paint products, petroleum products and additional unidentified materials.

Several volatile organic compounds were found in subsurface soil exceeding reporting limits, but not screening values. Total metals values exceeded reporting limits in all surface and subsurface soil samples.

The following contaminants were found at concentrations in excess of screening levels during the RFI investigation, as reported in the 1995 RFI Report:

Soils		Groundwater	
Antimony	14.0 mg/kg	Antimony	0.3 mg/l
Thallium	16.4 mg/kg	Manganese	0.75 mg/l
		Vanadium	0.04 mg/l

As part of the RFI, a quantitative risk assessment was conducted for antimony and thallium. One set of conditions was evaluated: worker exposure to soil via dermal contact, incidental ingestion, and fugitive dust inhalation. The potential reasonable

maximum exposure (RME) health indicator (HI) associated with the defined exposure of workers to soils was determined to be 1.1×10^{-2}, which falls below EPA's acceptable value of one. Therefore, it was concluded that no unacceptable risks are associated with the soils at this unit.

A quantitative risk assessment was not conducted for contaminants in groundwater because groundwater was considered an incomplete pathway. This aquifer is a shallow perched aquifer that would not be used as a water source.

Corrective Measures: **Not Required; however, Land Use Controls are required, HWP**

A No Further Action (NFA) decision was made for this SWMU prior to implementation of Montana water quality standards (Circular DEQ-7). In 2001, DEQ required further sampling to re-evaluate concentrations of hazardous constituents in groundwater. Analytical results indicated concentrations of hazardous constituents in monitoring wells in and downgradient of the SWMU were below Montana water quality standards. DEQ determined no further action was required and notified MAFB in a letter dated November 15, 2002.

Additional Actions:

In 2014, an issue was identified during routine landfill inspections regarding vehicular traffic patterns throughout the landfill cover area resulting in breaches in vegetative cover and exposed soil. In response, the Air Force installed a facility access control system consisting of a complete fence, locking gates and signs. This work was completed in 2015 and subsequent landfill inspections show decreased landfill cover vehicle traffic patterns.

Long-Term Management

MAFB will manage LF-18 as a closed non-regulated landfill for the duration of its ownership. MAFB will maintain the landfill cap and the integrity of the landfill cover surface to minimize the amount of moisture infiltrating the cover and to provide a barrier to prevent direct exposure of the landfill contents to human and ecological receptors. Long-term maintenance requirements are included in the MAFB Land Use Control Implementation Plan.

16. SWMU SW-3, Landfill Northeast of Weapons Storage Area (LF-19):

This unit is an approximately 30-acre landfill located near the base boundary. The western edge of the landfill is bordered by an unnamed drainage coulee, which during significant snowmelt or rainfall events may contain ephemeral surface water. The coulee flows north towards the Missouri River. Coal fly ash, petroleum-contaminated soils, residential garbage, residual munitions, sanitary sludge and drums of solvents, pesticides, oils and acids were reportedly disposed in the landfill from 1950 until May 1991. The landfill was closed in compliance with Montana landfill regulations. Waste disposal was primarily accomplished through trench and fill operations.

Surface and groundwater monitoring results from sampling points and monitoring wells on and off-site indicate Montana water quality standards, as listed in Circular DEQ-7, were exceeded for 1,1-Dichloroethene (1,1-DCE), cis-1,2-Dichloroethene (cis-1,2-DCE), trans-1,2-Dichloroethene (trans-1,2-DCE), Trichloroethene (TCE), and vinyl chloride (VC). Conclusions of a baseline risk assessment indicate that the concentrations of the constituents of concern did not pose an unacceptable risk to human health or the environment. However, corrective measures were required due to concentrations of volatile organics above the DEQ-7 water quality standards.

In May 2006, DEQ required investigation of on-site sources of contamination in the LF-19 landfill. The investigation included installation of monitoring wells within waste trenches to characterize groundwater and permeability of the waste. The investigation was not able to identify sources of off-site contamination. MAFB recommended suspension of further on-site investigation, with the exception of annual water sampling of the two most downgradient waste cell monitoring wells.

DEQ agreed with MAFB's assessment that the on-site waste trench investigation failed to identify sources of chlorinated hydrocarbons found in ground and surface water downgradient of the landfill. Past soil gas and groundwater investigations also failed to identify the source. Due to the nature of the trenches and the waste within them, it is unlikely that further investigation will be able to determine contamination sources. Based on the results of the investigation, DEQ suspended requirements for a CMS to determine a remedy for on- site sources. If physical conditions at the unit change, the off-site groundwater remedy fails, or future sampling information indicates an increase in off-site contaminant concentrations, DEQ may require further on- and off-site investigation and remediation.

Corrective Measures: **In Progress, HWP**
A remedy for off-site surface and shallow groundwater contamination was approved on May 18, 2006 (Attachment III.1d - Final Remedy Decision for LF-19). The selected remedy for surface and shallow ground water contamination at LF-19 includes enhanced in-situ bioremediation, monitored natural attenuation, and institutional controls to address groundwater contamination at the site. Enhanced reductive dechlorination (ERD) was used as a biological treatment barrier to degrade chlorinated volatile organic compounds (CVOCs) present in shallow groundwater. Groundwater is monitored to determine effectiveness of the barrier system and to track natural attenuation of contaminants. Institutional controls that restrict land and water use must be implemented to prevent potential human exposure to contaminants.

17. SWMU SS-22, Old Taxiway Landfarm (SS-22):

This unit is a land treatment unit permitted by the DEQ Leaking Underground Storage Tank Program for treatment of petroleum-contaminated soils from a UST release in 1990. Soil sampling at the perimeter of the unit found no constituents of concern above reporting limits. Air sampling showed toluene and benzene above reporting limits but the source of these constituents could not be confirmed due to jet engines and vehicular

traffic in the area. A risk assessment on air contaminants determined that there was no unacceptable risk.

Corrective Measures: **Not Required, HWP**
This unit was permitted through DEQ as a one-time landfarm and has no evidence of off-site releases. Therefore, no further investigations or corrective measures were required.

18. SWMU SS-23, Building 435 Aeration Slab (SS-23):

This unit was used to aerate petroleum-contaminated soils in 1988. All soils were removed in 1989 or 1990. Investigations focused on the perimeter of the slab since there was no run-on or run-off control. Constituents of concern were below reporting limits in all surficial soil samples. There was no deeper soil or groundwater sampling.

Corrective Measures: **Not Required, HWP**
Since no constituents of concern were found to pose unacceptable risk, no further investigation or corrective measures were required.

19. SWMU SS-24, Wherry Housing Pesticides (SS-24):

This site was the location of a transformer leak and suspected PCB contamination. Soil samples were discovered to have high concentrations of pesticides: dichlorodiphenyldichloroethylene (DDE), dichlorodiphenyltrichloroethane (DDT), dichlorodiphenyldichloroethane (DDD), and chlordane. Further investigations delineated the areal extent of the contamination. No groundwater contamination was discovered.

Corrective Measures: **Complete, HWP**
All soils with concentrations of total pesticides (DDD, DDT, DDE, and chlordane) in excess of 1.9 mg/kg and chlordane in excess of 0.49 mg/kg were removed and sent to a licensed facility for incineration. The site was filled with clean soil and topsoil, graded, compacted and seeded.

20. SWMU ST-25, USTs North of Building 370 (SS-25):

This site was closed by the DEQ Underground Storage Tank Program.

Corrective Measures: **Transferred to DEQ cleanup authority under MUSTA, No Further Action Required**

21. AOC-26, Contamination North of Building 870:

Petroleum constituents were found up to eight feet deep during a waterline repair in 1997. The site is located in the parking lot of a vehicle maintenance facility. The source of contamination is believed to have been leaking fuel tanks from vehicles or discarded fuels and oils from the maintenance shops. Constituents of concern were below regulatory levels, and no groundwater was discovered. A RCRA Facility Investigation (RFI) was conducted in 2013 and summarized in an RFI Report in 2015. The RFI was conducted to determine if residual site constituents were below residential screening values and to determine if an NFA designation for unrestricted future use could be achieved. The investigation found that site contaminants were below residential risk-

based screening levels in soil, and groundwater was not impacted. The RFI recommended the site be closed with no further corrective action.

Corrective Measures: **Not Required, HWP**
Since there were no constituents of concern posing unacceptable risk, no further investigation or corrective measures were required. DEQ made a determination of No Further Action on January 22, 2015.

22. SWMU SS-27, Contractor Storage Area (permit modification 7/19/04) (SS-27):

This site was used by various contractors to store equipment, supplies, construction materials, and vehicles. Two investigations in July 1998 found PCB contamination in surface and near-surface soils. Additional soil sampling was conducted in 1999 and is summarized in the Final RFI Report received on October 29, 1999. MAFB submitted a CMS that was subsequently approved by EPA on April 5, 2000. Soils with PCB and VOC/SVOC concentrations above risk-based concentrations were excavated and landfilled at a RCRA Subtitle C facility.

Corrective Measures: **Complete, HWP**
EPA approved cleanup standards (EPA Region III Risk-Based Concentrations for residential exposure) for PCB, azobenzene, benzidine, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, bis(-2-chloroethyl) ether, bis(2-chloroisopropyl) ether, dibenzo(a,h)anthracene, 3,3-dichlorobenzidene, 4,6-dinitro-2-methylphenol, hexachlorobenzene, hexachlorobutadiene, indeno(1,2,3-c,d)pyrene, n-nitrosodimethylamine, n-nitro-di-n-propylamine, and pentachlorophenol. Corrective measures commenced on August 6, 2001. Excavation, transportation, and disposal activities were completed on August 10, 2001. Analytical results of confirmation samples indicated that PCB concentrations were below the cleanup standard and concentrations of all other contaminants of concern were below method detection limits.

23. AOC-28, Perimeter Road Outfall Ditch:

This site was discovered when a backhoe operator was excavating a ditch near the outfall. He discovered a large vein of black, smelly soil. Preliminary sampling was completed and showed that the sediment contained diesel hydrocarbons. A RCRA Facility Assessment Work Plan was received on September 16, 1999. The objectives of the work plan were to identity the sources of contamination, the nature and extent of contamination, risks to human health and the environment. The RFA Work Plan results received May 4, 2000, indicated there were no detectable existing complete exposure pathways or risks to human health or the environment.

Corrective Measures: **Not Required, HWP**
Since there were no constituents of concern posing unacceptable risk, no further investigation or corrective measures were required.

24. AOC-29, 79th Street Petroleum Contamination (SS-29):

This site was used to fuel tanker trucks that would subsequently refill aircraft. Petroleum contamination was initially discovered in August 1998 during an excavation project. It

was determined that this unit is probably a part of SWMU PS-4, Bulk POL Storage and Fuel Supply & Return Lines. Therefore, management of this unit was transferred to DEQ's Hazardous Waste Site Cleanup Bureau (now known as the Contaminated Site Cleanup Bureau) on January 5, 2000.

Corrective Measures: **Transferred to DEQ cleanup authority under MUSTA**
This unit is managed by the DEQ Contaminated Site Cleanup Bureau.

In 1999 and 2000, Hydrometrics conducted a remedial investigation at SS-29. The results did not show the presence of a single source of contamination but rather the contamination was assumed to be from spills from fueling trucks and reported broken underground piping. A supplemental investigation was conducted in March 2004 focusing the investigation around two center former tank fill stands. Analytical results indicated petroleum impacts were present between 2 and 5 feet below ground surface in the area. In 2005, MAFB excavated and removed approximately 3,061 cubic yards of soil and 1,200 gallons of water near the center of the fuel stands.

In 2015, IRP SS-29 was incorporated into IRP Site ST-05. IRP Site ST-05 is managed by the DEQ Contaminated Site Cleanup Bureau under the authority of the Montana Underground Storage Tank Act and is not designated as a corrective action under the Malmstrom hazardous waste permit. All future work in the former Truck Stand A area will be done under IRP Site ST-05, DEQ Facility ID# 07-13411, Release # 3010.

The 2005 excavation did not remove all the petroleum impacted soil. Residual soil contamination exceeding RBCA standards and groundwater contamination is present at concentrations exceeding DEQ-7 groundwater standards. Additional assessment and development of a remediation strategy is planned.

25. AOC-30, .38 Caliber Training Range (permit modification 6/19/06):

This site was used as a firing range until the mid-1970s. The range was initially used as a bomber firing range and later for small arms training and private rifle firing. The site was leveled and berms removed in the late 1970's. A RFI Phase I and II were completed in 2002 and 2004, respectively, to determine the extent and concentration of metals contamination. Analytical results were compared to EPA Region 9 Preliminary Remediation Goals (PRGs). Lead concentrations were in excess of PRGs for residential soils. No other metals exceeded PRG levels. Leach tests indicated a potential for lead to migrate into soil and groundwater. Further risk assessment evaluation indicated lead levels posed an unacceptable risk to child residents and ecological receptors. A lead concentration of 120 mg/kg was determined to be protective for both human and ecological receptors. MAFB determined that removal of contaminated soil over an areal extent of approximately 3,000 feet to a depth of one foot would provide a protective level of 120 mg/kg lead in soils.

Corrective Measures: **Not Required, HWP (Interim Measures Complete)**
An interim measures presumptive remedy of in situ treatment, excavation, and off-site disposal was selected and approved by DEQ in June 2004. Contaminated soils were

excavated and mixed with Ecobond®, a phosphate-based stabilizing agent and disposed in the local municipal landfill. Confirmatory samples were taken to ensure protective lead soil concentrations had been met. Site restoration included removal of concrete footings, re-grading, and seeding.

26. AOC-31, .38 Caliber Range Debris (permit modification 6/19/06):

This site is a grassy area between water storage tanks within the main cantonment area of the base. Fill dirt containing bullets from the berms at AOC-30 (.38 Caliber Training Range) was placed on AOC-31 in the late 1970s and spread to fill low spots. Small caliber bullets have been observed on the ground surface. The primary exposure pathway for humans is contact with bullets by people walking through the site and picking up the bullets. MAFB submitted a Soil Sampling and Analysis Report for AOC 31 on August 21, 2003. The primary constituents of concern were lead, copper, zinc, antimony, barium, nickel, and aluminum. The report indicated metal analytical results from soil sampling were below EPA Region 9 Preliminary Remediation Goals (PRGs) for residential soils. It was also determined that no complete exposure pathway existed for surface or groundwater.

Corrective Measures: **Not Required, HWP**

Metals concentration levels are below residential soil screening levels and there are no complete exposure pathways to surface or groundwater. DEQ made a determination of No Further Action on September 5, 2003.

27. AOC-32, Former Skeet Range (TS604):

As defined in historical documentation, Site TS604 originally consisted of a 40.5-acre former skeet range that was identified during a historical records review completed as part of the Comprehensive Site Evaluation (CSE). The former Skeet Range is located on the east central side of Malmstrom AFB. The majority of the site is a relatively flat, open field. No major vegetation (e.g., trees or large brush) or other obstructions are present at ground surface, and the terrain is graded towards the center of the site where a drainage swale flows from east to west. A well-maintained paved road bisects the site. A field investigation conducted subsequent to the CSE Phase I/II historical records review identified a grenade range that overlaps the southeast portion of the former skeet range. Additionally, the Weapons Storage Area (WSA) is located on the northwest portion of the former skeet range. The Grenade Training Site and WSA are currently operational and were determined to be ineligible for the DoD Military Munitions Response Program used to justify corrective measures at this AOC. Considering the operational status of the Grenade Range and the WSA, only 30.5 of the entire 40.5-acre site was considered for corrective measures. A 2020 Remedial Investigation (RI) documents field sampling of soils and sediments conducted in 2018 and evaluated potential risks. The samples were analyzed for select metals and/or PAHs to reflect the suspected site contaminants. The RI concluded that historical use of the former skeet range released lead to site soil and benzo(a)pyrene to site soil and sediment.

Corrective Measures: **Not Required, HWP**

Risk assessments conducted in the RI concluded that site contaminants do not pose a risk to human health under unlimited use and unrestricted exposure and that site contaminants pose no to minimal risk to ecological communities that could live or forage at the site. Based on these conclusions, no further action was recommended for Site TS604. DEQ made a No Further Action decision on March 10, 2022.

Attachment III.1d
Final Remedy Decision
LF-19, Landfill Northeast of the Weapons Storage Area (SWMU SW-3)
Malmstrom Air Force Base, Great Falls, Montana
May 19, 2006

Introduction

The Montana Department of Environmental Quality (DEQ) has prepared this Final Remedy Decision for remedy selection at LF-19, a closed landfill at Malmstrom Air Force Base (Malmstrom), Great Falls, Montana. The purpose of this document is to identify the selected remedy. The selected remedy and alternatives were described in a Statement of Basis issued for public comment from March 1 to April 14, 2006. DEQ has selected a remedy following consideration of public comments submitted during the comment period. All comments received were reviewed during the final selection of the remedy and have been answered in a separate Response to Comments issued in a letter to Malmstrom dated May 18, 2006. No additional alternatives were proposed that were not considered in the Statement of Basis; however, the proposed remedy has been altered as a result of public comment.

The MAFB hazardous waste permit (#MTHWP-01-01) was modified to include this document as the final remedy decision for LF-19.

Selected Remedy

The selected remedy for surface and shallow ground water contamination at LF-19 will include enhanced in-situ bioremediation, monitored natural attenuation, and institutional controls to address groundwater contamination at the site. Enhanced reductive dechlorination (ERD) will be used as a biological treatment barrier to degrade chlorinated volatile organic compounds (CVOCs) present in shallow groundwater. Groundwater will be monitored to determine effectiveness of the barrier system and to track natural attenuation of contaminants. Institutional controls will be put in place limiting or restricting land and water use to prevent potential human exposure to contaminants in impacted areas.

Malmstrom is required, under the conditions of its hazardous waste permit, to institute corrective measures for all releases of hazardous waste or constituents from solid waste management units at the facility. In addition, corrective action must be implemented for contamination found outside the facility boundary. Malmstrom must also comply with Montana's ground and surface water quality laws. Shallow groundwater and ephemeral surface water within and adjacent to LF-19 contain concentrations of hazardous constituents which exceed Circular DEQ-7 water quality standards. Results of the remedial investigations indicate these hazardous constituents have migrated off-site into shallow groundwater and ephemeral surface water in the coulee.

The relevant cleanup standards for LF-19 are the Montana numeric water quality criteria as published in Circular DEQ-7. Corrective action objectives for LF-19 are to minimize risk to human and ecological receptors by reducing CVOC concentrations below the cleanup standards through source control and/or reduction, containment of the contaminants, and/or treatment of contaminated media. In addition, long-term site management and maintenance requirements should be minimized to efficiently control costs and level of effort.

The selected remedy will be reliable and effective over the long-term through reduction of CVOCs in shallow groundwater and prevention of contaminant migration to surface water.

In the Statement of Basis, DEQ proposed further investigation of the waste trenches as part of the remedy, with the intention of developing an on-site source control technology. As response to comments by the United States Department of the Air Force, DEQ will require further investigation of the waste trenches; however, the investigation will be conducted independent from implementation of the surface and ground water remedy. The focus of the waste trenches investigation will be to determine whether specific sources can be located, as well as to provide information necessary to select, design, and build a source control system. Upon completion of the trench investigation, source control remedies will be evaluated in a Corrective Measures Study. Proposed remedy selection for on-site controls will be proposed in a Statement of Basis and subsequently applied in a Corrective Measures Implementation.

Future Actions

Malmstrom will proceed with Corrective Measures Implementation (CMI) as required by Condition III.K. A work plan will be developed and submitted to DEQ for approval. Upon work plan approval, Malmstrom will implement the remedy. Malmstrom will be required to submit progress reports on the remedy until remediation goals are met. Final completion will require submittal of a certification and certification report, approval of completion by DEQ, and modification of the Malmstrom permit to indicate remedy completion.

Attachment III.2
RCRA Facility Investigation (RFI)
Scope of Work

Table of Contents

RCRA Facility Investigation
Scope of Work

1.0. **Purpose**

The purpose of the RCRA Facility Investigation (RFI) is to characterize contamination at the facility and evaluate potential risks of that contamination to human health and the environment. Components of the characterization include describing the environmental setting; defining contamination sources (source characterization), determining the degree, and extent of any release of hazardous constituents (contamination characterization); identifying actual or potential receptors; and determining associated risks to human health and the environment. The RFI Work Plan must be developed based on Condition III.G. and should include the framework provided in this Attachment.

Respondent should establish preliminary facility-specific objectives for corrective action. Objectives should be based on public health and environmental criteria, information expected to be gathered during the RFI, EPA guidance, and the requirements of any applicable federal and state statutes.

The RFI investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective measures alternative(s) during the Corrective Measures Study, or to determine no further action is necessary.

2.0. **Components**

2.1. *Environmental Setting*

Information to supplement and/or verify existing information on the environmental setting at the facility should be collected. The following should be characterized as they relate to identified sources, pathways and areas of releases of hazardous constituents from the solid waste management units (SWMUs) and areas of concern (AOCs).

2.1.1. Hydrogeology

The hydrogeologic conditions at the facility should be evaluated. This evaluation should provide the following information:

2.1.1.1. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting groundwater flow beneath the facility, including:

- Regional and facility specific stratigraphy; description of strata including strike and dip, identification of stratigraphic contacts;
- Structural geology; description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);
- Depositional history;
- Regional and facility specific groundwater flow patterns;
- Identification, characterization, and quantification of recharge and discharge areas;

- Characterization of seasonal and temporal variations in the groundwater flow regime; and
- A map drawn at an appropriate scale to show the location of SWMUs and AOCs in Attachment III.1.

2.1.1.2. An analysis of any topographic features that might influence the groundwater flow system.

2.1.1.3. Based on field data, tests, and cores, a representative and accurate classification and description of all hydrogeologic units which may be part of the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:

- Hydraulic conductivity and porosity (total and effective);
- Lithology, grain size, sorting, degree of cementation;
- An interpretation of hydraulic interconnections between saturated zones; and
- The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content, etc.).

2.1.1.4. Based on field studies and cores, structural geology and hydrogeological cross sections showing the extent (depth, thickness, and lateral extent) of hydrogeologic units which may be part of the migration pathways identifying:

- Sand and gravel deposits in unconsolidated deposits;
- Zones of fracturing or channeling in consolidated or unconsolidated deposits;
- Zones of higher permeability or lower permeability that might direct and restrict the flow of contaminants;
- The uppermost aquifer: geologic formation, group of formations, or part of a formation capable of yielding a significant amount of groundwater to wells or springs; and
- Water bearing zones above the first confining layer that may serve as a pathway for contaminant migration including perched zones of saturation.

2.1.1.5. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient from the potential contaminant sources, a representative description of water level or fluid pressure monitoring including:

- Water level contour and/or potentiometric maps;
- Hydrologic cross sections showing vertical gradients and thickness of immiscibles and/or other known contaminants;
- The flow system, including the vertical and horizontal components of flow; and
- Any temporal changes in hydraulic gradients, for example, due to seasonal influences.

2.1.1.6. A description of manmade influences that may affect the hydrogeology of the site, including Interim Measure units or structures, identifying:

- Active and inactive local water supply and production wells with an approximate schedule of pumping; and
- Manmade hydraulic structures (pipelines, french drains, ditches, unlined ponds, septic tanks, NPDES outfalls, retention areas, etc.).

2.1.1.7. A description of the local geology and potential contaminant migration pathways. These should be determined by an appropriate number of borings and boring spacing. Borings should be located so that reasonably accurate cross-sections can be constructed.

2.1.2. Soils

Soil and rock units above the water table in the vicinity of contaminant release(s) should be characterized. Such characterization must include, but not be limited to, the following activities and information, as appropriate:

- SCS soil classification;
- Surface soil distribution;
- Soil profile, including ASTM classification of soils;
- Transects of soil stratigraphy;
- Hydraulic conductivity (saturated and unsaturated);
- Relative permeability;
- Bulk density;
- Porosity;
- Soil sorption capacity;
- Cation exchange capacity (CEC);
- Soil organic content;
- Soil pH;
- Particle size distribution;
- Depth of water table;
- Moisture content;
- Effect of stratification on unsaturated flow;
- Infiltration;
- Evapo-transpiration;
- Storage capacity;
- Vertical flow rate;
- Mineral content; and
- Redox potential (Eh).

2.1.3. Surface Water and Sediment

Surface water bodies in the vicinity of the facility should be characterized. Such characterization should include, but not be limited to, the following activities and information:

2.1.3.1. Description of the temporal and permanent surface water bodies including:

- For impoundments: location, elevation, surface area, depth, volume, freeboard, and construction and purpose;
- For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, flooding tendencies (i.e., 100 year event), discharge point(s), and general contents;
- For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume;
- Drainage patterns; and
- Evapo-transpiration rate.

2.1.3.2. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biochemical oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients, chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.

2.1.3.3. Description of sediment characteristics including:

- Deposition area;
- Thickness profile; and
- Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)

2.1.4. Air

Information characterizing the climate in the vicinity of the facility should be provided in the RFI Report. Such information should include, but not be limited to:

2.1.4.1. A description of the following parameters:

- Annual and monthly rainfall averages;
- Monthly temperature averages and extremes;
- Wind speed and direction;
- Relative humidity/dew point;
- Atmospheric pressure;
- Evaporation data;
- Development of inversions; and
- Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence.

2.1.4.2. A description of topographic and man-made features which affect air flow and emission patterns, including:

- Ridges, hills or mountain areas;
- Canyons or valleys;

- Surface water bodies (e.g. rivers, lakes, bays, etc.);
- Wind breaks and forests; and
- Buildings.

2.2. *Source Characterization*

To the degree possible without undue safety risks, analytical data should be collected to completely characterize the wastes and the areas where wastes have been placed, collected, or removed. The characterization should include type, quantity, physical form, disposition (containment or nature of deposits), and facility characteristics affecting release (e.g., facility security, and engineering barriers). Procedures used in making the following determinations should be documented. The source characterization should include quantification of the following specific characteristics, at each source area:

2.2.1. Unit/Disposal Area Characteristics

- Location of unit/disposal area;
- Type of unit/disposal area;
- Design features;
- Operating practices (past and present);
- Period of operation;
- Age of unit/disposal area;
- General physical conditions; and
- Method used to close the unit/disposal area.

2.2.2. Waste Characteristics

2.2.2.1. Type of wastes placed in the unit;

- Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);
- Quantity; and
- Chemical composition.

2.2.2.2. Physical and chemical characteristics such as:

- Physical form (solid, liquid, gas);
- Physical description (e.g., powder, oily sludge);
- Temperature;
- pH;
- General chemical class (e.g., acid, base, solvent);
- Molecular weight;
- Density;
- Boiling point;
- Viscosity;
- Solubility in water;
- Cohesiveness of the waste;
- Vapor pressure; and
- Flashpoint.

2.2.3. Migration and Dispersal Characteristics of the Waste

Procedures used in making the following determinations should be documented.

- Sorption capacity;
- Biodegradability, bioconcentration, biotransformation;
- Photodegradation rates;
- Hydrolysis rates; and
- Chemical transformations.

2.3. *Characterization of Releases of Hazardous Constituents*

Analytical data should be collected on groundwater, soils, surface water, sediment, subsurface gas, and air contamination in the vicinity of the facility in accordance with the Sampling and Analysis Plan. These data should be sufficient to define the extent, origin, direction, and rate of movement of contamination. Data should include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The following types of contamination at the facility should be addressed:

2.3.1. Groundwater Contamination

A groundwater investigation to characterize any plumes of contamination at the facility should be conducted. Procedures used in making all determinations (e.g., well design, well construction, geophysics, modeling, etc.) should be documented. The groundwater investigation should provide at a minimum the following information:

- A description of the horizontal and vertical extent of any plume(s) of hazardous constituents originating from or within the facility;
- The horizontal and vertical direction of contaminant movement;
- The velocity of contaminant movement;
- The horizontal and vertical concentration profiles of hazardous constituents in the plume(s);
- An evaluation of factors influencing the plume movement;
- An extrapolation of future contaminant movement; and
- All available monitoring data including sampling locations.

2.3.2. Soil Contamination

An investigation to characterize the contamination of the soil and rock units above the saturated zone in the vicinity of any contaminant release should be conducted. Procedures used in making the following determinations should be documented. The investigation should include the following information:

- A description of the vertical and horizontal extent of contamination;

- A description of appropriate contaminant and soil chemical properties within the contaminant source area and plume. This should include contaminant solubility, speciation, adsorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation;

- Specific contaminant concentrations;

- The velocity and direction of contaminant movement; and

- An extrapolation of future contaminant movement.

2.3.3. Surface Water and Sediment Contamination

A surface water investigation to characterize contamination in surface water bodies resulting from releases of hazardous constituents at the facility should be conducted. The investigation should include, at a minimum, the following information:

- A description of the horizontal and vertical extent of any plume(s) originating from the facility, and the extent of contamination in underlying sediments;

- The horizontal and vertical direction of contaminant movement;

- Contaminant velocity;

- An evaluation of the physical, biological and chemical factors influencing contaminant movement;

- An extrapolation of future contaminant movement; and

- A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, and contaminant concentrations, at a minimum. Analytical methods used to obtain the data should be specified.

2.3.4. Air Contamination

An investigation to characterize particulate and gaseous releases of hazardous constituents into the atmosphere should be conducted. Procedures used in making the following determinations should be documented. This investigation should provide the following information, if appropriate:

- A description of the horizontal and vertical direction and velocity of contaminant movement;

- The rate and amount of the releases; and

- The chemical and physical composition of the contaminant(s) released, including horizontal and vertical concentration profiles.

2.3.5. Subsurface Gas Contamination

An investigation to characterize subsurface gases emitted from buried hazardous wastes and constituents in the subsurface should be conducted. The investigation should include, but not be limited to, the following information:

- Horizontal and vertical concentration profiles of the subsurface gases being emitted;

- The chemical composition of the gases being emitted; and

- The rate, amount and density of the gases being emitted.

2.4. *Potential Receptors*

Data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility should be collected. Chemical analysis of biological samples and/or data on observable effects in ecosystems should also be obtained as appropriate. The following characteristics should be identified:

2.4.1. Current local uses and planned future uses of groundwater:

- Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial);

- Location of groundwater users, to include withdrawal and discharge wells, within one mile of the affected area; and

- The aquifer or hydrogeologic unit used and/or affected by the current and planned future local uses.

2.4.2. Current local uses and planned future uses of surface waters directly affected by the facility:

- Domestic and municipal (e.g., potable and lawn/gardening watering);
- Recreational (e.g. swimming, fishing);
- Agricultural;
- Industrial; and
- Environmental (e.g., fish and wildlife propagation).

2.4.3. Human use of or access to the facility and adjacent lands, including but not limited to:

- Recreation;
- Hunting;
- Residential;
- Commercial;

- Relationship between population locations and prevailing wind direction; and
- The potential impact on human health including demography, groundwater and surface water use and land use.

2.4.4. A general description of the biota in surface water bodies on, adjacent to, or affected by, the facility.

2.4.5. A general description of the ecology within the area adjacent to the facility.

2.4.6. A general demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to; age, sex, and sensitive subgroups.

2.4.7. A description of any known or documented endangered or threatened species near the facility.

2.5. *Investigation Analysis*
An analysis and summary of all facility investigations and their results should be prepared. This task should be adequate to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a Corrective Measures Study. The Investigation Analysis should include:

2.5.1. Data Analysis
All facility investigation data should be analyzed and evaluated. A summary should be developed detailing the type and extent of contamination at the facility, including sources and migration pathways. The summary should describe the extent of contamination (qualitative/quantitative) in relation to background levels indicative for the area.

2.5.2. Baseline Risk Assessment
A baseline risk assessment should be developed, incorporating the elements listed in the "Outline for Baseline Risk Assessment" contained in Attachment C of this Order.

2.6. *Laboratory and Bench-Scale Studies*
Laboratory and/or bench scale studies should be conducted, if necessary, to determine the applicability of a corrective measure technology or technologies to facility conditions. Respondent should analyze the technologies, based on literature review, vendor contracts, and past experience to determine the testing requirements.

If such studies are to be implemented, a testing plan should be developed identifying the type(s) and goal(s) of the study(ies), the level of effort needed, and the procedures to be used for data management and interpretation.

Upon completion of the testing, testing results should be evaluated to assess the technology or technologies with respect to site-specific questions identified in the test

plan. A report summarizing the testing program and its results, both positive and negative should be prepared for submission to DEQ.

3.0. **Description of Current Conditions**

The Current Conditions Report provides background information pertinent to the facility. The Current Conditions Report may be submitted with the RFI Work Plan or in a separate document. The data gathered during any previous investigations or inspections and other relevant data should be included, along with a discussion of the quality of the data.

3.1. *Nature and Extent of Contamination*

Respondent's report should describe the existing information on the nature and extent of contamination with regard to the units and areas of concern which are the subject of the RFI Work Plan.

3.1.1. Respondent's report should summarize all possible source areas of contamination. For each area, Respondent should identify the following, to the extent that information is available:

- Location of unit/area (which must be depicted on a facility map);
- Quantities of solid and hazardous wastes;
- Hazardous waste or constituents, to the extent known; and
- Identification of areas where additional information is necessary.

3.1.2. The Current Conditions Report should provide an assessment and description of the existing degree and extent of contamination. The assessment should include:

- Available monitoring data and qualitative information on locations and levels of contamination at the facility;

- All potential migration pathways including information on geology, pedology, hydrogeology, physiography, hydrology, water quality, meteorology, and air quality; and

- The potential impact(s) on human health and the environment, including demography, groundwater and surface water use, and land use.

4.0. **RFI Work Plan**

The RFI work plan must meet the requirements of this Order and should include elements outlined in this Attachment. The work plan should also include preliminary interim and final objectives for the facility and for the RFI. Other pertinent EPA guidance may be used in work plan development.

4.1. *Project Management Plan*

The Project Management Plan should include a discussion of the technical approach, schedules, budget, and personnel. The Project Management Plan should also include a

description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan should also document the overall management approach to the RCRA Facility Investigation. Objectives for the RFI should be developed.

4.2. *Sampling and Analysis and Quality Assurance Plans (SAP/QAP)*
All sampling and analysis should be conducted in accordance with the SAP/QAP. All sampling locations should be documented in a log and identified on a detailed site map.

The SAP/QAP should document all monitoring procedures including, but not limited to, the sampling and analytical procedures to be performed during the investigation to characterize the environmental setting, source, and releases of hazardous constituents, so as to ensure that all information and data are valid and properly documented. The sampling strategy and procedures should be in accordance with the *Characterization of Hazardous Waste Sites, a Methods Manual: Volume II, Available Sampling Methods*, EPA-600/4-84-076; *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846), (third edition, 1986 and most recent updates); or other EPA approved methods. In accordance with Module III, Respondent should include in the RFI work plan justifications for deviations from these references.

The SAP/QAP should include the following:

4.2.1. Data Collection Strategy

4.2.1.1. A description of the intended uses for the data and the necessary level of precision and accuracy for these uses;

4.2.1.2. A description of the methods and procedures to be used to assess the precision, accuracy and completeness of the data;

4.2.1.3. A description of the rationale used to assure that the data accurately and precisely represent characteristics of a population, parameter variations at a sampling point, a process condition or an environmental condition. Examples of factors which should be considered and addressed include:

- Environmental conditions at the time of sampling;
- Number of sampling points;
- Representativeness of selected media; and
- Representativeness of selected analytical parameters.

4.2.1.4. A description of the measures to be taken to assure that the following data sets are comparable:

- RFI data generated by Respondent;

- RFI data generated by an outside laboratory or consultant versus data generated by Respondent; and

- Data generated by separate consultants or laboratories.

4.2.1.5. Details relating to the schedule and information to be provided in quality assurance reports, including:

- Periodic assessment of measurement data accuracy, precision, and completeness;
- Results of performance audits;
- Results of system audits;
- Significant quality assurance problems and recommended solutions; and
- Resolutions of previously stated problems.

4.2.2. Sampling Strategy

The sampling strategy should incorporate the following:

- Selecting appropriate sampling locations, depths etc.;

- Providing a statistically significant number of sampling sites;

- Obtaining all necessary ancillary data;

- Determining conditions under which sampling should be conducted;

- Determining which media are to be sampled (e.g., groundwater, air, soil, sediment, subsurface gas);

- Determining which parameters are to be measured and where and documenting the rationale for parameter selection;

- Selecting the frequency of sampling and length of sampling period;

- Selecting the types of samples (e.g., composites vs. grabs) and number of samples to be collected; and

- Preventing contamination of the sampling equipment and cross contamination between sampling points.

4.2.3. Sampling Procedures

4.2.3.1. Documenting sampling operations and procedures, including:

- Procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, preservatives, and absorbing reagents);
- Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;
- Specific sample preservation methods;
- Calibration of field instruments;
- Collection of replicate samples;
- Submission of field-based blanks, where appropriate;
- Potential interferences present at the facility;
- Construction materials and techniques associated with monitoring wells and piezometers;
- Field equipment listing and sampling containers;
- Sampling order; and
- Decontamination procedures.

4.2.3.2. Selecting appropriate sample containers;

4.2.3.3. Sample preservation; and

4.2.3.4. Chain-of-custody, including:

- Standardized field tracking reporting forms to establish sample custody in the field prior to shipment; and

- Pre-prepared sample labels containing all information necessary for sample tracking.

4.2.4. Field Measurements

4.2.4.1. Determining which parameters are to be measured and where;

4.2.4.2. Selecting the frequency of field measurements and duration of field measurement period;

4.2.4.3. Providing a statistically significant number of field measurements;

4.2.4.4. Determining conditions under which field measurements should be conducted;

4.2.4.5. Determining which media are to be addressed by appropriate field measurements (e.g., groundwater, air, soil, sediment, etc.);

4.2.4.6. Documenting field measurement operations and procedures, including:

- Procedures and forms for recording raw data and the exact location, time, and facility-specific considerations associated with the data acquisition;
- Calibration of field instruments;

- Collection of replicate measurements;
- Submission of field-based blanks, where appropriate;
- Potential interferences present at the facility;
- Construction materials and techniques associated with monitoring wells and piezometers used to collect field data;
- Field equipment listing;
- Order in which field measurements will be made; and
- Decontamination procedures.

4.2.5. Sample Analysis

Sample analyses should be conducted in accordance with the most recent edition of Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) (third edition, 1986 and most recent updates); Standard Methods for the Examination of Water and Wastewater, (twenty-first edition, 2005); or an equivalent method approved by DEQ. The sample analysis section of the Sampling and Analysis Plan should specify the following:

4.2.5.1. Chain-of-custody procedures, including:

- Identification of the responsible party at the laboratory who is authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

- Use of a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

- Specification of laboratory sample custody procedures for sample handling, storage, and dispersement for analysis.

4.2.5.2. Sample storage, procedures, and storage times;

4.2.5.3. Sample preparation methods;

4.2.5.4. Analytical procedures, including:

- Scope and application of the procedure;
- Sample matrix;
- Potential interferences;
- Precision and accuracy of the methodology; and
- Method detection limits.

4.2.5.5. Calibration procedures and frequency;

4.2.5.6. Data reduction, validation and reporting;

4.2.5.7. Internal quality control checks, laboratory performance and systems audits and frequency, including:

- Method blank(s);

- Laboratory control sample(s);
- Calibration check sample(s);
- Replicate sample(s);
- Matrix-spiked sample(s);
- "Blind" quality control sample(s);
- Control charts;
- Surrogate samples;
- Zero and span gases; and
- Reagent quality control checks.

4.2.5.8. Preventive maintenance procedures and schedules;

4.2.5.9. Corrective action (for laboratory problems); and

4.2.5.10. Turnaround time.

4.2.6. Groundwater Investigations

4.2.6.1. Monitoring system design

- Downgradient wells should be located to satisfy regulatory requirements for release detection and no migration of hazardous constituents beyond the site boundary. The horizontal placement of these wells should be such that they intercept potential pathways for contaminant migration. Wells should be monitored at each depth necessary to ensure immediate detection of a release.

- Upgradient or background wells should be installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of uncontaminated water that has not been affected by leakage from a SWMU or AOC. A sufficient number of wells should be installed to allow for stratified comparisons of water quality and to account for spatial variability in groundwater quality.

4.2.6.2. Monitoring well drilling methods

- Drilling should be performed in a manner that minimizes the disturbance and maintains the natural properties of the subsurface materials;

- Contamination and/or cross-contamination of groundwater and aquifer materials should be avoided;

- The drilling method should allow for the collection of representative samples of rock, unconsolidated materials, and soil;

- The drilling method should allow the owner/operator to determine when the appropriate location for the screened interval has been encountered;

- The drilling method should allow sufficient annular space around the well casing and screen to place the filter pack and annular sealants; and

- The drilling method should allow for the collection of representative groundwater samples. Drilling muds should be used only when minimal impact to the surrounding formation and groundwater can be ensured.

4.2.6.3. Monitoring well design and construction

- The most suitable material for a particular well at a particular site will depend on the characteristics of the site hydrogeology. The following factors should be taken into consideration: depth to the water-bearing zone, geochemistry of the soil and rock over the entire interval in which the well is to be cased, and the chemistry of the groundwater at the site. In addition, the screens and casing of all groundwater wells should be: 1) inert in the water being tested and 2) chemically resistant to any contaminants that are present in the aquifer(s) being monitored.

- The appropriate length of well screens varies from site to site; however, Respondent should provide justification for any screen which cuts across hydraulically separated geologic units. Well screens must be factory slotted or the equivalent. Field slotting is not permitted under any conditions.

- All wells should have a bottom sump to allow sediments that may enter the well to settle without silting in the well and preventing proper flow of fluids.

- The annular space between the borehole wall and the screen or slotted casing should be filled to minimize passage of formation materials into the well.

- A filter pack should be used when the natural formation is: 1) poorly sorted; 2) a uniform fine sand, silt, or clay; 3) very thin-bedded; 4) poorly cemented sandstone; or 5) highly fractured or characterized by relatively large solution channels. Filter pack material should be chemically inert and may not be constructed from fabric.

4.2.6.4. Annular sealant

- The well annulus must be properly sealed. Sealant materials should be chemically compatible with the highest anticipated concentration of chemical constituents that may be expected in the groundwater.

- When the screened interval is within the saturated zone, a minimum of two feet of sealing material should be placed immediately over the protective sand layer overlying the filter pack.

- The precise volume of filter pack material and sealant required should be calculated before placement; the actual volumes used should be determined during well construction. Any discrepancies between the calculated volumes and the actual volumes should be detailed and documented.

4.2.6.5. Surface completion

- A monitoring well surface seal should be installed on top of the annular sealant and extend vertically up the well annulus between the well casing and the borehole to the land surface.

- A protective casing should be installed around the well casing to prevent damage or unauthorized entry.

- A suitable cap should be placed on the well to prevent tampering or the entry of any foreign materials. A lock should be installed on the cap to provide security. Lubricants may not be applied to the lock.

4.2.6.6. Documentation of well design

Respondent should keep a record of the following information for each well:

- A well construction log;
- Date of construction;
- Drilling method and drilling fluid used;
- Well location (± 0.5 ft);
- Bore hole and well casing diameter;
- Well depth (± 0.1 ft);
- Drilling and lithologic logs;
- Casing materials;
- Screen materials and design;
- Casing and screen joint types;
- Screen slot size/length;
- Filter pack material/size, grain analysis;
- Filter pack volume calculations;
- Filter pack placement method;
- Sealant materials (% bentonite);
- Sealant placement method;
- Sealant volume (lbs/gallon of cement);
- Surface seal design/construction;
- Well development procedure;
- Type of protective well cap;
- Ground surface elevation (± 0.01 ft);
- Surveyor's pin elevation (± 0.01 ft) on concrete apron;
- Top of monitoring well casing elevation (± 0.01 ft);
- Top of protective steel casing elevation (± 0.01 ft); and
- Detailed drawing of well (include dimensions).

4.2.7. Water Level Elevation Determination

The following procedures should be followed when determining water level elevations:

- Field measurements should include depth to standing water and total depth of the well to the bottom of the intake screen.

- Prior to measurement, water levels in piezometers and wells should be allowed to stabilize for a minimum of 24 hours after well construction and development or well purging.

- Water level measurements from boreholes, piezometers, or monitoring wells used to define the water table or a single potentiometric surface should be collected within less than 24 hours.

4.2.8. Well Purging

The following procedures should be followed when purging wells:

- The purging method should ensure that all stagnant water is replaced by fresh formation water upon completion of the procedure.

- If the purged water is contaminated or if its chemistry is unknown, the water should be stored in appropriate containers until analytical results are available, at which time proper arrangements for disposal or treatment should be made.

- When purging a medium- to high-yielding well, the well should not be pumped dry if recharge causes the formation water to cascade vigorously down the sides of the screen.

- When purging a low yielding well, under no circumstances should the well be allowed to recover fully before sampling is started.

4.2.9. Sample Collection

- Monitoring well sampling should always progress from the well expected to be least contaminated to the well expected to be most contaminated. Samples to be analyzed for the most volatile constituents should be collected and containerized first.

- Equipment that minimizes agitation and reduces or eliminates contact with the atmosphere during sample transfer should be used.

- The following equipment or materials are not acceptable: neoprene fittings, PVC bailers, Tygon tubing, silicon rubber bladders, neoprene impellers, polyethylene, and Viton.

4.2.10. Bailers

The following precautions should be taken when using bailers:

- Bailers used in sampling groundwater from monitoring wells should be constructed of either fluorocarbon resin or stainless steel. Disposable single-use inert polyethylene bailers may also be used. The cable used to raise and lower the bailer should also be an inert material or coated with an inert material.

- Bailers should never be dropped into a well and should be removed in a manner that causes as little agitation as possible.

4.2.11. Sample Preservation

- Chemical preservatives should be added to the samples in the field.

- A temperature history of the samples should be maintained. Upon receipt of a shipment, the laboratory should record the temperatures on the chain of custody record;

- The laboratory should record the date/time sampled, the date/time received, the date/time extracted, and the date/time analyzed for all samples received.

- Samples should not be filtered in the field or transferred from one sample container to another unless approved by DEQ.

- No headspace should exist in the containers of samples containing volatile organics.

4.2.12. Borehole Location and Sampling Strategy

- Borings should be located so that reasonably accurate cross-sections can be constructed.

- Borehole samples should be collected with a shelby tube, split barrel sampler, rock corer, or other appropriate device and should be described in the field by a professional experienced in geology. Concise drilling logs and field records should be kept.

- Samples should be collected from all borings at intervals equal to 10% of the total depth of the borehole and should be collected wherever contamination is suspected.

- Borings in which permanent wells are not installed and wells being abandoned should be sealed with material at least an order of magnitude less permeable than the surrounding soil.

4.3. *Data Management Plan*

A Data Management Plan should be developed to document and track the RFI data and results. This plan should identify and set up data documentation materials and procedures, project file requirements, and progress reporting procedures and documents. The plan should also describe the format for presenting the raw data and conclusions of the investigation.

4.3.1. Data Record

The data record should include the following:

- Unique sample or field measurement code;

- Sampling or field measurement location and sample or measurement type;
- Sampling or field measurement raw data;
- Laboratory analysis ID number;
- Property or component measures; and
- Result of analysis (e.g. concentration).

4.3.2. Tabular Displays

The following data should be presented in tabular displays:

- Unsorted (raw) data;
- Results for each medium, or for each constituent monitored;
- Data reduction for statistical analysis, as appropriate;
- Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and
- Summary data.

4.3.3. Graphical Displays

The following data should be included in the Data Management Plan and may be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transits, three dimensional graphs, etc.):

- Sampling location and sampling grid;
- Boundaries of sampling locations and areas where more data are required;
- Geographical extent of contamination;
- Contamination levels, averages and maxima;
- Sampling locations and levels of contamination at each;
- Changes in concentration in relation to distances from the source, time, depth or other parameters; and
- Features affecting inter-media or intramedia transport and potential receptors.

4.4. *Health and Safety Plan*

4.4.1. Respondent should prepare a Health and Safety Plan which includes the following:

- A facility description including the locations of roads, water supply, electricity, and telephone service;
- The known hazards and an evaluation of the risks associated with those hazards;
- Key personnel and alternates responsible for site safety, response operations, and the protection of public health;
- A description of the work area;
- Levels of protection to be worn by personnel;
- Procedures to control site access;
- Decontamination procedures for personnel and equipment;
- Site emergency procedures;
- Emergency medical care for injuries and toxicological problems;
- Requirements for an environmental surveillance program;
- Routine and special training required for responders; and
- Procedures for protecting workers from weather-related problems.

4.4.2. The Health and Safety Plan should be consistent with:

- NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (1985);
- EPA Order 1440.1 - Respiratory Protection;
- EPA Order 1440.3 - Health and Safety Requirements for Employees Engaged in Field Activities;
- Facility Contingency Plan;
- EPA Standard Operating Safety Guide (1984);
- OSHA regulations, particularly in 29 CFR 1910 and 1926;
- State and local regulations; and
- Other EPA guidance as provided.

** Note – DEQ will not approve or disapprove Respondent's Health and Safety Plan.

4.5. *Community Relations Plan*

A plan for the dissemination of information to the public, regarding investigation activities and results, should be prepared.

Attachment III.3
Scope of Work
Baseline Risk Assessment

1.0. **Introduction**
- Statement of the problem
- Site-specific objectives of the risk assessment
- Risk Assessment Report Organization

1.1. *Site Background*
- Site description
- Map of site
- Site History
- Current land use
- Regulatory Background
- Significant site reference points
- Description of SWMUs, AOCs, and other units considered in the risk assessment
- General sampling locations and media sampled
- Description of any interim corrective or stabilization measures

1.2. *Scope of Risk Assessment*
- Complexity of assessment
- Synopsis of study design

2.0. **Site Characterization**

2.1. *Summary of the Remedial Investigation Results*
- Soil/sediment/waste Investigation
- Surface Water Investigation
- Ground Water Investigation

3.0. **Data Usability**

3.1. *Site-Specific Data Collection Considerations*
- Identification of potential human exposure
- Identification of potential environmental exposure
- Groundwater, soils, and air modeling parameters
- Sampling locations and media sampled
- Sampling methods for each medium
- QA/QC methods for sample collection and analysis

3.2. *Study Areas for Which Media-Specific Samples Were Collected*
- Collection strategies for sampling in each area studied
- Evaluation of data collected
- Comparison of chemical concentrations with background samples
- Uncertainties in data

4.0. **Human Health Baseline Risk Assessment**

4.1. *Selection/Description of Chemicals of Potential Concern*

- Summary of applicable Data Usability in Section 2.0
- Comparison of maximum soil, groundwater, surface water, and sediment concentrations to screening and background levels
- Comparison of detection limits to screening or background levels
- Potential daughter products
- Final selection of human health COPCs

4.2. *Identify Receptors of Concern/Potentially Exposed Populations*

- Typical on- and off-site receptor types
- Relative locations and descriptions of populations with respect to site
- Current land uses adjacent to site
- Populations of concern which might be or are being affected by site contaminants

4.3. *Characterization of Exposure Setting*

- Climate
- Vegetation
- Soil types
- Surface water hydrology
- Ground water hydrology

4.3.1. Identification of Exposure Pathways

- Contaminant sources- primary and secondary
- Media receiving contamination on- and off-site
- Fate and transport of contaminants in media
- Exposure points and exposure routes
- Integration of sources, releases, fate and transport mechanisms, exposure points, and exposure routes into complete exposure pathways
- Summary of exposure pathways to be quantified
- Current and potential future receptors
- Conceptual site model

4.4. *Risk Analysis*

4.4.1. Exposure Assessment

4.4.1.1. Quantification of Exposure

- Exposure Point Concentrations
- Chemical intake estimates for individual exposure pathways

4.4.1.2. Summary of Exposure Assessment

4.4.2. Toxicity Assessment

4.4.2.1. Toxicity Information for Non-carcinogenic Effects

- Appropriate exposure periods for toxicity values
- Latest Reference Dose (RfD) for all chemicals

- Reference Concentration (RfC) for all chemicals
- One- and ten-day health advisories for shorter term oral exposures
- Overall database and the critical study on which the toxicity value is based
- Effects that may appear at doses higher than those required to elicit critical effect
- Consideration of absorption efficiency

4.4.2.2. Toxicity Information for Carcinogenic Effects
- Exposure averaged over lifetime
- Latest slope factors for all carcinogens
- Weight-of-evidence classification for all carcinogens
- Concentrations above which the dose-response curve is no longer linear

4.4.2.3. Chemicals for Which No EPA Toxicity Values Are Available
- Qualitative evaluation
- Documentation/justification of any new toxicity values

4.4.2.4. Uncertainties Related To Toxicity Information
- Quality of individual studies
- Completeness of overall database
- Uncertainty Factors
- Modifying Factors

4.4.2.5. Summary of Toxicity Information

4.5. *Risk Characterization*

4.5.1. Current Land-Use Conditions
- Carcinogenic risk of individual substances
- Chronic hazard quotient calculation for individual substances
- Subchronic hazard quotient calculation for individual substances
- Shorter-term hazard quotient calculation for individual substances
- Carcinogenic risk for multiple substances
- Chronic hazard index for multiple substances
- Subchronic hazard index for multiple substances
- Shorter-term hazard index calculation for multiple substances
- Segregation of hazard indices
- Justification for combining risks across pathways
- Non-carcinogenic hazard index (multiple pathways)
- Carcinogenic risk (multiple pathways)

4.5.2. Future Land-Use Conditions
- Carcinogenic risk of individual substances
- Chronic hazard quotient calculation for individual substances
- Subchronic hazard quotient calculation for individual substances
- Shorter-term hazard quotient calculation for individual substances
- Carcinogenic risk for multiple substances

- Chronic hazard index for multiple substances
- Subchronic hazard index for multiple substances
- Shorter-term hazard index calculation for multiple substances
- Segregation of hazard indices
- Justification for combining risks across pathways
- Non-carcinogenic hazard index (multiple pathways)
- Carcinogenic risk (multiple pathways)

4.5.3. Uncertainties

- Site-specific uncertainty factors
- Definition of physical setting
- Model applicability and assumptions
- Parameter values for fate/transport and exposure calculations
- Summary of toxicity assessment uncertainty
- Identification of potential health effects
- Derivation of toxicity value
- Potential for synergistic or antagonistic interactions
- Uncertainty in evaluating less-than-lifetime exposures

4.5.4. Summary Discussion and Tabulation of Risk Characterization

- Key site-related contaminants and exposure pathways
- Types of health risks of concern
- Level of confidence in the quantitative information used to estimate risk
- Presentation of qualitative information on toxicity
- Confidence in the key exposure estimates for key exposure pathways
- Magnitude of the carcinogenic and non-carcinogenic risk estimates
- Major factors driving risk
- Major factors contributing to uncertainty
- Exposure human population characteristics
- Comparison with site-specific health studies

4.6. *Human Health Risk Assessment References*

5.0. **Ecological Risk Assessment**

5.1. *Problem Formulation*

5.1.1. Selection of Ecological COPCs (Screening Level ERA)

- Summary of Applicable Data Usability in Section 2.0
- Comparison of maximum soil, groundwater, surface water and sediment concentrations to screening or background levels
- Comparison of detection limits to screening levels
- Inclusion of bioaccumulative chemicals
- Final selection of ecological COPCs

5.2. *Ecological Setting*

- Climate
- Vegetation
- Soil types
- Surface water hydrology
- Ground water hydrology
- Detailed habitat descriptions
- List of species observed or expected to occur
- Discussion of special status species

5.2.1. Conceptual Site Model

- Environmental setting
- Ecological COPCs
- Contaminant sources
- Media receiving contamination on-and off-site
- Fate and transport of contaminants in media
- Potential exposure pathways
- Current and potential future receptors
- Conceptual model diagrams

5.2.2. Assessment Endpoints

- Description of management goals
- Identification of assessment endpoints linked to management goals

5.2.3. Analysis Plan

- Risk hypotheses or questions
- Identification of measures (including measures of effect, measures of exposure, and measures of ecosystem and receptor characteristics)
- Brief description of site-specific biota surveys or toxicity tests that were conducted (complete study reports should be included as attachments)
- Selection of representative receptors (for wildlife, typically one avian and one mammalian species from each of the feeding guilds that are expected to be most highly exposed)
- Specify data quality objectives
- Outline weight-of-evidence framework

5.2.4. Risk Analysis

5.2.4.1. Exposure Assessment

- Exposure concentrations
- Exposure parameters
- Methods for estimating tissue concentrations (measured or modeled)
- Uptake factors (if applicable)
- Ingested dose, hazard quotient, and other relevant equations

5.2.4.2. Effects Assessment

- Toxicity reference values (TRVs) for abiotic media to protect community-level receptors such as plants, terrestrial invertebrates, benthic invertebrates and aquatic life
- Dose-based TRVs for wildlife
- Critical body residue TRVs (if applicable)
- Dietary TRVs for fish and/or wildlife (if applicable)

5.2.5. Risk Characterization

- Description of hazard quotient calculation methods
- Discussion of risks for each line of evidence
- Spatial analysis of risks for receptor with limited mobility (e.g. plants, invertebrates)
- Background comparison for inorganic compounds
- Weight-of-evidence analysis

5.2.6. Uncertainty Analysis

- Discussion of qualitative magnitude and direction of each uncertainty (uncertainty tendency to underestimate or overestimate risks)
- Conceptual model
- Exposure model applicability and assumptions
- Exposure concentrations
- Exposure parameters
- Toxicity values
- Potential for synergistic or antagonistic interactions

5.2.7. Ecological Risk Assessment Conclusions

5.3. *Ecological Risk Assessment References*

6.0. **Summary**

7.0. **Conclusions**

Attachment III.4
Corrective Measures Study (CMS)
Scope of Work

Table of Contents

Corrective Measures Study (CMS)
Scope of Work

1.0. **The Corrective Measures Study (CMS)**

The CMS is used to help determine which corrective measure is most appropriate for the facility. Sections 2.0 and 3.0 discuss the evaluation process for developing and recommending corrective measures alternatives. Section 4.0 and Section 5.0 outline the contents of the CMS Work Plan and Report.

2.0. **Evaluation of the Corrective Measure Alternatives**

2.1. *Corrective Action Objectives*

Corrective action objectives for the facility should be established. These objectives should be based on public health and environmental criteria, information gathered during the RFI, EPA guidance, and the requirements of any applicable federal and state statutes. The objectives should include the facility-specific purpose for the corrective action, identifying actual and/or potential exposure pathways to be addressed. Objectives established during the RFI should be used in developing objectives for the CMS.

2.2. *Screening of Corrective Measures Technologies*

The CMS should include a preliminary assessment of technologies which may be applicable at the facility. Corrective measure technologies should be screened to eliminate those that may prove infeasible to implement, rely on technologies unlikely to perform satisfactorily or reliably, or do not achieve the corrective measure objectives within a reasonable time period. The screening process should focus on elimination of technologies that have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations. Reasons for excluding any technology should be documented. Site, waste, and technology characteristics used to screen inapplicable technologies are described in more detail below:

2.2.1. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies that are clearly precluded by site characteristics may be eliminated from further consideration.

2.2.2. Waste Characteristics

A review of waste characteristics, including remediation waste, should be conducted. Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site). Technologies clearly limited by site waste characteristics may be eliminated from consideration.

2.2.3. Technology Limitations

During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or not fully demonstrated may be eliminated.

2.3. *Evaluation and Development of the Corrective Measure Alternatives*

Corrective measure alternatives should be developed based on the corrective action objectives and an analysis of the corrective measure technologies that pass the initial screening process. The corrective action alternatives developed in the CMS should represent a workable number of options that adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. Technology descriptions and information used to support Respondent's evaluation of the alternative corrective measures should be included in the CMS Report. Reasons for excluding any technology should also be documented. The evaluation of alternatives should be based on technical, environmental, human health and institutional concerns. A cost estimate should be developed for each corrective measure alternative.

2.3.1. Technical/Environmental/Human Health/Institutional

Respondent should evaluate each alternative from a technical, environmental, human health and institutional standpoint, following the guidelines presented below.

2.3.1.1. Technical

Each corrective measure alternative should be evaluated based on performance, reliability, implementability and safety.

2.3.1.1.1. Performance should be evaluated based on the effectiveness and useful life of the corrective measure:

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

- Useful life is defined as the length of time the level of desired effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure should be evaluated in terms of the projected service life of its component technologies. Resource availability in the future life of each technology, as well as appropriateness of each technology, should be considered in estimating the useful life of the project.

2.3.1.1.2. The reliability of each corrective measure should be evaluated based on its operation and maintenance requirements and its demonstrated reliability:

- Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements should also be considered.

- Demonstrated and expected reliability is a way of measuring the risk and effect of failure. Respondent should evaluate whether the technologies have been used effectively under analogous conditions, whether the combination of technologies have been used together effectively, whether failure of any one technology has an immediate impact on receptors, and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

2.3.1.1.3. The implementability of each corrective measure should be evaluated, including the relative ease of installation (constructability) and the time required to achieve a given level of response:

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

- Components of time should be addressed: 1) the time it takes to implement a corrective measure and 2) the time it takes to see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level.

- Respondent should evaluate each corrective measure alternative with regard to safety. This evaluation should include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2.3.1.2. Environmental

An environmental assessment should be performed for each alternative. The environmental assessment should focus on the facility conditions and pathways of contamination actually addressed by each alternative. The environmental assessment for each alternative should include, at a minimum, an evaluation of the short- and long-term beneficial and adverse effects of the response alternative, any adverse effects on environmentally sensitive areas, and an analysis of measures to mitigate adverse effects.

2.3.1.3. Human Health

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

2.3.1.4. Institutional Needs and Controls

The relevant institutional needs for each alternative should be assessed. Specifically, those needs include the effects of federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

2.3.2. Cost Estimate

An estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative) should be developed. The cost estimate should include both capital and operation and maintenance costs.

2.3.2.1. Capital Costs

Capital costs consist of direct (construction) and indirect (non-construction and overhead) costs.

2.3.2.1.1. Direct capital costs include:

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

- Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action. These materials remain until the corrective action is complete;

- Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

- Buildings and services costs: Costs of process and non-process buildings, utility connections, purchased services, and disposal costs.

2.3.2.1.2. Indirect capital costs include:

- Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

- Legal fees and license or Order costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

- Start-up and shakedown costs: Costs incurred during corrective measure start-up; and

- Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strike, and inadequate facility characterization.

2.3.2.2. Operation and Maintenance Costs

Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. Respondent should consider the following operation and maintenance cost components:

- Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

- Maintenance materials and labor cost: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

- Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

- Purchased service: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

- Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;

- Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

- Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accident insurance; real estate taxes on purchased land or right-of-way; licensing fees for certain technologies; and hazardous waste regulatory fees and reporting costs;

- Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

- Other costs: items that do not fit any of the above categories.

2.3.3. <u>Use of the Corrective Action Management Unit (CAMU)</u>

As a part of any corrective measures alternative, Respondent may propose designation of one or more remediation units under the provisions of 40 CFR 264, Subpart S. These units would include CAMUs, temporary units, and/or staging piles. Final designation of Subpart S units is made by DEQ.

3.0. **Recommending Corrective Measure(s)**

Once the evaluation process is complete, Respondent should justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation should include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors should be highlighted.

3.1. *Technical Criteria*

3.1.1. Performance - corrective measure(s) which are most effective at performing their intended functions and maintaining the performance over extended periods of time are preferred;

3.1.2. Reliability - corrective measure(s) which do not require frequent or complex operation and maintenance activities and that have proven effective with wastes, and under facility conditions similar to those anticipated, are preferred;

3.1.3. Implementability - corrective measure(s) which can be constructed and operated to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time are preferred; and

3.1.4. Safety - corrective measure(s) which pose the least threat to the safety of nearby residents, environments and workers during implementation are preferred.

3.2. *Human Health Criteria*

The corrective measure(s) must comply with existing EPA and State of Montana criteria, standards, and/or guidelines for the protection of human health. Corrective measures providing the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.

3.3. *Environmental Criteria*

The corrective measure(s) posing the least adverse impact (or greatest improvement) on the environment over the shortest period of time are preferred.

4.0. **CMS Work Plan**

The CMS Work Plan must meet the requirements of Module III and should include the elements outlined in this Attachment. Other pertinent EPA guidance may be used in work plan development. The work plan should present facility-specific objectives for remediation and the methods Respondent will use to develop and evaluate appropriate corrective measure alternatives. The work plan should also present criteria to be used in determining which alternative best meets the objectives.

4.1. *Contents of the CMS Work Plan*

The CMS Work Plan should include:

- Corrective action objectives for the facility;
- Specific problems or areas to be addressed;

- A description of the general approach to investigating and evaluating potential remedies;

- A description of the specific remedies and/or technologies to be studied;

- A description of how each potential corrective measure(s) and/or technology will be evaluated, including identification of data gaps, implementation of pilot tests or bench studies, etc.; and

- A schedule for completion for all tasks included in the CMS Work Plan.

5.0. **CMS Report**

A Corrective Measures Study Report should be prepared which presents the results of the Corrective Measures Study and includes a recommendation for a corrective measures alternative.

5.1. *Report Content*

The Report should, at a minimum, include:

5.1.1. Site Description

A description of the facility, including a site topographic map. The description should include the current situation at the facility and the known nature and extent of the contamination as documented by the RFI Report, as well as any previous response activities and/or interim measures that have or are being implemented;

5.1.2. RFI Summary

A summary of the RFI and its impact on the selected corrective measure(s), including the following information:

- Field studies (ground water, surface water, soil, air);

- Summary of human health and ecological risk assessments, if performed; and

- Laboratory studies (bench scale, pilot scale).

5.1.3. Corrective Measures Alternatives

The discussion of the corrective measures alternative should include the following:

- Description of the corrective measure(s), the results of the evaluation, and rationale for selection. Each corrective measure evaluated should be described, including those that did not pass the initial screening;

- Performance expectations, including media cleanup levels, points of compliance and remediation timeframes;

- Preliminary design criteria and rationale;

- General operation and maintenance requirements; and

- Long-term monitoring requirements.

5.1.4. Design and Implementation Precautions:

- Special technical problems;
- Additional engineering data required;
- Permits and regulatory requirements;
- Access, easements, right-of-way, and other institutional controls;
- Health and safety requirements; and
- Community relations activities.

5.1.5. Cost Estimates:

- Capital cost estimate;
- Operation and maintenance cost estimate.

5.1.6. Schedules

- Project schedule (design, construction, and operation).

Attachment III.5
Scope of Work
Interim Measures (IM) and Corrective Measures Implementation (CMI) Outline

1.0 **Engineering Design**
- Treatment Systems
- Containment Systems
- Cover Systems
- Monitoring Networks
- Security

2.0 **Operation And Maintenance**
- Treatment Systems
- Containment Systems
- Cover Systems
- Monitoring Networks

3.0 **Monitoring And Performance Monitoring**
- Location
- Frequency
- Sampling and Analysis

4.0 **Waste Management**
- On-Site Management
- Sampling and Analysis
- Disposition

5.0 **Health And Safety Plan**
- Same Requirements As Section 4.4 of Attachment III.2

6.0 **Schedule**
- Construction
- Operation
- Monitoring/Performance Monitoring
- Closure/Completion

7.0 **Remediation Goals**
- Description of Media Goals
- Time Frames for Achieving Goals

8.0 **Reporting**
- Types of Reports
- Reporting

9.0 **Public Participation**

- Major Changes to the Selected Corrective Measure(s)
- At Completion of Corrective Measure(s)

10.0 **Demonstration Of Financial Assurance And Cost Estimates**

- Cost Estimate for Corrective Measures Implementation
- Cost Estimate for Maintenance of Corrective Measures after Implementation

Attachment III.6
Compliance Schedule

Activity & Permit Condition(S)	Due Date
Compliance Reporting	
1. Notification of compliance or noncompliance with compliance schedules - Condition I.J.13.e.	Within 14 calendar days of due date
2. Notification of noncompliance - Condition I.J.13.f.	Oral notification within 24 hours; written notification within 5 calendar days
Newly Identified SWMUs/AOCs, and Newly Discovered Releases at Previously Identified SWMUs and AOCs	
3. Notification of newly identified SWMUs/AOCs or hazardous constituents - Condition III.D.1.	Within 15 calendar days of discovery
4. Submittal of SWMU/AOC Assessment Report - Condition III.D.2.	Within 60 calendar days of notification (See 2.)
5. Notification of newly discovered releases at previously identified SWMUs and AOCs - Condition III.E.1.	Within 15 calendar days of discovery
RCRA Facility Investigation	
6. Submittal of RFI Work Plan(s) for SWMUs and AOCs and Description of Current Conditions Report - Conditions III.A.5.a., III.D.3., III.E.2., III.G.1.a., and Attachment III.2	Within the timeframe specified by DEQ
6.a. Submittal of RFI Progress Reports - Condition III.G.4.	In accordance with the approved RFI Work Plan
6.b. Submittal of Draft RFI Report - Condition III.G.5.a.i.	In accordance with the approved RFI Work Plan
6.c. Submittal of Final RFI Report - Condition III.G.5.a.ii.	Within 45 calendar days after receipt of DEQ comments on RFI Report
Interim Measures	
7. Submittal of IM Work Plan - Condition III.H.1.a.	Within 30 calendar days of notification
7.a. Submittal of IM Progress Reports - Condition III.H.5.	In accordance with the approved IM Work Plan and at least quarterly
7.b. Submittal of IM Final Report - Condition III.H.6.	Within 45 calendar days of completion of IM or inclusion into Corrective Measures Implementation

Activity & Permit Condition(S)	Due Date
Corrective Measures Study	
8. Submittal of CMS Plan - Condition III.I.1.a.	Within the timeframe specified by DEQ
9. Submittal of Draft CMS Report - Condition III.I.4.a.i.	In accordance with the approved CMS Plan
10. Submittal of Final CMS Report - Condition III.I.4.a.ii.	Within 45 calendar days after receipt of DEQ comments on draft CMS Report
Corrective Measures Implementation	
11. Submittal of CMI Work Plan - Condition III.K.1.a.	Within 90 days of permit modification to incorporate the remedy
12. Implementation of Institutional and Land Use Controls - Condition III.K.3.	In accordance with the Institutional and Land Use Control Plan
13. Institutional and Land Use Controls – Survey Plat - Condition III.K.3.c.	No later than 60 days after DEQ approval of the completion of corrective measures
13.a. Documentation/Certification of Survey Plat filing to DEQ - Condition III.K.3.c.ii.	Within 30 calendar days after filing the survey plat with the local zoning authority or authority with jurisdiction over local land use, and county planner
14. Submittal of CMI Progress Reports - Condition III.K.6.	In accordance with the approved CMI Work Plan and at least quarterly
15. Submittal of Corrective Measures Completion Certification Report - Condition III.L.2.	Within 45 calendar days of completion of Corrective Measures
16. Facility-Wide Completion Certification Report – Condition III.L.4.	Within 60 days of completion of Corrective Measures for all SWMUs and AOCs listed in Attachment III.1a.